

Al-Qur'an Literacy in the Digital Era: A Study Between Islamic Education, Technology and Education

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ARTICLE INFO	ABSTRAK
Volume: 4 ISSN: 2963-5489 KEYWORDS Al-Quran literacy, digital era, Islamic Religious Education, technology, education.	This study aims to examine Quranic literacy in the digital era by placing it at the intersection of Islamic Religious Education (PAI), technology, and modern education. The research background is based on the urgent need to understand how the development of digital technology plays a role in improving the ability to read, understand, and internalize Quranic values amidst the flow of information globalization. The research method used is library research by analyzing various scientific literature in the form of journals, books, proceedings, and relevant research reports. The literature was selected purposively through academic databases such as Google Scholar, DOAJ, and SINTA, then analyzed using a content analysis approach to identify key themes related to digital literacy, Quranic learning, and the challenges of Islamic education in the digital era. The research results show that the integration of digital technology in Quranic learning, through media such as interactive applications, online interpretation platforms, and ICT-based learning media, has proven effective in increasing student motivation, engagement, and literacy skills. Furthermore, Islamic Religious Education teachers with strong digital literacy play a crucial role in supporting the effectiveness of technology-based learning. However, the research also identified several challenges, including limited access to technology, teacher and student preparedness, and the risk of the validity of digital interpretation sources, which could potentially lead to misunderstandings. Overall, this study confirms that Quranic literacy in the digital era is not merely the technical ability to read the Quranic text with the aid of digital devices, but also encompasses pedagogical, critical, and ethical aspects. The implications of this research are the need to improve teachers' digital competence, provide adequate infrastructure, and strengthen students' critical literacy so that Quranic values remain properly internalized amidst technological developments.

1. Introduction

The development of information and communication technology in the current digital era has brought about significant changes in various aspects of life, including Islamic religious education. The Industrial Revolution 4.0 and the emergence of phenomena such as digital media, online learning applications, gadgets, and even the metaverse have transformed the way students access and interact with religious materials. On the one hand, technology offers significant opportunities to facilitate

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access to reading, understanding, and experiencing the Quran through more interactive and engaging methods. However, on the other hand, technology also poses challenges, such as hoaxes, negative content, access barriers, and a lack of guidance or competence for educators in using digital media effectively (Noor, 2019) .

In the context of Islamic Religious Education (PAI), Quranic literacy is not only the ability to read and memorize the text, but also includes understanding the meaning, contemplation, light interpretation, and the application of the values contained therein. Quranic literacy must be able to respond to contemporary challenges so that it is not only a ritual or formal activity, but also becomes part of the formation of character, morals, and spiritual sensitivity of students. For example, the study "Digital Literacy as a Learning Innovation in Islamic Religious Education" emphasizes that digital literacy in Islamic education environments must be developed so that students are not only able to use technology technically but critically and responsibly (Pratiwi et al., 2024) .

In practical terms, several studies have shown that Quranic learning methods that incorporate digital media, such as interactive Quranic applications, educational videos, and online platforms, can increase student interest and engagement. For example, the study "The Relevance of Digital Literacy in Quranic Learning Methods: A Study in Contemporary Islamic Education" shows that the use of digital media enriches learning strategies and facilitates understanding and interpretation of Quranic readings (Ni'mah, 2025) . However, there are still gaps in terms of the readiness of Islamic Religious Education teachers, the availability of technological infrastructure at school or home, and how to ensure that learning remains based on Islamic values and does not lose its religious meaning due to the dominance of digital content that is not ethically selected. Another emerging challenge is how the Islamic Religious Education (PAI) curriculum can respond to digital developments so that Quranic literacy is not merely an add-on but is integrated systemically. The study, "Optimizing Digital Literacy-Based Islamic Religious Education Learning at SD IT Plus Qurthuba Makassar," for example, highlights the importance of parents and schools in guiding a generation growing up as "digital natives," familiar with gadgets and digital media from an early age, so that Quranic literacy remains meaningful both cognitively and spiritually (Tahir et al., 2024) .

Based on the above, research on Quranic Literacy in the Digital Era is crucial. This research will focus on examining the relationship between Islamic religious education (PAI), digital technology, and education in general, including how PAI methods, media, curriculum, and teacher competencies can be aligned with digital developments, ensuring effective, contextual, ethical, and transformative Quranic literacy for students.

