

THE INTEGRATION OF DIGITAL AL-QUR'AN APPLICATION AS A MEANS OF ISLAMIC LITERACY FOR MADRASAH IBTIDAIYAH STUDENTS IN THE DIGITAL ERA

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Abstract

Digital transformation in the world of education has had a significant impact on Islamic Religious Education (IRE) learning in Madrasah Ibtidaiyah. This article aims to examine the forms of integration, challenges, and contributions of using digital Al-Qur'an applications in strengthening students' Islamic literacy in MI. The method used is a literature review with a qualitative-descriptive approach through the analysis of academic documents, digital data, and user reviews of the application. The findings indicate that interactive features such as audio recitation, visual tajwid guidance, and gamification support the strengthening of students' Islamic literacy in terms of text, values, and practices contextually and engagingly. However, its effectiveness is highly dependent on the accuracy of content, equitable access to technology, and pedagogical guidance from teachers and parents. Therefore, the integration of digital Al-Qur'an applications must be designed holistically and strategically to align with the objectives of Islamic Education (PAI) and Islamic educational values at the primary level.

Keywords: *Islamic literacy, digital Qur'an applications, Madrasah Ibtidaiyah, PAI Learning, technology-based Islamic education.*

Abstrak

Transformasi digital dalam dunia pendidikan telah memberikan dampak signifikan terhadap pembelajaran Pendidikan Agama Islam (PAI) di Madrasah Ibtidaiyah. Artikel ini bertujuan untuk mengkaji bentuk integrasi, tantangan, dan kontribusi penggunaan aplikasi Al-Qur'an digital dalam memperkuat literasi Islam siswa di MI. Metode yang digunakan adalah kajian pustaka dengan pendekatan deskriptif-kualitatif melalui analisis dokumen akademik, data digital, dan ulasan pengguna terhadap aplikasi tersebut. Temuan menunjukkan bahwa fitur interaktif seperti audio tilawah, panduan tajwid visual, dan gamifikasi turut mendukung penguatan literasi Islam siswa dari aspek teks, nilai, dan praktik secara kontekstual dan menarik. Namun demikian, efektivitasnya sangat bergantung pada keakuratan konten, akses teknologi yang merata, serta bimbingan pedagogis dari guru dan orang tua. Oleh karena itu, integrasi aplikasi Al-Qur'an digital perlu dirancang secara holistik dan strategis agar selaras dengan tujuan Pendidikan Agama Islam (PAI) dan nilai-nilai pendidikan Islam pada jenjang dasar.

Kata Kunci: literasi Islam, aplikasi Al-Qur'an digital, Madrasah Ibtidaiyah, pembelajaran PAI, pendidikan Islam berbasis teknologi.

Received : 2025-05-02

Approved : 2025-06-01

Revised : 2025-05-22

Published : 2025-06-30

Introduction

The development of information and communication technology (ICT) in Indonesia has had a significant impact on the world of education, including Islamic-based basic education such as a Madrasah Ibtidaiyah (MI). According to a report by Indonesian Internet Service Providers Association (APJII), the national internet penetration rate in 2024 will reach 79.5%, marking a digital era that is increasingly integrated in people's lives, including in teaching and learning activities. This digital transformation not only changes the way learners access information, but also encourages a paradigm shift in Islamic religious education learning (Zuhriyeh 2025). One prominent phenomenon is the increasing use of digital Al-Qur'an applications that offer various features such as interactive recitation, audio-based memorization, tajwid learning, to multimedia-based tafsir understanding (Zaki Engku Alwi 2014). The existence of hundreds of digital applications presents a great opportunity for pedagogical innovation in MI, but at the same time, demands selective and contextual integration to remain in line with the values of Islamic education and the national curriculum (Sanusi 2024).

