

The Role of Islamic Boarding Schools in Digital Literacy: Strategies to Shape a Critical and Productive Muslim Generation

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Abstract

Purpose -The digital era poses both challenges and opportunities for Islamic boarding schools (pesantren) in Indonesia. This study investigates the strategic role of pesantren in fostering digital literacy to shape a generation of Muslims who are both critical and productive. The research aims to analyze how digital literacy is integrated into pesantren education and the strategies employed to align technological use with Islamic ethical values. **Methods** -Adopting a qualitative library research method, the study draws from a wide range of primary and secondary sources, including academic literature and documented case studies. **Findings** -The findings reveal several key strategies: integration of digital subjects into curricula, training and workshops for students and teachers, policy reinforcement on technology use, ethical digital education, and collaboration with external institutions. **Research implications / limitations** -Case studies from pesantren such as Nurul Jadid, Darunnajah, and Al-Muayyad demonstrate successful implementations through e-learning platforms, digital preaching programs, and content creation training. Despite notable challenges such as limited infrastructure, cultural resistance, and a lack of digital competence among educators the study affirms the potential of pesantren to serve as centers of ethical digital literacy. **Originality** -The research contributes new insights by highlighting a rarely explored intersection between Islamic education and

digital transformation, thus offering a valuable model for integrating religious values with technological advancement in education.

Keywords: *Pesantren, Digital Literacy, Muslim Generation, Islamic Education, Information Technology*

INTRODUCTION

In recent years, several pesantren in Indonesia have adopted innovative approaches to digital literacy. One notable example is Nurul Jadid Pesantren in Probolinggo, which has developed an information technology-based education program to equip students with digital skills, such as online journalism, social media management, and basic programming.¹ This program demonstrates that pesantren can adapt to modern times without compromising the Islamic values that are the foundation of their education.

Digital literacy in the context of pesantren is not merely about technical skills in operating digital devices but also involves the ability to analyze, evaluate, and produce quality information in accordance with Islamic values.² This ability has become increasingly important given the widespread dissemination of information in cyberspace, including fake news (hoaxes), hate speech, and content that can damage the morals of the younger generation.³ Therefore, pesantren need to develop effective strategies to integrate digital literacy into their curricula and learning activities so that students are not only consumers of information but also contributors to educational and beneficial content for society.

However, implementing digital literacy in pesantren remains complex. Factors such as limited technological infrastructure, a lack of digitally competent educators, and resistance to change are significant obstacles that need to be addressed.⁴ Therefore, synergy between pesantren, the government, and other stakeholders is necessary to ensure that digital literacy can be effectively implemented without reducing the essence of Islamic education in pesantren.

This study aims to examine how pesantren play a role in shaping critical and productive Muslim generations through digital literacy. It also explores strategies that can be applied to optimize technology utilization in pesantren education and identifies the challenges that need to be addressed for digital literacy to be optimally implemented in pesantren environments.

¹ S Zuhri, "Integrasi Teknologi Dalam Pendidikan Pesantren: Studi Kasus Di Pesantren Nurul Jadid," *Jurnal Teknologi Pendidikan Islam* 10, no. 1 (2018): 45.

² Nunung Suryana Jami Darimis, S. Sumihatul Ummah MS, Agus Salam, Aat Ruchiat Nugraha, "Edukasi Literasi Digital Era Cybernetics Dalam Meminimalisir Penyalahgunaan Media Sosial Bagi Anak Di Pinggiran Kota," *Journal of Human And Education* 3, no. 2 (2023): 374.

³ Y Eshet-Alkalai, "Digital Literacy: A Conceptual Framework for Survival Skills in the Digital Era," *Journal of Educational Multimedia and Hypermedia* 13, no. 1 (2004): 93.

⁴ M Syarif, "Literasi Digital Di Pesantren: Tantangan Dan Peluang," *Jurnal Pendidikan Islam* 15, no. 2 (2020): 112.

METHOD

This study uses a library research approach, which gathers data and information through library facilities, including books, magazines, documents, records, and historical narratives.⁵ This method involves tracing primary and secondary data sources, followed by content analysis (*Istimbathiyah*), offering objective, systematic, and qualitative descriptions of the content obtained.⁶ The descriptive-analytic method is used to reveal and explain ideas regarding the role of pesantren in digital literacy.

Data collection was carried out through documentation, collecting written sources such as books and other documents.⁷ As a literature study, data collection focused on reviewing and analyzing verbal data in the form of words rather than numbers. The emphasis was on identifying principles, theories, opinions, and ideas regarding the role of pesantren in digital literacy.