2. Literature Review

This literature review examines key works relevant to the topic of *Quranic Literacy in the Digital Age: A Study of Islamic Religious Education, Technology, and Education*. For each source, I summarize the main content, methodological/theoretical contributions, and weaknesses or gaps that need to be addressed by further research.

a. Quranic Literacy: Definition, Objectives, and Learning Strategies

Research by Supriadi et al., (2022) positions Quranic literacy not merely as the technical ability to read (tahsin/tahqiq) but also encompasses understanding of meaning, contemplation, and the practice of values in social life; they propose practical steps to improve Quranic reading skills at the secondary school level through an action research approach. This study is useful because it provides a syntax for interventions that can be retested in school settings, but is limited by the local context and non-experimental design, which makes it difficult to generalize the results.

b. Integration of digital literacy in Islamic Education: curriculum policy and implementation

Several empirical studies by Lisyawati et al. (2023) and policy studies emphasize the need to incorporate digital literacy competencies into Islamic Religious Education (PAI) learning so that students become critical and responsible users of technology in accessing religious materials. These studies highlight aspects of teacher training, the development of digital teaching materials, and inequality in access to infrastructure as determining factors for successful integration. A common weakness is the still dominant focus on policy descriptions; few studies quantitatively evaluate the impact of digital-based Islamic Religious Education (PAI) learning on Quranic learning outcomes.

c. Al-Qur'an applications and mobile-based learning: their effectiveness and limits

Educational technology literature examining Quran apps indicates that these apps increase access, frequency of practice, and motivation for recitation for many learners, particularly among *digital natives*. Quantitative and qualitative studies of app users report increased interest and ease of repetition of recitations and learning features (audio, interactive tajweed, translation). However, several studies by Alwi et al., (2014) highlight limitations: apps often

prioritize ease of access without robust instructional pedagogy, and there is no long-term evidence available on their impact on understanding of interpretation or application of values.

d. Digital tools in the context of memorizing and intensive learning of the Qur'an

Recent studies on tahfiz programs describe the adoption of digital tools for rote learning, ranging from spaced repetition apps and voice recorders for feedback to collaborative platforms between students and teachers (Ibrahim et al., 2024) . Initial results indicate improvements in memorization efficiency and monitoring, but also raise issues such as device dependency, variations in the quality of digital materials, and the challenge of maintaining depth of understanding when the process is fully digital. These studies help map the benefits of digital techniques but have not yet explored the holistic integration of Islamic Religious Education (PAI) pedagogical values.

e. Digital literacy and understanding of the Qur'an: an empirical relationship

Several literature reviews and field studies by Hidayati & Sugiharto (2024) concluded that digital literacy can improve access to interpretive sources, the variety of learning materials, and the capacity for reflection if accompanied by the ability to assess source quality (source evaluation). These studies emphasize that digital literacy is not merely a technical skill but also involves critical skills to select authentic and responsible religious content. Identified limitations include the lack of formal instruction on religious source literacy in Islamic Religious Education curricula and the paucity of experimental research measuring causal effects.

f. Advanced learning technologies: AI and adaptive methods for teaching the Quran

Several studies by Alsharbi et al. (2021) in the educational technology domain introduced adaptive learning methodologies and machine learning techniques to enhance the personalization and effectiveness of Quranic language and recitation learning. Initial results are promising in terms of personalization and adaptive learning pace, but these studies are still proof-of-concept and raise ethical/data privacy questions, as well as the need for pedagogical validation in the context of religious education. Going forward, AI integration should be tested not only from a technical perspective but also considering aspects of text authenticity, teacher engagement, and cultural sensitivity.

3. Methodology

This research uses a library research approach, which focuses on collecting and analyzing data from various relevant academic literature. This library study was chosen because it is suitable for an in-depth examination of the concept of Quranic literacy in the digital era by examining the thoughts of experts, previous research results, and supporting academic documents.

The research procedure was carried out through several systematic stages. First, literature sources were identified using academic databases such as Google Scholar, the Directory of Open Access Journals (DOAJ), ScienceDirect, and the national portal SINTA to obtain articles, books, proceedings, and research reports related to the topic. The literature selection criteria were its relevance to the themes of Quranic literacy, Islamic religious education, the use of digital technology, and educational development in the modern era.

