AFKARINA: Jurnal Pendidikan Agama Islam
Vol. 11 No. 1 (2026) : 246-257
DOI: https://doi.org/10.33650/afkarina.v11i1.15336
Available online at https://ejournal.unuja.ac.id/index.php/afkarina

Integrating Digital Learning to Enhance Learning Motivation in Early Childhood Education: Evidence from *Raudlatul Athfal*

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Article History:
Received: March 2026
Revised: April 2026
Accepted: May 2026
Published: Juni 2026

Keywords:
Digital Learning Integration, Learning Motivation, Early Childhood Education, Digital Learning Media, Interactive Learning

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Abstract:
This study aims to describe the integration of digital learning in improving early childhood learning motivation at RA Darul Ilmi Widang Tuban. The need for concrete, fun, interactive, and appropriate early childhood learning is very important, considering the characteristics of child development. This study uses a descriptive qualitative approach supported by simple quantitative data. The research subjects included the principal of an Islamic kindergarten, Group B teachers, and Group B students aged 5–6 years. Data collection techniques were carried out through interviews, observation, and documentation. Data were analyzed through data reduction, data presentation, drawing conclusions, and calculating the average score of children's learning motivation observations. The results showed that the integration of digital learning was carried out through the use of laptops, learning videos, educational applications, and interactive songs planned in the daily lesson plan, used two to three times a week, and placed in the opening, core activities, and closing stages. Digital media was not used as a substitute for play learning, but as a pedagogical stimulus combined with discussion, drawing, playing, and direct practice. This integration had a positive impact on children's learning motivation, which was evident in interest, attention, activeness, enthusiasm, pleasure, and perseverance.

INTRODUCTION

Early childhood education is fundamentally characterized by learning experiences that are concrete, playful, interactive, and meaningful (Khadijah et al., 2022; Majorano et al., 2023; Masykuroh et al., 2024). At this stage, children are not yet capable of engaging with abstract concepts independently; instead, they require multisensory stimulation—visual, auditory, kinesthetic, and social—to support holistic development (Su & Zhong, 2022; Tabroni et al., 2022; Urrea-Solano et al., 2021). Consequently, learning activities in early childhood education should not only aim at cognitive achievement but also foster curiosity, engagement, emotional enjoyment, and active participation. Within this context, learning media plays a crucial role in bridging children's concrete experiences with emerging conceptual understanding.

How to Cite:
Alfiani, L. F., Sholikhah, K., & Winnuly, W. (2026). Integrating Digital Learning to Enhance Learning Motivation in Early Childhood Education: Evidence from Raudlatul Athfal. *AFKARINA: Jurnal Pendidikan Agama Islam, 11*(1), 246-257.
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With the rapid development of educational technology, digital learning media has increasingly been introduced into early childhood classrooms (Macgilchrist et al., 2020; Yu, 2024; Zhao et al., 2023). Digital tools such as videos, interactive applications, digital songs, and animated content are considered capable of providing rich sensory stimulation that aligns with children's developmental characteristics (Terlich et al., 2024; Villalobos & Salazar, 2023). However, digital integration in early childhood education should not replace play-based learning (Madondo, 2021; Nurani et al., 2022). Rather, it must function as a pedagogical support tool that enriches learning experiences when appropriately designed, limited in duration, and guided by teachers. Prior studies emphasize that the effectiveness of digital technology in early childhood settings depends largely on instructional design, teacher facilitation, and alignment with developmental needs rather than the technology itself.

Learning motivation is a central construct in early childhood education because it reflects children's interest, attention, enthusiasm, enjoyment, activeness, and persistence during learning activities (Brey & Rooney, 2023; Kasmah et al., 2023; Prado et al., 2021). Unlike older learners, early childhood motivation is primarily observable through behavior rather than verbal expression. Research indicates that visually and auditorily engaging media may initially attract children's attention; however, sustained motivation is strongly influenced by teacher-mediated interactions, learning design, and the integration of meaningful play experiences.

