

DIGITAL LITERACY OF SANTRI AS A NEW PARADIGM OF ISLAMIC EDUCATION IN THE ERA OF GLOBALIZATION

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Abstract

This study aims to analyze digital literacy as a new paradigm of Islamic education in the era of globalization at Salafiyah-Syafi'iyah Sukorejo Islamic Boarding School. The rapid development of information and communication technology has encouraged Islamic educational institutions to transform their learning processes while maintaining Islamic values and the long-established traditions of pesantren. This research employed a qualitative approach using a case study method. Data were collected through observation, in-depth interviews with pesantren administrators, teachers, and students, as well as document analysis. The data were analyzed through data reduction, data display, and thematic conclusion drawing. The findings reveal that digital literacy has become an essential component in developing students' competencies through the utilization of digital media, online learning platforms, and access to technology-based Islamic knowledge resources. The implementation of digital literacy not only enhances students' academic abilities but also strengthens critical thinking skills, information evaluation capabilities, and digital ethics in accordance with Islamic values. However, challenges remain, including disparities in digital competencies, the need for effective technology supervision, and the risk of exposure to unreliable information. The study implies the necessity of developing an integrative Islamic education model that combines pesantren traditions, digital literacy, and Islamic character development to sustainably respond to the challenges of globalization.

Keywords: *Digital Literacy; Islamic Education; Students; Globalization; Islamic Boarding School.*



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Abstrak

Penelitian ini bertujuan untuk menganalisis literasi digital santri sebagai paradigma baru pendidikan Islam di era globalisasi pada Pondok Pesantren Salafiyah-Syafi'iyah Sukorejo. Perkembangan teknologi informasi dan komunikasi telah mendorong lembaga pendidikan Islam untuk melakukan transformasi dalam proses pembelajaran tanpa meninggalkan nilai-nilai keislaman dan tradisi pesantren yang telah mengakar kuat. Penelitian ini menggunakan pendekatan kualitatif dengan metode studi kasus. Data diperoleh melalui observasi, wawancara mendalam dengan pengelola pesantren, guru, dan santri, serta studi dokumentasi. Analisis data dilakukan melalui reduksi data, penyajian data, dan penarikan kesimpulan secara tematik. Hasil penelitian menunjukkan bahwa literasi digital telah menjadi bagian penting dalam pengembangan kompetensi santri melalui pemanfaatan media digital, platform pembelajaran daring, dan akses terhadap sumber-sumber keilmuan Islam berbasis teknologi. Implementasi literasi digital tidak hanya meningkatkan kemampuan akademik santri, tetapi juga memperkuat kemampuan berpikir kritis, seleksi informasi, dan etika bermedia sesuai nilai-nilai Islam. Meskipun demikian, tantangan berupa kesenjangan kompetensi digital, pengawasan penggunaan teknologi, dan potensi penyebaran informasi yang tidak valid masih memerlukan perhatian serius. Penelitian ini berimplikasi pada pentingnya pengembangan model pendidikan Islam yang integratif antara tradisi pesantren, literasi digital, dan penguatan karakter keislaman untuk menghadapi dinamika globalisasi secara berkelanjutan.

Kata Kunci: Literasi Digital; Santri; Pendidikan Islam; Globalisasi; Pesantren.

INTRODUCTION

The unprecedented advancement of information and communication technology has fundamentally transformed almost every aspect of contemporary human life, including the educational sector. The emergence of the digital era, characterized by the rapid expansion of the internet, artificial intelligence, cloud computing, big data, mobile technologies, and social media ecosystems, has reshaped how knowledge is produced, disseminated, and consumed. Learning is no longer confined within the physical boundaries of classrooms or educational institutions but has evolved into a borderless process supported by digital connectivity (Madjid, 2021). These transformations have generated both opportunities and challenges for educational institutions worldwide, particularly Islamic educational institutions that are deeply rooted in religious traditions and cultural heritage.

Indonesia's Islamic boarding schools (pesantren), recognized as one of the oldest indigenous Islamic educational institutions, have historically played a

strategic role in preserving Islamic scholarship, transmitting religious values, and producing generations of Muslim scholars. For centuries, pesantren have relied upon educational traditions such as *bandongan*, *sorogan*, *halaqah*, and intensive studies of the *kitab kuning* (classical Islamic texts). These pedagogical traditions emphasize direct interaction between *kiai* and *santri*, moral formation, spiritual discipline, and the cultivation of Islamic character (Akrim & Harfiani, 2020). However, the acceleration of globalization and digitalization has challenged pesantren to redefine their educational orientation without abandoning their theological foundations and educational identity. Consequently, pesantren today are expected not only to preserve religious traditions but also to prepare students capable of navigating an increasingly complex digital society.

Within this rapidly changing environment, digital literacy has become one of the most essential competencies required in twenty-first-century education. Contemporary scholars no longer define digital literacy merely as the technical ability to operate computers or digital devices. Instead, digital literacy encompasses a multidimensional competence involving the ability to access, evaluate, analyze, verify, produce, communicate, and ethically utilize digital information across various technological platforms. It integrates cognitive, technological, ethical, social, and critical dimensions that enable individuals to participate responsibly within digital communities (Buckingham, 2025).