RESULT AND DISCUSSION

Digital Literacy from an Islamic Perspective

Digital literacy in Islam is associated with the concept of *iqra'* (read), which emphasizes the critical and in-depth examination of information (Al-Qur'an, Surah Al-'Alaq: 1-5). Islam also teaches ethics in disseminating information, as described in QS. Al-Hujurat: 6 regarding verifying news before spreading it. Therefore, pesantren have a strong foundation for teaching digital literacy that encompasses both skills and morality.

Digital literacy is a crucial aspect of modern life, especially in the era of technological development.⁸ In Islam, digital literacy includes not only technical skills in using technology but also moral and ethical aspects. This discussion is supported by theories from academic literature and case studies in Indonesia illustrating the practical implementation of digital literacy in daily life.

a. Concepts of Digital Literacy in Islam

Islam stresses the importance of knowledge and the use of technology for the benefit of the ummah. The Qur'an states:

اقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ

"Read in the name of your Lord who created." (QS. Al-'Alaq [96]: 1)⁹

⁵ Mardalis, *Metode Penelitian Suatu Pendekatan Proposal*, 1st ed. (Jakarta: bina aksara, 1996).

⁶ Pipit Widiatmaka Muhammad Hendri Nuryadi, "Strengthening Civic Literacy among Students through Digital Literacy in Society 5.0," *Journal of Education and Learning (EduLearn)* 17, no. 1 (2023): 217.

⁷ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktis*, 1st ed. (Jakarta: Rineka cipta, 1991).

⁸ Rahmatulloh. Napis, "Students' Environmental Knowledge Learning in the Era of Industrial Society 4.0 Reviewed from Digital Literacy Capability," *Journal of Education Technology* 8, no. 2 (2024): 344.

⁹ Kementerian Agama RI, *Al-Qur'an Dan Terjemahannya* (Kemenag, 2019).

This verse highlights that reading and understanding information is a Muslim obligation. In the digital context, this translates into the ability to read, understand, and process information critically to avoid misleading or false content.

From an Islamic perspective, digital literacy should be seen as part of an effort to enrich oneself with knowledge and avoid information that can lead to evil. As stated in the Qur'an, Surah Al-Alaq verses 1-5, that Allah commands mankind to read and seek knowledge. This principle is relevant in the digital context, because digital literacy is also a form of seeking knowledge through digital media.

Muslim scholars have put forward various views regarding how Muslims should respond to digital technology and information. In many discussions, they emphasize the importance of following the moral and ethical guidelines contained in Islamic teachings when using digital media.

Islam teaches that every technology, including digital media, must be used with trust (*amanah*) and responsibly. This is based on the principle stated in the Qur'an, Surah Al-Baqarah verse 283, which reminds mankind to maintain trust and not misuse it. Contemporary scholars such as Yusuf al-Qaradawi emphasized that the use of digital technology must be done with good intentions and positive goals, such as to spread kindness, knowledge and useful information.¹⁰

b. Digital Ethics in Islam

Digital ethics in Islam are no different from ethics in general taught in religious teachings. Islam teaches the importance of morality in all things, including in the use of technology. In the Qur'an and Hadith, there are many principles that are relevant to the use of digital technology. One of them is the principle of *akhlaq* (ethics) that must be maintained by every Muslim in interacting with others, both directly and through digital media.

The first principle that applies Islamic digital ethics is the importance of intention (*niyyah*). Every action, including the use of digital technology, must be based on good intentions and goals that are in accordance with Islamic teachings. This can be seen in the hadith of the Prophet Muhammad SAW who said: "Indeed, deeds depend on their intentions, and everyone will get what he intended" (HR. Bukhari and Muslim).¹¹ Therefore, in using social media or other digital platforms, the intention to spread goodness, knowledge, or preach must be prioritized.

In addition, Islam teaches the importance of *hifz al-'ird* (preserving honor). In the digital world, this means avoiding the spread of information that can harm others, such as slander, hoaxes, or content that demeans someone's dignity. For example, in the Qur'an, Allah SWT says: "And do not backbite people. Would any of you like to eat the flesh of his dead brother? Surely you would feel disgusted" (QS. Al-Hujurat: 12). This principle is especially relevant in the use of social media, where false or slanderous information can easily spread widely.

¹⁰ Yusuf Al-Qaradawi, *Fatawa Mu'asirah (Jilid 1)*, 1 (Dar Al-Qalam, 2005).

¹¹ Al-Bukhari M. I, *Sahih Al-Bukhari*, Hadist 1, vol. 1 (Dar al-Fikr., n.d.).