Despite growing global and local evidence supporting the benefits of digital learning in early childhood education, most studies have focused on isolated technologies such as videos, applications, or digital games. Limited attention has been given to how multiple forms of digital media are systematically integrated into daily instructional processes within early childhood institutions, particularly in Raudhatul Athfal (Islamic kindergarten) contexts. Moreover, few studies have examined learning motivation using multidimensional behavioral indicators, including attention, interest, enthusiasm, enjoyment, activeness, and persistence, within a single analytical framework.

To address these gaps, this study investigates the integration of digital learning in RA Darul Ilmi Widang, Tuban, Indonesia. It explores how teachers design, implement, and combine digital media with play-based learning activities within daily lesson plans, as well as how such integration influences children's learning motivation. By situating digital learning within a structured pedagogical framework, this study contributes to the understanding that improved learning motivation is not merely the result of technology use, but rather the outcome of meaningful teacher–technology integration grounded in early childhood learning principles.

RESEARCH METHOD

This study employed a descriptive qualitative design supported by simple quantitative data to explore the integration of digital learning in enhancing early childhood learning motivation (Maxwell, 2020). The qualitative approach was used to obtain an in-depth understanding of pedagogical practices, while the quantitative component was utilized to describe children's learning motivation based on observable behavioral indicators. The research was conducted at RA Darul Ilmi, located in Tegalsari Village, Widang District, Tuban Regency Indonesia.

The participants of this study included the head of the institution, teachers of Group B, and children aged 5–6 years. Key informants were the head of RA, Kholifatul Husna, S.Pd.I., and a Group B teacher, Murjiati, S.Pd., who were directly involved in planning and implementing digital learning activities. The selection of informants was based on their strategic roles in instructional decision-making and classroom practice.

Data were collected through semi-structured interviews, classroom observations, and documentation. Interviews were conducted to explore the forms of digital learning integration, types of digital media used, instructional objectives, teacher roles, perceived impacts on children's learning motivation, as well as supporting and inhibiting factors. Classroom observations were carried out to examine children's learning motivation during digital learning activities using six behavioral indicators: interest, attention, activeness, enthusiasm, enjoyment, and persistence. Documentation analysis was used to complement the data, including institutional profiles, curriculum documents, lesson plans (RPPH), learning activity records, and photographic evidence.

Data analysis followed the interactive model of qualitative analysis, consisting of data reduction, data display, and conclusion drawing (Younas et al., 2023). Qualitative data from interviews and documentation were analyzed thematically based on the research focus, while observational data were analyzed using descriptive statistics by calculating scores and mean values of children's learning motivation. To ensure data validity, triangulation techniques were applied, including source triangulation and method triangulation. Data were cross-checked among different informants (head of institution, teachers, and classroom observations) and across different data collection methods to enhance credibility and trustworthiness of the findings.

FINDINGS AND DISCUSSION

Integration of Digital Learning

The findings of this study indicate that the integration of digital learning at RA Darul Ilmi is implemented through the use of various digital media that are developmentally appropriate for early childhood learners. The digital tools utilized by teachers include laptops, instructional videos, educational applications, and interactive songs sourced from online platforms. Rather than functioning as standalone instructional tools, these media are systematically aligned with learning themes, instructional objectives, and children's developmental needs to support concrete and enjoyable learning experiences.

Teachers reported that digital learning tools are used as part of their pedagogical strategy to create more engaging classroom environments. One teacher stated, "I use laptops, learning videos, educational applications, and interactive songs from the internet." This statement reflects that digital media has been integrated into classroom practice as a complementary instructional resource rather than a replacement for conventional early childhood learning approaches. In practice, digital media is designed to enrich learning through visual, auditory, and interactive stimulation that is closely aligned with children's everyday experiences.