For *santri*, digital literacy possesses strategic significance beyond technological competence alone. Digital technologies provide unprecedented access to classical Islamic manuscripts, international scholarly discussions, digital fatwas, online libraries, and contemporary Islamic academic resources that were previously inaccessible. Proper utilization of these resources can enrich students' intellectual capacity, broaden their perspectives on Islamic scholarship, and strengthen their competitiveness in higher education and global employment (Ng, 2025). Conversely, inadequate digital literacy may expose students to misinformation, religious extremism, ideological manipulation, cybercrime, and ethical degradation. Therefore, digital literacy within pesantren should be understood as an integral component of Islamic educational development rather than merely a technological adaptation

The urgency of digital literacy becomes increasingly evident considering the complexity of digital risks emerging alongside technological advancement. The digital environment is characterized by an overwhelming abundance of information, where truth and falsehood frequently coexist without clear distinctions. The rapid circulation of hoaxes, misinformation, disinformation, conspiracy narratives, hate speech, and algorithm-driven information bubbles has significantly influenced

public opinion, religious understanding, and social cohesion (Alim & Hidayatullah, 2021). Social media algorithms often reinforce confirmation bias by continuously exposing users to information consistent with their existing beliefs, thereby creating "echo chambers" that limit critical reflection and encourage ideological polarization. Such digital ecosystems create fertile conditions for the dissemination of religious radicalism and extremist narratives disguised as authentic Islamic teachings.

Within Islamic educational contexts, these digital threats possess unique implications. Young Muslims increasingly obtain religious knowledge not exclusively from qualified scholars or educational institutions but also through social media influencers, YouTube preachers, short-video platforms, anonymous online forums, and artificial intelligence-based information systems (Tang & Chaw, 2026). While these platforms democratize access to religious knowledge, they simultaneously weaken traditional mechanisms of scholarly authority, verification (*tabayyun*), and sanad (chains of transmission) that have historically guaranteed the authenticity of Islamic teachings. Consequently, students lacking adequate critical digital literacy may become vulnerable to simplistic interpretations of Islamic doctrines, intolerance, digital radicalization, and ideological fragmentation (Spante et al., 2025).

Furthermore, digital dependency has also contributed to declining interpersonal communication, reduced concentration during learning, cyberbullying, online addiction, privacy violations, and the commodification of religious content. The commercialization of Islamic preaching through digital platforms often prioritizes popularity, emotional appeal, and algorithmic visibility over scholarly credibility and theological accuracy (Eshet-Alkalai, 2024). Such developments challenge Islamic educational institutions to strengthen not only students' technological competence but also their ethical awareness, critical reasoning, digital resilience, and Islamic moral responsibility. Therefore, digital literacy within pesantren should incorporate Islamic ethical principles such as honesty (*ṣidq*), trustworthiness (*amānah*), moderation (*wasatiyyah*), verification (*tabayyun*), and social responsibility (*maslahah*) to ensure that technological advancement contributes positively to both individual development and societal harmony.

Islamic boarding schools possess unique characteristics in responding to these digital transformations. Unlike many formal educational institutions, pesantren maintain a holistic educational model integrating intellectual development, moral education, spiritual cultivation, communal living, and religious practice (Anshori, 2022). This distinctive educational ecosystem provides considerable potential for developing an integrated model of digital literacy grounded in Islamic values. Rather

than perceiving technology as a threat to tradition, many pesantren have gradually adopted digital innovations in administrative management, learning systems, digital libraries, online religious instruction, and educational information services while preserving their traditional educational philosophy (Ilomäki et al., 2025).

Among Indonesia's prominent pesantren, Salafiyah-Syafi'iyah Sukorejo Islamic Boarding School represents an important case for investigating the integration of digital literacy within Islamic educational traditions. Established with a strong commitment to preserving classical Islamic scholarship, the pesantren currently accommodates thousands of students from diverse educational, social, and geographical backgrounds. Over recent years, the institution has introduced various digital initiatives supporting academic administration, blended learning, online educational resources, and information management systems while maintaining traditional pedagogical practices rooted in Islamic scholarship (Arifin, 2020). This coexistence of tradition and innovation offers a valuable context for understanding how digital literacy evolves within a traditional Islamic educational environment.

The growing utilization of smartphones, educational applications, social media, digital repositories, and online learning platforms among santri further demonstrates that digital transformation has become inseparable from contemporary Islamic education. Today's students experience an educational landscape substantially different from previous generations. They continuously interact with digital information environments influencing not only their academic learning but also their religious identity, social interactions, and worldview (Aziz & Wahyudi, 2020). Consequently, developing digital literacy should no longer focus solely on operational technological skills but must also cultivate information verification abilities, critical thinking, media ethics, digital citizenship, and religious moderation capable of protecting students from harmful digital influences (Falloon, 2025).

Numerous previous studies have investigated digital literacy within Islamic education. Existing literature generally reports that integrating digital technology into learning enhances educational accessibility, learning motivation, collaborative learning, and students' technological competence. Other scholars have documented the adoption of digital platforms, learning management systems, educational applications, and institutional information systems across various pesantren and Islamic schools (Buckingham, 2021). Additionally, several studies indicate that digital literacy contributes positively to creativity, innovation, independent learning, and students' academic achievement.