4. Results and Discussion

Several studies have shown that the use of digital technology in Quranic learning has successfully increased student engagement, motivation, and reading performance. For example, the study "Technology-Based Quranic Literacy Development in Islamic Religious Education" concluded that digital applications, learning videos, and interactive platforms have proven "effective in increasing student engagement and facilitating their understanding of Quranic reading and interpretation." Research at the UPTD SMP Negeri 4 Parepare using a digital-based Quranic literacy model in Classroom Action Research also showed that after two intervention cycles, students' Islamic Religious Education motivation increased significantly—in the second cycle, success reached 100% (Aminah, 2023) . In addition, at IAIN Tulungagung, it was found that

online learning improved students' literacy skills, activeness, and level of understanding in the Science in the Quran course (Fahrudin & Fauziah, 2020) .

On the teacher side, the study "Development of Digital Literacy in Islamic Religious Education Learning by Professional Teachers: A Study at Al-Muslim High School" shows that professional teachers actively integrate technology, both through digital media and digital learning resources, in Islamic Religious Education learning. These teachers demonstrate a high awareness of digital literacy as part of their teaching competencies (Setiyanti & Machfud, 2024) . The study "The Influence of Digital Literacy and ICT-Based Learning Media on the Pedagogical Competence of Islamic Religious Education Teachers at MTs in Kepahiang Regency" also found that Islamic Religious Education teachers have a high level of digital literacy, and that digital literacy and the use of ICT media have a positive influence on teachers' pedagogical competencies (Yadi & Anshori, 2024) .

However, not everything went smoothly. The study "A Study of Quranic Interpretation in the Digital Era: Literacy and the Influence of Technology" showed that while access to interpretation applications and digital platforms significantly contributed to the dissemination and availability of Quranic interpretations, there were real challenges in terms of source validity, users' digital literacy awareness, and often-lacking understanding of the context of interpretation. Furthermore, research in Parepare in the first cycle showed that some students felt "unhappy" or "unhelped" when the digital intervention was first implemented, indicating imperfect initial adaptation (Hm & Satra, 2024) .

First, the effectiveness of digital technology in supporting Quranic literacy appears quite strong. Media such as interactive applications, online interpretation platforms, learning videos, and digital modules facilitate students' repetition of recitations, hearing correct recitations (audio tajweed), and easily accessing translations or interpretations. This helps improve Quranic reading and comprehension skills, as evidenced by research in Rejang Lebong and Parepare. These changes also impact students' motivation and activeness, encouraging them to learn more because the learning is more varied and relevant to their everyday digital world.

Second, the role of teachers is crucial. Teachers' digital literacy, competence in using technology, and infrastructure readiness influence how well technology integration can work. Teachers who are accustomed to incorporating digital media tend to be more successful in implementing digital literacy models in Islamic Religious Education (PAI) contexts. Conversely, when teachers are not ready or when technology is inadequate, digital interventions can be less effective or even lead to student frustration (e.g. , in cycle I in Parepare) (Aminah, 2023) .

Third, digital literacy extends beyond the technical ability to use devices or applications, encompassing critical thinking, source evaluation, and ethical awareness of the use of digital religious content. Research on Quranic interpretation in the digital era confirms that broader access to interpretation applications and social media platforms can accelerate the spread of knowledge. However, if users do not carefully select sources, misunderstandings or the dissemination of less valid interpretations can arise (Hm & Satra, 2024) .

Fourth, despite the numerous benefits, there are implementation barriers: initial resistance, difficulties for students and teachers adapting to new media, differences in technology access among students, and the need for ongoing teacher training. For example, research in Parepare showed that at the beginning of the digital intervention, approximately 45% of students experienced difficulties using digital literacy models. However, after improvements, this situation improved.

5. Conclusion

Based on the results of a literature study on Quranic literacy in the digital era, it can be concluded that the use of digital technology in Quranic learning has a significant contribution to improving students' literacy skills, motivation, and engagement in Islamic Religious Education (PAI). Various findings indicate that the use of interactive applications, online interpretation platforms, and ICT-based learning media can facilitate access, enrich methods, and increase the effectiveness of the learning process. However, the success of technology integration is greatly influenced by teachers' digital literacy, infrastructure readiness, and students' critical ability to select valid sources. Without proper guidance, the use of digital media has the potential to lead to misunderstandings or misuse of religious information. Therefore, Quranic literacy in the digital era needs to be viewed not only as the technical skills of reading and understanding Quranic texts through digital devices, but also as a comprehensive effort involving pedagogical, critical, and ethical dimensions to ensure that Quranic values remain internalized correctly and deeply in students' lives.

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