In the context of Islamic education learning in MI, Qur'anic literacy has complex dimensions (Muslim 2024). Literacy is not only limited to technical aspects of reading the hijaiyah letters, but also includes understanding the meaning of the verse, appreciating Islamic values, and practicing them in everyday life (Imam Taufiq Akbar 2023). MI, as an Islamic basic education institution, plays a fundamental role in shaping children's religious foundations from an early age, so that innovative, contextual, and adaptive learning approaches to technological developments are an inevitable need (Karimah 2024). Several studies have shown that technology integration in PAI learning positively contributes to increased learning motivation, material understanding, and learner engagement in the learning process (Azman 2025). However, literature that specifically examines the effectiveness of digital Al-Qur'an applications in improving the Islamic literacy of MI students is still limited, thus creating an urgency to present a more focused and in-depth study in this area (M. Yudo Agresi Akbari 2024).

Based on this background, this study aims to examine the potential, form of utilization, and impact of using digital Al-Qur'an applications in PAI learning in Madrasah Ibtidaiyah. This study places digital applications not merely as technological aids, but as strategic media that can shape a more interactive and meaningful religious learning experience. The scientific novelty of this study lies in its evaluative-descriptive approach to the phenomenon of Qur'anic-based technology integration at the basic education level. Thus, the problem formulations raised in this study are: First, how is the integration of the Qur'an digital application as a means of learning PAI in building Islamic literacy in MI? Second, what are the challenges and opportunities faced in integrating the digital application of the Qur'an as a means of learning Islamic literacy in MI? Third, to what extent does the use of digital Qur'an applications contribute to strengthening the Islamic literacy of MI students in the digital era? This research is expected to enrich the literature in the field of Islamic education technology and provide applicable recommendations for teachers, application developers, and policymakers in designing Islamic education learning strategies that are relevant to the characteristics of the digital era.

Research Method

This study employed a qualitative approach using a library research method aimed at exploring a wide range of written sources related to the use of digital Qur'an applications in Islamic learning at the Madrasah Ibtidaiyah (MI) level. The research was conducted from April to June 2025 in Semarang, Central Java, with data collection carried out online. Document selection followed a purposive sampling strategy with the following inclusion criteria: (1) direct relevance to the use of digital Qur'an applications in MI learning contexts, (2) credible authorship and publication quality, and (3) sufficient data content for thematic analysis.

The research procedure was structured through several systematic steps: (1) literature search via academic databases such as Google Scholar, DOAJ, and Garuda, as well as official repositories; (2) relevance-based document screening; (3) initial classification into thematic categories (e.g., pedagogical, interactive, integrative); (4) critical content review to extract main ideas, pedagogical value, and application context; and (5) thematic coding and synthesis to identify key patterns and findings. The data analyzed consisted of secondary sources, including academic texts, statistical reports, and user reviews describing the features and usage of digital Qur'an applications. To guide the analysis, a document review framework was developed, referring to indicators of educational technology use in Islamic contexts. These include pedagogical relevance, user interactivity, curriculum integration, source credibility, and real-world user insights. The categorization of these analytical dimensions is summarized in Table 1.

Table 1. Research Methodology Framework Table

Category	Examples of Criteria
Pedagogical Relevance	Aligned with MI learning objectives
Interactive Features	Includes audio, visual, and gamification
Curriculum Integration	Fits with the national Islamic curriculum
Academic Source Credibility	Authored by scholars, peer-reviewed journals
User Review Insights	User experiences from the Play Store & websites

The data were analyzed descriptively and critically by reducing irrelevant content, identifying dominant themes, and interpreting the significance of findings, considering the study's focus. This approach not only provided a phenomenological overview but also offered a synthesized understanding of the transformation of Islamic literacy in MI students within the digital era. The strength of this literature-based methodology lies in its ability to integrate multiple authoritative perspectives to construct a conceptual framework that is contextually grounded, pedagogically sound, and applicable to current Qur'anic learning strategies.

Results and Discussion

Form of Integration of Digital Al-Qur'an Applications as a Means of Islamic Education Learning in Building Islamic Literacy in Madrasah Ibtidaiyah

The results of searches from various digital platforms, such as Google Play Store and Islamic educational sites, show that digital Al-Qur'an applications have undergone a significant transformation as a means of learning PAI in Madrasah Ibtidaiyah.