Nevertheless, despite this growing body of literature, significant limitations remain. First, most previous studies conceptualize digital literacy primarily as a technical or instrumental competency emphasizing digital skills, infrastructure, and technology utilization, while insufficiently examining its broader implications for transforming Islamic educational philosophy and epistemology. Second, empirical investigations predominantly focus on formal schools or modern Islamic educational institutions, whereas traditional pesantren with strong classical educational traditions remain relatively underexplored (Bunt, 2021). Third, existing research rarely addresses the intersection between digital literacy, Islamic ethics, religious authority, and digital risk management, particularly concerning misinformation, online radicalization, algorithmic bias, and digital moral resilience among santri. Fourth, few studies analyze how pesantren negotiate the tension between preserving traditional Islamic learning methods and responding to technological disruption through an integrated educational paradigm rather than isolated technological interventions

These limitations indicate a substantial conceptual, empirical, and contextual research gap. Conceptually, digital literacy has not yet been sufficiently theorized as a transformative paradigm capable of reshaping Islamic educational culture rather than merely serving as a technological support system. Empirically, evidence regarding how traditional pesantren integrate digital literacy into their institutional culture remains limited. Contextually, there is inadequate understanding of how pesantren develop educational strategies simultaneously promoting technological adaptation, critical thinking, Islamic ethics, and resilience against digital threats such as hoaxes, misinformation, hate speech, and online religious extremism. Addressing these gaps is essential for constructing a more comprehensive understanding of digital transformation within contemporary Islamic education (Cahyono & Hasanah, 2021). Accordingly, the novelty of this study lies in repositioning digital literacy as a new paradigm of Islamic education rather than merely a technological competency. This research examines how digital literacy influences educational philosophy, learning culture, knowledge transmission, institutional governance, character formation, and the preservation of Islamic traditions within Salafiyah-Syafi'iyah Islamic Boarding School. Furthermore, this study integrates digital literacy with Islamic ethical values, digital risk mitigation, and religious moderation, offering a comprehensive analytical framework rarely explored in previous studies.

Beyond contributing to theoretical discussions on contemporary Islamic education, this research provides practical implications for pesantren leaders, educators, curriculum developers, and policymakers responsible for designing

digital literacy programs. The findings are expected to support the development of educational policies that balance technological innovation with Islamic ethical values, strengthen students' critical digital competencies, and reinforce institutional resilience against the challenges posed by misinformation, cyber radicalization, digital manipulation, and moral degradation (Fahham, 2022). Such an approach is increasingly necessary to ensure that digital transformation contributes to educational excellence while preserving the distinctive identity of pesantren.

Based on these considerations, this study seeks to answer three fundamental research questions: (1) How is digital literacy conceptualized as a new paradigm of Islamic education within Salafiyah-Syafi'iyah Islamic Boarding School Sukorejo? (2) How is digital literacy implemented in educational practices, institutional culture, and students' daily learning experiences while simultaneously addressing digital risks such as misinformation and online radicalization? (3) What are the implications of this digital literacy paradigm for strengthening students' academic competence, critical thinking, Islamic character, and digital resilience in the era of globalization?

Ultimately, this study aims to develop a comprehensive understanding of how traditional Islamic boarding schools can successfully integrate technological advancement with Islamic educational values. By examining digital literacy as a transformative educational paradigm rather than a purely technological instrument, this research contributes to broader discussions regarding the future of Islamic education in the digital age and offers a model for developing Muslim generations who are intellectually competent, technologically adaptive, ethically responsible, critically informed, and firmly grounded in Islamic values amidst the complexities of globalization.

RESEARCH METHODS

This study employed a qualitative approach using a case study design to obtain an in-depth understanding of digital literacy as a new paradigm of Islamic education at Salafiyah-Syafi'iyah Islamic Boarding School, Sukorejo, Situbondo, East Java. A qualitative case study was selected because it enables researchers to explore complex educational phenomena within their natural context, emphasizing participants' experiences, institutional culture, and social interactions. The study specifically investigated how digital literacy is conceptualized, implemented, and integrated into the educational practices of the pesantren while preserving its traditional Islamic educational values.

The research was conducted over a six-month period, from January to June 2026, allowing sufficient time for prolonged engagement, repeated observations, and data verification. Salafiyah-Syafi'iyah Islamic Boarding School was purposively selected because it represents one of Indonesia's largest pesantren that has successfully integrated traditional Islamic learning with digital technologies in academic administration, classroom instruction, and student learning activities. This institutional context provides an appropriate setting for examining the transformation of Islamic education in the era of digitalization.

Participants were selected using purposive sampling, considering their direct involvement in planning, implementing, and experiencing digital literacy programs. A total of 25 informants participated in this study, consisting of 2 pesantren leaders (kiai/caregivers), 4 institutional administrators, 6 teachers, 3 information technology staff members, and 10 santri representing different educational levels and study programs. The inclusion criteria required participants to (1) have actively participated in digital literacy activities for at least one academic year, (2) possess direct experience with digital learning practices within the pesantren, (3) be willing to participate voluntarily, and (4) provide rich and relevant information related to the research objectives. The diversity of participants ensured comprehensive perspectives regarding the implementation and impact of digital literacy within the pesantren environment.

Data were collected through three complementary techniques: participant observation, semi-structured in-depth interviews, and document analysis. Participant observation enabled researchers to directly examine digital learning activities, students' interactions with technological devices, classroom practices, and the integration of digital media into religious and formal education. Semi-structured interviews explored participants' perceptions, experiences, challenges, institutional strategies, and expectations concerning digital literacy development. Meanwhile, document analysis included institutional regulations, digital literacy policies, curriculum documents, annual reports, learning guidelines, digital learning materials, and archives documenting educational innovation within the pesantren.