Field evidence further shows that digital media use is planned and controlled. Digital learning is implemented approximately two to three times per week and is explicitly embedded within the Daily Lesson Plan (RPPH) to ensure

alignment with thematic learning. Teachers apply digital media at different stages of instruction, including the opening phase to capture children's attention, the core learning phase to support concept explanation, and the closing phase to reinforce understanding. As stated by a teacher, "I use it as a learning aid, for example by showing a video related to the theme and then continuing with discussion or practical activities." This demonstrates that digital learning is not limited to passive viewing activities but is extended through follow-up tasks such as discussion, play-based learning, drawing, and hands-on practice. This instructional pattern reflects the core principles of early childhood education, which emphasize active participation, experiential learning, and play-based engagement.

From an academic perspective, this integration pattern indicates that digital technology functions primarily as an initial stimulus to stimulate children's curiosity and attention rather than as the central mode of instruction. Digital media such as videos, interactive songs, and educational applications support children in constructing initial understanding, recognizing concepts, and connecting learning content with concrete experiences. After receiving digital stimulation, teachers guide children toward non-digital activities such as storytelling, drawing, collaborative play, and direct practice. This approach is essential because early childhood learning is fundamentally multisensory, requiring physical movement, social interaction, and direct exploration of the environment. In this sense, digital technology operates as a pedagogical bridge between abstract concepts and concrete experiences. This finding is consistent with early childhood education principles that emphasize holistic child development, including cognitive, language, socio-emotional, motor, and creative domains under guided teacher facilitation in Table 1.

Table 1. Integration Aspect

Integration Aspect	Field Findings	Academic Interpretation
Digital media used	Laptops, instructional videos, educational applications, interactive songs	Digital media serves as visual-auditory learning stimuli
Frequency of use	2–3 times per week	Technology use is limited and carefully controlled
Instructional planning	Integrated into Daily Lesson Plans (RPPH) and aligned with themes	Digital integration is structured and intentional
Position in learning stages	Used in opening, core, and closing activities	Supports a complete instructional cycle
Instructional approach	Combined with play, discussion, drawing, and hands-on activities	Technology strengthens experiential and meaningful learning

This finding is also aligned with the institutional curriculum orientation of RA Darul Ilmi, which emphasizes active, creative, innovative, and enjoyable learning. The curriculum explicitly highlights the integration of digital technology in teaching and learning processes, alongside the development of 21st-century skills, literacy, character education, and student competencies. Therefore, the observed classroom practices are institutionally grounded rather than incidental. The coherence between curriculum documents, lesson planning (RPPH), and classroom implementation reflects strong alignment between institutional policy and pedagogical practice. From the perspective of early childhood education

theory, appropriate digital integration must remain limited, structured, interactive, and grounded in play-based learning principles. Therefore, the practices observed at RA Darul Ilmi can be interpreted as pedagogically balanced digital integration, in which technology functions as a supportive tool that enriches play-based learning rather than replacing it.

Implementation of Digital Learning in Classroom Activities

The implementation of digital learning at RA Darul Ilmi is systematically integrated into the structured flow of early childhood learning activities, comprising the opening, core, and closing stages of instruction. Digital media is not used randomly, but rather strategically positioned to align with pedagogical objectives at each stage of learning. This structured integration reflects a deliberate instructional design that supports children's cognitive and affective engagement throughout the learning process.

At the opening stage, digital media is primarily used to capture children's attention, stimulate curiosity, and create a positive learning atmosphere. Teachers utilize short videos, interactive songs, and visual presentations aligned with the learning theme to prepare children for engagement. One teacher explained, "It is usually used at the beginning to attract attention, during the core activity for explanation, and at the end for reinforcement." This statement indicates that digital media is intentionally embedded within the instructional structure. In early childhood education, the opening phase is critical for establishing children's psychological readiness; therefore, visually and auditorily rich stimuli play a significant role in enhancing focus, motivation, and readiness to learn.

During the core learning activities, digital media is used to support concept clarification and thematic understanding through dynamic visual and auditory representations such as animated videos, songs, and illustrative content. For example, in learning themes related to the environment, teachers present videos about nature, followed by guided discussions, question-and-answer sessions, drawing activities, and hands-on practice. This demonstrates that digital learning is not limited to passive viewing but is extended into active, participatory learning experiences. Teachers consistently integrate digital media with play-based strategies, ensuring that children are engaged in meaning-making processes rather than passive consumption of information. This approach aligns with early childhood education principles that emphasize multisensory engagement, social interaction, and experiential learning, where digital media functions as an entry point to conceptual understanding that is later reinforced through concrete activities.