Applications such as *Learning Iqro with Audio*, *Qara'a*, and *BeHafizh* integrate audio-visual features, memorisation tracking, and self-evaluation systems that can answer the needs of digital-based religious literacy learning. Features such as auto-repetition, interactive pronunciation, and gamification provide greater flexibility and engagement in the context of individualised and home-based learning.

Table 2. Contribution of Digital Al-Qur'an Apps to Islamic Literacy Dimensions

Literacy Dimension	Application Features	Contribution
Textual (Cognitive)	Audio hijaiyah, tajwid markers, Iqra exercises	Enhances recognition, pronunciation, and reading fluency of Qur'anic text
Value-based (Affective)	Colored tajwid, visual commentary, animated stories	Encourages internalization of Islamic values and reflective understanding
Behavioral (Praxis)	Gamified repetition, daily reminders, point-based rewards	Reinforces habits of worship and daily spiritual discipline

Theoretically, this integration can be understood within the framework of digital pedagogy, specifically the theory of *multimodal learning* (Mayer 2009) which states that learning is more effective when students receive information through multiple sensory channels, such as visual, audio, and kinesthetic. Digital applications that provide Qur'anic text with audio and animation strengthen students' cognitive engagement and help internalise the material more comprehensively. Furthermore, the concept of *personalised learning* in digital pedagogy theory (Passey 2013) explains that technology allows students to learn at their own pace and learning style, which is very relevant in the context of MI students who have diverse religious literacy abilities.

From a religious literacy perspective, these apps contribute to the development of the three main dimensions of Islamic literacy, namely *the reading and writing of sacred texts*, *the understanding of the meaning of teachings*, and *the transformation of values into action* (Nilan 2009). The features of children's commentaries, animated stories of the Prophet, and interactive quizzes found in applications such as *Juz Amma for Kids* and *Solite Kids Qur'an* are concrete forms of the transformation of textual literacy into meaningful literacy. This is in line with (Street 2003) is a view of *literacy as a social practice*, where the meaning of the Qur'anic text is actively constructed by the user rather than mechanically memorised.

In the framework of Islamic education, the use of this digital application reflects the principle of *ta'dib* in education, which is the cultivation of adab and knowledge simultaneously through an interactive and transformative process (Al-Attas 1980). The digital application of the Qur'an functions not only as a technological aid but also as a space for the mediation of values, spirituality, and Islamic character building. This is more important in the post-pandemic context, where online learning is becoming an integral part of the educational process, and technology is taking a central role in the distribution of religious knowledge.

However, the integration of these digital applications also poses serious challenges that must be addressed pedagogically. The absence of a valid tajwid correction system can lead to misconceptions in pronunciation, especially if students do not get direct guidance from teachers or parents. In addition, the risk of *digital distraction* and *edutainment* superficiality-where students are more interested in the entertainment aspect than the religious content-must also be anticipated (Selwyn 2012). Therefore, a *blended Islamic pedagogy* approach that combines digital technology with spiritual mentoring by teachers and parents becomes crucial so that app-based PAI learning can run fully, critically, and meaningfully.

Challenges and Opportunities of Integrating Digital Al-Qur'an Apps in Islamic Literacy Learning

The integration of digital Qur'anic applications in learning in Madrasah Ibtidaiyah (MI) represents a new dynamic in the practice of technology-based religious pedagogy. Applications such as *Learn Qur'an Tajwid*, *BeHafizh*, and *Marbel Mengaji* not only offer technological features such as audio-visual and gamification, but also create a learning space that suits the cognitive development characteristics of MI-age learners who are at the concrete operational stage (Piaget 1954). In terms of digital pedagogy, this is in line with the principle of *constructivist learning*, where students construct understanding through active exploration in a technology-facilitated environment (Laurillard 2012).

The use of this digital application has implications for the emergence of more autonomous and flexible learning patterns. Students can access Al-Qur'an materials independently, set their learning rhythm, and do repetition as needed. This is in line with the theory of self-regulated learning (Zimmerman 2002), which emphasises the importance of students' internal control over learning goals, strategies, and monitoring. In the context of Islamic literacy, this approach enables the transformation from textual literacy (*qira'ah*) to meaning literacy (*fahm al-ma'na*), with an emphasis on comprehension and internalisation of values.