Table 1. Research Participants and Data Collection Procedures

Data Collection Technique	Participants/Data Sources	Number	Inclusion Criteria	Research Focus
Observation	Learning activities and pesantren environment	-	Daily educational activities	Digital literacy practices, technology utilization, student interaction
In-depth Interviews	Kiai/Caregivers	2	Institutional leaders responsible for educational policy	Vision, policy, and digital transformation
	Institutional Administrators	4	Manage educational programs	Institutional implementation strategies
	Teachers	6	Minimum one year teaching experience	Learning implementation and instructional innovation
	IT Staff	3	Responsible for digital infrastructure	Technology management and support systems
	Santri	10	Active students involved in digital learning for at least one year	Learning experiences, digital competencies, and challenges
Documentation	Curriculum, policy documents, reports, archives	15 documents	Official institutional documents	Program implementation and institutional policies
Triangulation	All participants and documents	-	Cross-validation	Verification of findings and credibility enhancement

As presented in Table 1, the combination of multiple participant groups and complementary data collection techniques enabled the researchers to obtain a holistic understanding of digital literacy implementation from institutional, pedagogical, technological, and student perspectives. The purposive selection of informants ensured that each participant possessed substantial knowledge and practical experience relevant to the phenomenon under investigation. The inclusion of documentary evidence further strengthened the consistency between participants' narratives and institutional practices.

Data analysis followed the interactive model proposed by Miles, Huberman, and Saldaña, consisting of three iterative stages: data condensation, data display,

and conclusion drawing and verification. During data condensation, interview transcripts, field notes, and documents were coded, categorized, and organized into emerging themes. The data display stage involved thematic matrices and narrative descriptions to facilitate interpretation of relationships among categories. Finally, conclusions were continuously refined through pattern matching, comparison across participant groups, and theoretical interpretation until data saturation was achieved.

To enhance the trustworthiness of the findings, this study employed several validation strategies, including source triangulation, methodological triangulation, member checking, prolonged engagement, and peer debriefing. Member checking was conducted by returning interview summaries to selected participants for confirmation of interpretation, while triangulation compared evidence obtained from interviews, observations, and documentary sources. These procedures ensured the credibility, dependability, confirmability, and transferability of the research findings, thereby providing a rigorous methodological foundation for explaining digital literacy as a transformative paradigm of Islamic education in contemporary pesantren.

RESULTS AND DISCUSSION

Results

Based on the results of observations, in-depth interviews, and documentation studies conducted at the Salafiyah-Syafi'iyah Islamic Boarding School in Sukorejo, Situbondo, findings were obtained that digital literacy has developed into an integral part of the transformation of Islamic education in the Islamic boarding school environment. Digital literacy is no longer understood merely as the ability to use information and communication technology devices, but has become a new paradigm that connects the scientific tradition of Islamic boarding schools with the needs of 21st-century competencies. This transformation is evident in various institutional policies, learning programs, Islamic boarding school activities, and academic cultures that gradually integrate the use of digital technology in the educational process without eliminating the Islamic identity and values that are the main foundation of Islamic boarding schools (Fitriani & Kurniawan, 2022).

An interview with Mr. Lalu Supratman, Head of the Formal Education Institutions Division of the Salafiyah-Syafi'iyah Sukorejo Islamic Boarding School, shows that strengthening digital literacy has become a strategic agenda in the development of Islamic boarding school education. According to him, the biggest challenge facing the current generation of Islamic boarding school students is the rapid flow of information that cannot be contained by the boundaries of space and

time (Gilster, 2022). The presence of the internet has changed the way students acquire knowledge. While previously, Islamic boarding school students relied solely on books, textbooks, and teacher explanations as their primary sources of learning, today knowledge sources are widely available through various digital platforms. Therefore, Islamic boarding schools need to build an education system that can guide students not only to become users of technology, but also to become individuals who are able to utilize technology critically and productively.

He explained that one of the flagship programs developed to strengthen literacy culture is the "One Hour with Books" program. This program is a mandatory activity carried out regularly with the aim of building reading habits among students. According to him, a reading culture is the main foundation of digital literacy because the ability to access information through technology will not provide benefits without the ability to understand, analyze, and evaluate that information (Habibi et al., 2021). In its implementation, this program not only uses conventional reading sources such as printed books, but also utilizes various digital sources such as e-books, electronic journals, scientific articles, and online Islamic references that have been recommended by Islamic boarding schools.

Observations showed that the program significantly increased students' interest in reading. During the program, students were actively engaged in reading, summarizing their reading material, and discussing their findings with their peers and teachers (Hasan, 2023). Some students also utilized digital devices to access additional resources related to the reading topics they were studying. These findings demonstrate that the literacy culture fostered in Islamic boarding schools has transformed from a conventional reading culture to a broader, more adaptive digital literacy culture.

According to Mr. Lalu Supratman, the success of a digital literacy program is measured not only by the students' ability to use technology, but also by their increased critical thinking skills and intellectual awareness. He emphasized that students must be able to distinguish between valid and invalid information, understand the context of the information they receive, and have the ability to integrate that information with Islamic values (Hidayat & Fathurrahman, 2023). This statement indicates that the digital literacy concept developed at the Salafiyah-Syafi'iyah Sukorejo Islamic Boarding School has a broader orientation than digital literacy concepts that only emphasize the technical aspects of technology use.