In the closing stage, digital media is used as a reinforcement tool to consolidate learning outcomes. Teachers may replay songs, revisit short video segments, or prompt children to recall and reflect on learning experiences. At this stage, the teacher plays a central role in guiding reflection, connecting digital content with lived learning experiences, and ensuring that learning objectives are achieved. As stated by a teacher, "As a companion, guide, and controller so that children remain focused." This highlights that instructional control remains firmly with the teacher rather than the technology. Such mediation is particularly important in early childhood settings, where unstructured or unguided use of digital media may lead to distraction. At RA

Darul Ilmi, teachers position digital tools as supportive learning instruments, while maintaining instructional interaction, communication, and guidance as the core of the learning process.

In Figure 1, the implementation of digital learning at RA Darul Ilmi can be conceptualized as a form of blended pedagogical practice in early childhood education, combining digital media with direct interaction, play-based learning, discussion, and hands-on activities. This integration demonstrates that digital learning does not replace foundational principles of early childhood education but rather enriches learning experiences by providing multisensory stimuli that are translated into meaningful real-world activities. This pedagogical alignment is consistent with the institutional curriculum, which emphasizes active, creative, innovative, and enjoyable learning supported by appropriate use of educational technology.

Figure 1. Implementation of Learning Activities with Digital Media

Early childhood learning is most effective when children are provided with concrete, meaningful, and teacher-guided experiences. Therefore, the implementation observed in this study reflects a balanced pedagogical approach in which digital technology is used to enhance attention, clarify concepts, and reinforce learning, while teachers remain the primary facilitators of the learning process.

Table 2. Implementation of Digital Learning Across Learning Stages

Learning Stage	Use of Digital Media	Teacher Role	Pedagogical Impact
Opening	Short videos, interactive songs, theme-based visuals	Attracting attention and preparing learners	Increased focus, curiosity, and learning readiness
Core Activities	Videos, songs, and visuals for concept explanation	Facilitating discussion, Q&A, play, and practice	Concept understanding through visual and concrete experiences
Closing	Replaying songs/videos for reinforcement	Guiding reflection and recall of learning content	Strengthened conceptual retention in an enjoyable way
Overall Process	Integration of digital media with direct interaction	Facilitator, guide, and learning controller	Structured, meaningful, and non-technology-dependent learning

Table 2 illustrates that digital learning at RA Darul Ilmi is implemented in a structured and purposeful manner across all stages of instruction. Digital media serves different pedagogical functions at each stage: attention activation in the opening phase, conceptual support during core activities, and reinforcement in the closing phase. Throughout the process, teachers maintain a central role in ensuring that digital media remains pedagogically appropriate, developmentally suitable, and aligned with early childhood learning principles.

Supporting and Inhibiting Factors of Digital Learning Integration

The successful integration of digital learning at RA Darul Ilmi is influenced by a combination of supporting and inhibiting factors. Key supporting factors include the availability of school facilities, teacher readiness, and children's positive response to digital media. The principal stated that the school has provided basic infrastructure such as laptops and projectors, along with simple training to support teachers in integrating technology into classroom practice. Furthermore, teachers emphasized, "The supporting factors are the availability of facilities, teachers' willingness to learn, and children's interest in technology." This statement highlights that effective integration is determined not only by the availability of technology, but also by the readiness of human resources and student engagement. Children's natural attraction to visual, audio, video, and song-based interactive media serves as a significant pedagogical advantage, as these stimuli are effective in capturing attention and creating a fun learning experience when properly guided by teachers.