Furthermore, the digitalisation of learning creates an opportunity to expand the space of students' spirituality into a more personalised and contextualised digital context. This corresponds with the digital religious literacy approach (Campbell 2021), which views religious practices through digital media as more than just a reproduction of teachings, but as an interactive, dynamic, and user-based construction of new meanings. Studies by (Umar 2025) show that mobile-based Qur'an learning applications can significantly increase learning independence and deepen students' spiritual understanding.

However, this opportunity also comes with substantial challenges. Inequality in access to digital devices and internet networks (digital divide) is still a major problem, especially for students in disadvantaged areas or from lower-middle economic families. This inequality not only affects the sustainability of the learning process but also creates a gap in religious literacy. From the perspective of Islamic epistemic justice, this violates the principle of *ta'lim*, which demands equal access to knowledge as a form of divine mandate (Nasr 1984). Therefore, affirmative policies from schools and policymakers are needed to support equitable and fair digital infrastructure.

In addition to external factors, the internal readiness of teachers is also a crucial factor. Many PAI teachers still face obstacles in managing technology pedagogically,

especially in aligning digital content with affective-spiritual learning objectives. Limited digital literacy and lack of training make application integration suboptimal, even risking being reductive. This is in line with the criticism (Bentri 2022), which states that teachers without digital pedagogy competence tend to use technology procedurally, not substantively. For this reason, strengthening teacher capacity through *continuous professional development* (CPD) programmes based on *pedagogical technological content knowledge* (TPACK) principles is essential.

In addition, the use of applications without adequate assistance also carries pedagogical risks. For MI students who are cognitively, and spiritually immature, independent learning can lead to pronunciation errors, misinterpretation, or even reinforcement of false understanding. In the framework of Islamic education, human interaction between students and teachers cannot be fully replaced by technology, because the process of *tazkiyatun nafs* (purification of the soul) demands exemplary dimensions and reflective dialogue (Al-Attas 1980). Therefore, the integration strategy of digital applications must prioritise a blended Islamic pedagogy approach, which combines the power of technology with the spiritual and affective touch of teachers and parents. With proper management, the digital Qur'anic app will not only be an auxiliary instrument in the learning process but can also serve as a transformative tool to build deep, critical, and contextual Islamic literacy. This achievement requires collaboration between technology, pedagogy, and the values of Islamic spirituality that synergise with each other in shaping a generation of Muslims who are knowledgeable, civilised, and technologically literate.

Contribution of Al-Qur'an Digital Application to Strengthening Islamic Literacy of MI Students

The utilisation of digital Qur'an applications in the learning of Madrasah Ibtidaiyah (MI) students marks an important transition in the approach to Islamic religious education towards a technology-based learning ecosystem. User review data from the Play Store and the developer's official website show that features such as audio pronunciation of hijaiyah letters, *Iqra* reading exercises, tajwid markers, and gamification systems make a concrete contribution to strengthening students' Islamic literacy, both in cognitive, affective, and praxis aspects.

1. Text Literacy: Cognitive Strengthening in Reading the Qur'an

In the aspect of text literacy, the application provides multimodal input (audio, visual, kinesthetic) that accelerates the mastery of basic skills in reading the Qur'an, especially in recognising hijaiyah letters, punctuation marks, and tajwid laws. *The Cognitive Theory of Multimedia Learning* by (Mayer 2009) explains that learning that combines text, audio, and animation simultaneously can increase *dual-channel processing* and *working memory retention*, especially in elementary age children. Therefore, when users state, "easy to learn. Voice so clear. I can teach my kid so well," it indicates the effectiveness of the multimedia redundancy principle in facilitating independent Qur'an learning.

However, limitations on pronunciation quality in some applications were also highlighted. Complaints such as "Too many wrong pronunciations" indicate the risk of *cognitive misalignment* between digital input and standard pronunciation rules. In Islamic education, errors in reciting the Qur'an not only impact the linguistic aspect but also have theological implications. Therefore, a *blended Islamic pedagogy* approach (Mohd Alim 2020), which

integrates digital media with teacher supervision, is necessary to maintain pronunciation accuracy and understanding of meaning.