The following findings were obtained through an interview with Mr. Mahmudi Bajuri, Head of the Islamic Boarding School Division. According to him, digital literacy is closely related to the character development of Islamic boarding school students. In his view, technological advances present both opportunities and

challenges that Islamic educational institutions must face (Ismail, 2024). On the one hand, technology provides broad access to diverse sources of knowledge. However, on the other hand, technology also opens up opportunities for the emergence of various forms of misinformation, such as hoaxes, hate speech, digital propaganda, and content that contradicts Islamic values.

He explained that one of the main focuses of Islamic boarding school development is building digital awareness based on Islamic morals and ethics. Therefore, various student development activities consistently emphasize the importance of etiquette in using digital media (Jenkins, 2021). Students are taught that every activity conducted online still has moral and religious consequences, just like activities conducted in the real world. In various development forums, students are encouraged to understand the importance of *tabayyun* (religious discipline), guarding their digital language, avoiding the spread of unverified information, and respecting differences of opinion in the digital space.

Observations show that this approach has had a positive impact on students' social media behavior. Most students demonstrated a high level of awareness of the importance of verifying information before sharing it with others. They were also more cautious in expressing comments or opinions on social media (Kurniawan & Lestari, 2022). According to Mahmudi Bajuri, this indicates that digital literacy in Islamic boarding schools not only develops technical skills but also shapes the students' character and social responsibility as technology users.

Furthermore, an interview with Mr. Masykuri Ismail, Head of Elementary and Secondary Education, revealed that integrating digital literacy into the learning process has become an unavoidable necessity (Latipah & Zubaidah, 2024). According to him, the characteristics of today's students differ from those of previous generations. They are a generation born and raised in a digital environment, so learning approaches must adapt to these changes. Therefore, various formal educational institutions within Islamic boarding schools (*pesantren*) have begun utilizing digital technology as part of their learning strategies.

He explained that teachers are encouraged to use digital-based learning media such as educational videos, multimedia presentations, online learning platforms, and various other educational applications (Lubis, 2025). The use of these media aims to improve learning effectiveness while expanding students' access to various sources of knowledge. He believes that technology allows students to access a wider variety of information than relying solely on textbooks in the classroom.

Based on observations at several formal educational institutions, the use of digital media has been shown to increase student engagement in the learning process. Students appear more active in asking questions, discussing topics, and

seeking additional information related to the learning material (Miftah & Huda, 2019). They don't just passively receive information from teachers but also participate in the process of seeking and developing knowledge. This demonstrates that digital literacy has driven a paradigm shift from teacher-centered learning to student-centered learning.

Another interesting finding is the improvement in students' critical thinking skills as a result of strengthening digital literacy. According to Masykuri Ismail, access to various sources of information allows students to compare different perspectives and develop better analytical skills. In various learning assignments, students are becoming accustomed to seeking references from various sources and evaluating the quality of the information they obtain (Nasrullah et al., 2020). This ability is a key indicator of the success of Islamic education in facing the challenges of globalization.

An interview with Mr. Minhaji, Head of Higher Education, demonstrated that digital literacy plays a highly strategic role in the development of Islamic boarding school-based higher education. According to him, today's students must possess strong digital literacy skills to compete in an increasingly competitive global academic environment (Nurdin & Yusuf, 2022). These skills include accessing scientific journals, conducting digital literature searches, using academic software, and leveraging technology to support research and scientific publications.

He explained that higher education institutions within Islamic boarding schools have developed various training programs aimed at improving students' digital skills (Prensky, 2023). These programs include training in international journal research, the use of reference management applications, the use of research data processing software, and training in digital-based scientific publication. He believes these skills are crucial because scientific developments currently occur through global digital networks.

Observations show that students with high levels of digital literacy tend to be more active in academic activities. They more frequently utilize e-journals as reference sources, are more productive in writing scientific papers, and are more open to scientific developments from various countries (Putra & Suyadi, 2024). These findings demonstrate that digital literacy significantly contributes to improving students' academic quality and strengthening the competitiveness of Islamic boarding school graduates at the national and international levels.

In addition to institutional leaders, this research also involved several teachers as key informants. Interviews revealed that teachers view digital literacy as an integral part of the modern education process. They believe digital technology offers various conveniences in delivering learning materials. The use of videos,

animations, infographics, and various other interactive media makes learning more engaging and easier for students to understand.

Teachers also revealed that digital literacy helps them develop more innovative learning methods (Rahman & Anwar, 2023). Previously, the learning process tended to be one-way, with the teacher as the primary source of information. However, with digital technology, teachers can facilitate students' independent search, processing, and presentation of information. This change creates a more active and collaborative learning environment.

However, teachers also identified several challenges in implementing digital literacy. These challenges include differences in digital proficiency levels among students, the need to improve teachers' digital competencies, and the need for more intensive supervision of internet use. They believe that the success of digital literacy depends heavily on the ability of all components of education to adapt to ongoing technological developments.

Interviews with students revealed that digital literacy provides significant benefits in supporting their learning activities (Riyanto & Fauzi, 2021). Most students reported finding it easier to obtain information and learning resources online than relying solely on conventional sources. They can access digital books, scientific articles, learning videos, and various other sources of knowledge anytime and anywhere.

Several students also stated that using technology helped them better understand the course material. Learning videos and interactive media were found to be effective in explaining concepts that were difficult to grasp through conventional methods. Furthermore, access to a variety of information sources allowed them to broaden their scientific horizons and understand contemporary issues emerging in society.

The students also revealed that the "One Hour with a Book" program had a significant impact on their reading habits. The activity encouraged them to be more disciplined in reading and seeking information. Over time, these reading habits developed into the ability to search for and manage digital information more effectively.