Conversely, the implementation of digital learning also faces several obstacles that must be carefully addressed. Key challenges include limited device availability, technical glitches, uneven teacher digital competency, and the risk of children over-engaging with digital devices. The principal noted, "The main obstacles are limited equipment, technical issues, and uneven teacher competency." Teachers also acknowledged that limited infrastructure limits the optimal use of digital media in daily teaching. This constraint suggests that digital learning in early childhood education settings should not be understood solely as a matter of providing technological tools, but rather as a complex interaction between infrastructure readiness, teacher pedagogical competence, and classroom management capacity. Furthermore, the risk of over-reliance on digital devices is particularly significant in early childhood education, where children still need concrete experiences, physical activity, social interaction, and play-based learning as fundamental developmental processes.

These findings indicate that the integration of digital learning at RA Darul Ilmi requires a balanced synergy between infrastructure, teacher competence, and pedagogical control. While facilities such as laptops and projectors provide essential basic support, learning effectiveness is ultimately determined by teachers' ability to select appropriate media, manage usage duration, connect digital content to learning themes, and transition learning into practical activities such as play, discussion, drawing, and practice. This aligns with the principles of early childhood education, which emphasize that technology should be used in a limited, structured manner, and under teacher supervision.

From a pedagogical perspective, digital learning in this context is effective only when technology is positioned as a complementary tool rather than the central medium of instruction. The findings further suggest that strengthening

digital learning implementation requires not only infrastructural improvement but also continuous teacher professional development and careful monitoring of technology use to ensure it remains developmentally appropriate.

Table 3. Supporting and Inhibiting Factors of Digital Learning Integration

Aspect	Field Findings	Pedagogical Implications
School facilities	Availability of laptops and projectors	Supports visual and audio-based learning activities
Teacher support	Teachers show willingness to learn technology	Enhances adaptability in digital learning implementation
Children's interest	High interest in videos, songs, and interactive media	Serves as an initial stimulus for attention and engagement
Limited devices	Insufficient number of digital tools	Restricts optimal implementation of digital learning
Technical issues	Occasional device or connectivity problems	Requires alternative non-digital learning strategies
Teacher competence	Uneven digital literacy among teachers	Necessitates continuous training and mentoring
Risk of gadget distraction	Children may become overly focused on devices	Requires strict time regulation and teacher supervision

Table 3 illustrates that digital learning integration operates within a dual structure of opportunities and challenges. On one hand, institutional support, teacher motivation, and children's enthusiasm function as key enabling factors. On the other hand, infrastructural limitations, technical constraints, and uneven teacher competencies represent significant barriers that need to be managed strategically. Therefore, the success of digital learning at RA Darul Ilmi largely depends on the institution's capacity to transform supporting factors into instructional strengths while effectively mitigating the impact of inhibiting factors to ensure high-quality early childhood learning experiences.

Discussion

The digital learning in early childhood education functions most effectively when it is positioned as a pedagogical complement rather than a replacement for play-based learning. Digital media such as videos, interactive songs, and educational applications are systematically integrated into lesson planning and aligned with thematic learning objectives. This indicates that teachers are not merely users of technology, but instructional designers who adapt digital tools to developmental needs. Such an approach reflects a constructivist orientation in which children build understanding through multisensory experiences supported by teacher guidance. Research on early childhood digital integration emphasizes that technology contributes positively when embedded within structured pedagogical practices and developmentally appropriate strategies (Nurani et al., 2022; Syarifudin & Muttaqin, 2025; Urrea-Solano et al., 2021). In this context, digital media acts as a stimulus that enhances curiosity and engagement before children transition into concrete, hands-on learning activities (Fauzi et al., 2025). Therefore, the effectiveness of digital learning is determined not by the sophistication of the technology, but by how intentionally it is integrated into early childhood pedagogy.