2. *Value Literacy: The Internality of Meaning and Spirituality*

The Qur'an app, which features coloured tajwid markers, animated mahraj guides, and simple visual-based commentaries, also supports the strengthening of value literacy. This concept does not simply refer to understanding the text, but to the ability to internalize the moral and spiritual messages contained in the Qur'an. In the study of religious literacy, (Campbell 2021) refers to this phenomenon as *ritualised digitalisation*, where interaction with digital media plays a role in shaping daily religious practices reflectively and repetitively. Furthermore, applications that allow user interaction in the form of quizzes or self-evaluation based on verse understanding also build critical awareness of Islamic values. Islamic literacy in this context is no longer passive-reproductive, but active-reflective. This follows the theory of *transformative religious learning* (Rizvi 2019), which emphasizes the importance of the process of tafakur (deep reflection) in bringing to life the spiritual value of the sacred text.

3. *Literacy Praxis: Digital Habituality and Habituation of Worship*

On the praxis aspect, the digital Al-Qur'an app facilitates the formation of worship habits and spiritual routines in a contextualised manner through features such as *level systems*, *daily reminders*, and *reward points*. This creates a *digital religious rhythm* that psychologically reinforces the discipline of worship. The *behavioral reinforcement* theory of (Skinner 1953) adapted in Islamic education by (Langgulung 1986), suggests that reward-based reinforcement can be an effective means of moral formation through *digital ta'dib* (Islamic value-based discipline in a digital context). When users state that the application is used by children before bedtime to memorise short letters, this is an indicator of the transformation of *religious habitus* that has merged into the digital world. (Sarinawati. 2025) explains that the digital religious habitus is formed through the *internalisation of ritual via technology*, where the practice of worship is no longer limited to the mosque or classroom space, but extends to private and recurring digital spaces. This transformation has the potential to strengthen the spiritual dimension of students if accompanied pedagogically and integrated into the curriculum.

4. Pedagogical Risks and Access Inequalities

While apps show great potential, some consequences need to be critically considered. Reliance on apps without teacher guidance can lead to the reduction of the meaning of Islamic teachings to mere technical activities. According to (Sri Lestari & Jupriaman. 2024) Technology-based religious education without affective values and teacher supervision can lead to *spiritual superficiality*. This is exacerbated by disparities in access to devices and the internet that can create digital exclusion in MI environments, as highlighted by (Restalia. 2025). These inequalities must be addressed through affirmative policies that ensure the principle of social justice in Islamic education.

By combining technology, value, and practice approaches, the digital Qur'an app makes a significant contribution in strengthening the Islamic literacy of MI students. However, this effectiveness cannot stand on its own; it must be reinforced by wise pedagogical interventions, an integrative curriculum, and inclusive policies. This approach is in line with the vision of contemporary Islamic education that is holistic and transformative-connecting *cognition*, *appreciation of values*, and *practice of teachings* in a dynamic digital context.

Conclusion

The results showed that the use of the digital Al-Qur'an application made a positive contribution to strengthening the Islamic literacy of MI students, both in the cognitive dimension (reading and understanding verses), affective (internalising values), and psychomotor (practicing worship practices). Interactive features in the application support more independent, fun, and contextualised PAI learning. However, challenges such as content inaccuracy, digital access gaps, and lack of teacher involvement in mentoring are still obstacles that need to be overcome. Therefore, the integration of this technology must be supported by adaptive pedagogical approaches, continuous teacher training, and inclusive policies so that its implementation is in line with the characteristics of Islamic education at the primary level.

Thus, this research contributes to enriching the study of technology-based Islamic education, especially in learning the Qur'an in Madrasah Ibtidaiyah. This research shows that digital applications can be used as an effective learning medium to strengthen students' Islamic literacy in a fun and independent way. As for future research, it is recommended that a direct field study be conducted to see the extent to which the effectiveness of the digital Al-Qur'an application is applied in the classroom. Future research can also examine its effect on learning motivation, religious behaviour, and the role of teachers in assisting the use of this technology.

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