Based on observations, interviews, and documentation, this study found that digital literacy at the Salafiyah-Syafi'iyah Islamic Boarding School in Sukorejo developed through a synergy between institutional policies, literacy culture, character development, learning innovation, and strengthening academic competencies. All of these elements form an educational ecosystem that supports the development of digital literacy as a new paradigm for Islamic education in the era of globalization.

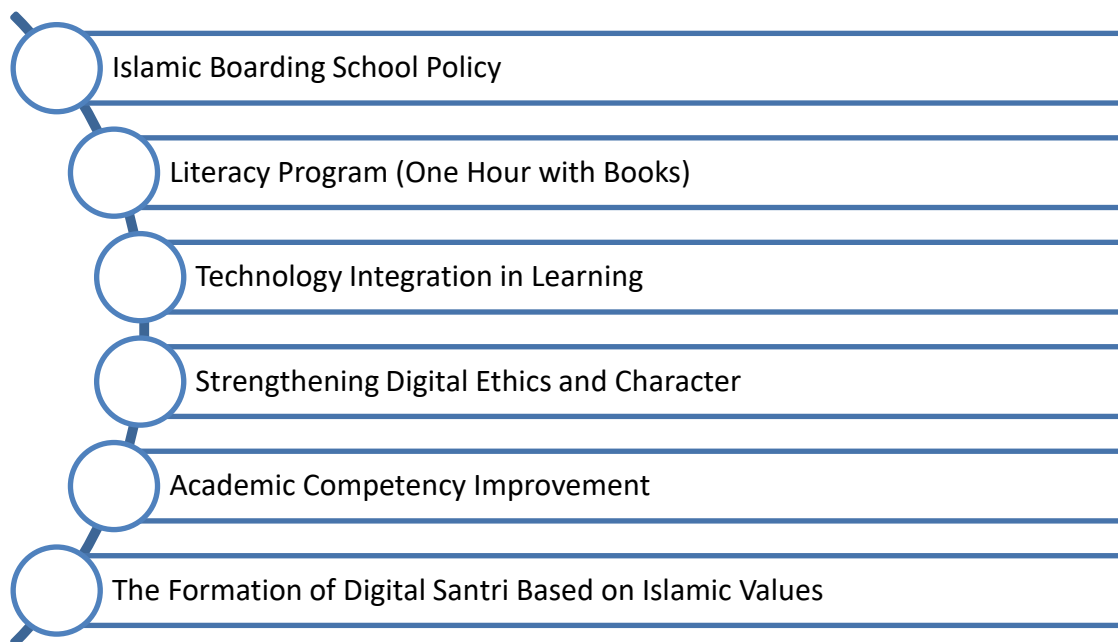


Diagram 1. Digital Literacy Implementation Model for Students at the Salafiyah-Syafi'iyah Sukorejo Islamic Boarding School

Diagram 1 shows that the development of digital literacy at the Salafiyah-Syafi'iyah Sukorejo Islamic Boarding School takes place through an integrated process. The school's policies serve as the primary foundation that gives rise to various literacy programs. These programs are then implemented through the integration of technology into learning and reinforced with character education and digital ethics. This process results in improved academic competence among students while also shaping a generation of Muslims capable of utilizing technology productively, critically, and responsibly in accordance with Islamic values. This finding reinforces research findings that digital literacy has become a new paradigm for Islamic education, bridging the scholarly traditions of Islamic boarding schools with the demands of globalization and digital transformation.

Discussion

The results of the study indicate that digital literacy at the Salafiyah-Syafi'iyah Islamic Boarding School in Sukorejo has developed into a new paradigm of Islamic education that functions not only as a technological instrument for learning, but also as a framework for educational transformation that integrates Islamic scientific traditions with the demands of globalization. These findings demonstrate that digital literacy in the Islamic boarding school environment is not understood

narrowly as the ability to operate technological devices, but rather as the ability to access, understand, evaluate, manage, and produce information critically and responsibly based on Islamic values. This perspective indicates a shift in the paradigm of Islamic education from a model oriented solely on the transmission of knowledge to an educational model that emphasizes the development of competence, character, and the ability to adapt to rapid social change (Sari & Mulyani, 2025).

The findings of this study reinforce the view that Islamic education in the era of globalization cannot be separated from the development of digital technology. Globalization has created new interactive spaces that enable the exchange of information, culture, and knowledge across borders. In this context, digital literacy skills are one of the key competencies that students must possess to actively participate in a knowledge-based society (Setiawan, 2021). The results show that the Salafiyah-Syafi'iyah Islamic Boarding School in Sukorejo has responded to these changes by developing various programs aimed at strengthening students' digital literacy skills without losing the identity and characteristics of Islamic boarding school education. These findings align with the theory of educational transformation, which states that educational institutions must be able to adapt to changes in the social environment to remain relevant in meeting students' needs.

The "One Hour with Books" program developed by formal Islamic boarding schools (pesantren) demonstrates that digital literacy is inseparable from a general literacy culture. Interviews with Mr. Lalu Supratman indicate that developing digital skills must begin with establishing a strong reading culture. This finding is relevant to various literacy studies that emphasize that effective digital skills require a foundation in the form of the ability to read, understand, and evaluate information. Digital literacy is not simply the ability to use technology but rather an extension of conventional literacy skills into a digital context (Suyadi & Widodo, 2023). Therefore, Islamic boarding school policies that maintain a reading culture at the core of literacy development can be seen as an appropriate strategy in facing the challenges of globalization.