Digital learning at RA Darul Ilmi follows a structured instructional sequence consisting of opening, core, and closing activities. This structured implementation ensures that digital media serves different pedagogical functions

at each stage, including attention activation, concept explanation, and learning reinforcement. In the opening phase, audiovisual media prepares children psychologically for learning, while in the core phase, it supports conceptual understanding through visual representation. In the closing phase, it strengthens memory retention through repetition and reflection. This staged integration reflects an organized instructional design consistent with early childhood learning principles that emphasize rhythm, repetition, and engagement. Previous studies have shown that multimodal learning environments improve attention and comprehension in young learners when guided by teacher mediation (Ismail et al., 2024; Mutmainnah et al., 2024; Ridlo & Yanti, 2024). In this study, teachers maintain control over the learning process, ensuring that digital exposure is always followed by discussion, play, and experiential activities (Faiz et al., 2023; Narisin et al., 2023). This indicates that digital learning functions as part of a blended pedagogical system rather than an isolated instructional method.

Children's learning motivation increases when digital media is used as a learning stimulus. Indicators such as attention, enthusiasm, enjoyment, and active participation were observed to improve during digital-based learning activities. This aligns with the idea that early childhood learners respond strongly to visual and auditory stimulation, which helps sustain initial engagement. However, motivation in this context is not solely generated by technology, but by the interaction between media, teacher facilitation, and learning environment. Teachers play a central role in maintaining engagement by guiding discussion, encouraging participation, and linking digital content to real-life experiences. Sustained learning motivation in early childhood is strongly influenced by teacher scaffolding and interactive learning environments rather than technology alone (Masdul et al., 2024; Mastikawati et al., 2022; Nezhad et al., 2024). In RA Darul Ilmi, digital media acts as an entry point for engagement, while motivational sustainability is ensured through active, playful, and socially interactive learning experiences.

The availability of basic infrastructure such as laptops and projectors, along with teachers' willingness to learn, provides a foundation for implementation. In addition, children's positive response to digital media strengthens its classroom effectiveness. However, challenges such as limited devices, uneven teacher competence, and technical disruptions restrict optimal implementation. These findings indicate that digital transformation in early childhood settings requires more than infrastructure provision; it also demands continuous professional development and institutional readiness. Effective digital learning in early education depends on teacher capacity building and equitable access to resources (Ataman & Safitri, 2024; Saleha et al., 2022; Subhan et al., 2025). In RA Darul Ilmi, these factors create a dual condition where potential benefits coexist with structural limitations. Therefore, sustainability of digital integration depends on how schools manage resources, provide training, and establish adaptive strategies to ensure continuity of learning despite technical constraints.

The final discussion emphasizes that digital learning in early childhood education must remain firmly grounded in developmental appropriateness and play-based principles. Although digital tools enhance engagement and provide rich learning stimuli, excessive or unstructured use may reduce social interaction, creativity, and physical activity. Teachers mitigate this risk by limiting usage

frequency and integrating digital media with hands-on activities such as drawing, discussion, and play. This balanced approach ensures that children remain active participants in the learning process rather than passive consumers of digital content. The findings of this study reinforce the argument that digital learning is most beneficial when it is embedded within a holistic pedagogical framework that prioritizes child development, teacher mediation, and interactive learning experiences.

CONCLUSION

The integration of digital learning at RA Darul Ilmi is implemented in a structured and pedagogically grounded manner, where digital media is used as a complementary tool rather than a replacement for play-based learning. Digital resources such as videos, interactive songs, and educational applications are systematically embedded into lesson plans and applied across the opening, core, and closing stages of learning to support attention, concept understanding, and reinforcement. The findings further indicate that digital learning contributes positively to children's learning motivation, reflected in increased interest, attention, enthusiasm, enjoyment, activeness, and persistence, although its effectiveness is strongly mediated by teacher facilitation. Supporting factors such as available infrastructure, teacher readiness, and children's positive response enhance implementation, while limitations in facilities, varying teacher competencies, and technical constraints remain challenges. The study emphasizes that the success of digital learning in early childhood education depends on balanced pedagogical integration, where technology is carefully controlled, developmentally appropriate, and consistently aligned with play-based learning principles to ensure meaningful and holistic learning experiences.

ACKNOWLEDGMENT

The author would like to express sincere gratitude to the Head of RA Darul Ilmi Widang Tuban for granting permission and supporting the implementation of this research.

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