The findings also indicate that Islamic boarding schools (pesantren) do not view technology as a threat to Islamic scholarly traditions, but rather as a means to expand access to knowledge. This perspective differs from the view that digitalization has the potential to erode the educational traditions of Islamic boarding schools. Instead, the research findings indicate that technology is being utilized to strengthen the transmission of Islamic knowledge through broader access to digital books, scientific journals, academic articles, and various other sources of knowledge (U.N.E.S.C.O., 2022). This situation demonstrates the

integration of tradition and modernity that is a hallmark of the transformation of contemporary Islamic education.

The research also shows that strengthening digital literacy in Islamic boarding schools is not solely focused on academic aspects, but also on character development and digital ethics. Interview findings with Mr. Mahmudi Bajuri demonstrate that character education is an integral element of digital literacy development. From the perspective of Islamic boarding schools, the ability to use technology must be balanced with self-control, maintaining ethical communication, and understanding moral responsibility in using digital media. These findings support Islamic educational theory, which places moral development as the primary goal of the educational process (Wahid & Rohman, 2023).

Previous studies have shown that one of the greatest challenges of the digital era is the increasing spread of invalid information, hate speech, digital radicalism, and various forms of communication deviation in the virtual space. In this context, the results of this study demonstrate that Islamic boarding schools (pesantren) have a unique approach to addressing these challenges by integrating Islamic values into digital literacy practices. Students are not only taught how to use technology but also the principles of *tabayyun* (religious discipline), social responsibility, and communication ethics derived from Islamic teachings. These findings demonstrate that Islamic education plays a significant role in building a more ethical and responsible digital society (Widodo & Nurhayati, 2024).

From the perspective of digital literacy theory, the findings of this study demonstrate alignment with the concept of digital literacy developed by Gilster and various contemporary literacy theory developers who emphasize critical thinking skills as the core of digital literacy. The results show that students not only acquire technical skills in using technology, but also develop the ability to evaluate the credibility of information, compare various sources of knowledge, and integrate the information obtained with believed values. These abilities are important indicators of advanced digital literacy that is oriented not only on the use of technology, but also on reflective and critical abilities.

The integration of digital literacy into primary and secondary education, as explained by Mr. Masykuri Ismail, demonstrates that the transformation of Islamic education in the era of globalization occurs not only at the policy level but also in classroom learning practices. Research shows that the use of digital media can increase student engagement in the learning process. This finding aligns with numerous studies showing that educational technology can increase learning motivation, expand access to learning resources, and create a more interactive learning environment.

In addition to increasing student engagement, technology integration also drives a paradigm shift in learning from teacher-centered to student-centered learning. In traditional learning models, teachers serve as the primary source of knowledge. However, in a digital learning environment, students have greater opportunities to independently search for, manage, and develop information. Research shows that students become more active in seeking references, asking questions, and developing their understanding of the material being studied. This shift demonstrates that digital literacy contributes to strengthening independent learning, a crucial 21st-century competency.

At the higher education level, research findings indicate that digital literacy plays a strategic role in improving students' academic quality. Interviews with Mr. Minhaji revealed that the ability to access international journals, use academic applications, and utilize technology for research activities are increasingly important competencies in higher education. These findings support various theories on digital scholarship that emphasize the importance of digital skills as part of modern academic competencies.

Students with good digital literacy tend to be more productive in producing scientific work and better able to participate in the global academic community. These findings suggest that digital literacy has broad implications for improving the quality of human resources. In the context of Islamic education, this skill becomes increasingly important because it allows students to access diverse Islamic scholarly perspectives from around the world without losing the Islamic identity that is the hallmark of Islamic boarding school education.

Table 2. Synthesis of Research Findings and Their Relevance to Islamic Educational Theory

Research Findings	Relevance of Theory	Implications of Islamic Education
The One Hour with Books program strengthens literacy culture	Literacy theory as a foundation for lifelong learning	Improving the reading culture and critical thinking skills of students
Integration of digital ethics in the development of Islamic boarding school students	The theory of moral education in Islam	Forming a responsible digital character
Utilization of technology in learning	Constructivism theory and student-centered learning	Increase participation and independence in learning

Strengthening digital literacy in higher education	Digital scholarship theory	Improving the academic quality and competitiveness of graduates
Integration of Islamic boarding school traditions and technology	The theory of transformation of Islamic education	Realizing Islamic education that is adaptive to globalization

Table 2 shows that all research findings are strongly linked to Islamic and contemporary educational theories. The digital literacy program developed at the Salafiyah-Syafi'iyah Islamic Boarding School in Sukorejo not only offers practical benefits but also has a strong theoretical basis for developing modern Islamic education. The integration of literacy culture, digital technology, and character education demonstrates that the transformation of Islamic education can proceed harmoniously without eliminating the core values that define the Islamic boarding school's identity.

From a practical perspective, the results of this study offer important implications for managers of Islamic educational institutions. The findings suggest that digital literacy development must be implemented comprehensively through institutional policies, strengthening a culture of literacy, improving teacher competency, providing technological infrastructure, and integrating character education into technology use. An approach that focuses solely on providing technological devices without considering cultural and character aspects has the potential to produce less than optimal outcomes (Hosaini, 2022).

Furthermore, research findings indicate that the success of digital literacy is significantly influenced by the support of all elements of education, from institutional leaders and teachers to students. Therefore, digital literacy development should be viewed as a shared responsibility involving all educational components (Hosaini & Alimin, 2020). Islamic boarding schools (pesantren) wishing to develop similar programs need to build a digital literacy ecosystem that supports collaboration between various parties.

Although this study yielded several important findings, there are several limitations that should be considered. First, the study was conducted at a single location, so the results cannot be broadly generalized to all Islamic boarding schools (pesantren) in Indonesia. The characteristics of the Salafiyah-Syafi'iyah Sukorejo Islamic Boarding School, with its unique resources, history, and educational system, may differ from those of other Islamic boarding schools. Therefore, interpretation of the research results must be based on the local context in which the research was conducted.

Second, this study used a qualitative approach, so the findings emphasize a deeper understanding of the phenomenon under study rather than quantitative measurements (Yusuf & Hasanah, 2021). While this approach allows for a more comprehensive exploration of the experiences and perspectives of informants, it does not provide a statistical overview of the overall digital literacy level of Islamic boarding school students. Further research using a quantitative approach could be conducted to complement the findings obtained.

Third, this research focused on the perspectives of institutional leaders, teachers, and some students, thus not encompassing all stakeholders involved in digital literacy development. The perspectives of parents, alumni, and the community surrounding the Islamic boarding school could be an important additional source of information for understanding the broader impact of digital literacy.

Despite these limitations, this research makes a significant contribution to the development of contemporary Islamic education studies. It demonstrates that digital literacy can serve as a new paradigm for Islamic education, integrating the scholarly traditions of Islamic boarding schools with the needs of global competency (Zubaedi, 2025). These findings enrich academic discourse on the transformation of Islamic education and provide empirical evidence that Islamic boarding schools possess a high degree of adaptability in the face of social and technological change.

Further research is recommended to conduct comparative studies across various types of Islamic boarding schools (*pesantren*) in Indonesia to gain a broader understanding of digital literacy development models in Islamic education. Furthermore, quantitative research on the impact of digital literacy on academic achievement, critical thinking skills, and student character is needed to strengthen the findings. Studies on the use of artificial intelligence (AI) in Islamic boarding school education are also an important research agenda given the rapid development of technology.

Overall, the results of this study indicate that digital literacy has developed into a new paradigm of Islamic education at the Salafiyah-Syafi'iyah Islamic Boarding School in Sukorejo. This paradigm is characterized by the integration of literacy culture, the use of digital technology, the strengthening of Islamic character, and the development of mutually supportive academic competencies. This transformation demonstrates that Islamic boarding schools are not only capable of maintaining the traditions of Islamic scholarship that have been passed down for centuries but also capable of developing educational innovations relevant to the demands of the globalization era. Thus, digital literacy can be seen as a bridge connecting Islamic

intellectual heritage with the needs of modern society and is a crucial foundation in building a superior, adaptive, and globally competitive generation of Muslims.

CONCLUSION

This study concludes that digital literacy has evolved into a new paradigm of Islamic education at the Salafiyah-Syafi'iyah Islamic Boarding School in Sukorejo in responding to the challenges of globalization and digital transformation. Within the pesantren context, digital literacy is no longer understood merely as the technical ability to operate digital devices and access online information, but rather as a comprehensive competency encompassing the ability to access, understand, evaluate, verify, and utilize digital information critically while remaining firmly grounded in Islamic values and ethical principles. The findings demonstrate that the successful implementation of digital literacy is supported by the synergy of institutional policies, literacy-based programs such as *One Hour with Books*, the integration of digital technology into classroom learning, and the cultivation of digital ethics and character education among students. This integrated educational ecosystem enables the pesantren to preserve its long-standing tradition of Islamic scholarship while simultaneously adapting to technological innovation and the demands of twenty-first-century education. Furthermore, digital literacy has contributed significantly to enhancing students' academic competence, critical thinking skills, reading culture, research abilities, and ethical awareness in the responsible use of digital media. The active involvement of pesantren leaders, teachers, and educational administrators has become a key factor in establishing a sustainable digital literacy ecosystem that integrates technological mastery with Islamic moral values, thereby preparing students to become adaptive, critical, responsible, and globally competitive Muslims.

Despite these important contributions, this study has several limitations that should be acknowledged. The research was conducted as a single qualitative case study at one Islamic boarding school; therefore, the findings cannot be generalized to all pesantren with different institutional characteristics, educational systems, and technological capacities. In addition, the study primarily explored participants' experiences and institutional practices without quantitatively measuring the long-term effects of digital literacy on students' academic achievement, digital competence, or behavioral change. The rapidly evolving influence of emerging technologies, including artificial intelligence, algorithm-driven social media, digital dependency, and information overload, also falls beyond the scope of this investigation. Accordingly, future studies are recommended to employ comparative and mixed-method approaches involving multiple pesantren from different regions

in Indonesia to strengthen the generalizability of findings. Longitudinal research is also needed to examine the long-term impact of digital literacy on academic performance, religious moderation, digital resilience, and character formation. Moreover, future investigations should explore strategies for preventing digital dependency, misinformation, online radicalization, and cyber-ethical challenges, while examining the integration of artificial intelligence into Islamic education. Such studies are expected to enrich the theoretical framework of digital literacy in Islamic education and provide stronger empirical evidence for developing sustainable educational policies that are responsive to the dynamics of Society 5.0 and future digital transformation.

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