Islam teaches that every Muslim is responsible for the information they share. The Prophet Muhammad SAW said:

مَنْ كَانَ يُؤْمِنُ بِاللَّهِ وَالْيَوْمِ الْآخِرِ فَلْيُكَلِّمْ خَيْرًا أَوْ لِيَصْمُتْ (عَلَيْهِ مُتَّفَقٌ)

"Whoever believes in Allah and the Last Day, let him speak good or remain silent." (HR. Mutaffaqun 'alaih)¹²

In the digital world, this hadith can be interpreted as a reminder to be cautious when sharing information. Invalid or misleading information can cause slander and division. Therefore, the principle of tabayyun (verification), as taught in QS. Al-Hujurat [49]: 6, must be applied in digital media usage.

A number of contemporary Muslim scholars have addressed the issue of digital ethics by providing guidance on how Muslims should interact with technology. Yusuf al-Qaradawi, argues that Islam requires its followers to use technology positively and avoid things that can damage morals and ethics. According to al-Qaradawi (2010), technology should be used to spread goodness and knowledge, not to spread hatred or damage relationships between individuals.¹³

Other scholars, such as Abdul Rahman al-Sudais, also emphasize the importance of maintaining manners in every online activity. He reminds every Muslim to always remember their purpose in using digital technology, which is to get closer to Allah SWT and maintain good relationships with others. Al-Sudais argues that the use of the internet and social media must always be based on Islamic moral and ethical principles, considering the very broad and rapid impact of technology.¹⁴

Strategies for Pesantren to Improve Digital Literacy

The advancement of digital technology has changed the way people obtain and process information. Digital literacy skills are crucial in ensuring that individuals can sort out valid information and avoid misinformation.¹⁵ Pesantren, as the oldest Islamic educational institution in Indonesia,¹⁶ faces challenges in adopting digital technology without eliminating its traditional values.¹⁷ Therefore, a special strategy is needed so that digital literacy can be developed without reducing the identity of the pesantren.

a. Integration into the Curriculum

Pesantren can enhance digital literacy by integrating technology-based subjects, such as safe internet use, responsible social media introduction, and basic digital

¹² Imam Al-Bukhari, *Shahih Al-Bukhari*, 5th ed. (Dar-us-Salam Publication, 2002).

¹³ al-Qaradawi Yusuf, *The Role of Technology in Islam* (Doha: Dar al-Qalam, 2010).

¹⁴ al-Sudais A. R., *Ethical Use of Technology in Islam* (Riyadh: Al-Furqan, 2011).

¹⁵ E. J Livingstone, S., & Helsper, "Gradations in Digital Inclusion: Children, Young People and the Digital Divide," *New Media & Society* 9, no. 4 (2007): 673.

¹⁶ Hasmiza Hasmiza and Ali Muhtarom, "Kiai Dan Pengembangan Kurikulum Pesantren Di Era Digitalisasi," *Arfannur* 3, no. 3 (January 18, 2023): 137–50, <https://doi.org/10.24260/arfannur.v3i3.1049>.

¹⁷ Murdianto, "Pesantren Transformation In The Digital Era: Challenges, Adaptation, And Technological Moderation," *SANGKÉP: Jurnal Kajian Sosial Keagamaan* 5, no. 1 (2022): 116.

information analysis. For example, Pesantren Tebuireng in Jombang introduced e-learning applications for students.¹⁸

b. Strengthening Internal Policies

Implementing strict internal policies regarding technology use is crucial. Darunnajah Pesantren in Jakarta limits internet access to educational and research purposes,¹⁹ ensuring controlled access without hindering technological advancement.

c. Digital Literacy Training and Workshops

Pesantren can organize regular training to improve students' understanding of digital technologies, including finding credible information, protecting digital privacy, and understanding online ethics. In Pesantren Al-Ittifaq, Bandung, digital literacy training has increased students' responsible social media use.²⁰

d. Empowering Students through Digital Media

Pesantren can train students in creating digital content grounded in Islamic values, such as digital preaching, Sharia-based online businesses, and Islamic journalism. In Pesantren Al-Muayyad, Surakarta, the "Digital Santri" program encourages students to write and produce educational content across digital platforms.

e. Collaboration with External Institutions

Pesantren can collaborate with universities, research institutions, and media organizations to develop digital literacy programs. Nurul Jadid Pesantren in Probolinggo partnered with the Ministry of Communication and Information Technology to provide cybersecurity training for students.²¹

f. Media Ethics and Digital Security

Pesantren must also teach ethical principles in digital media, including cybersecurity awareness and personal data protection, to prevent students from falling into hoaxes and digital media misuse.²²

The strategy of Islamic boarding schools in improving digital literacy includes integrating technology into the curriculum, strengthening internal policies, training and workshops, and collaboration with external institutions. Case studies show that Islamic boarding schools that adopt this strategy are able to improve the digital literacy of students without ignoring Islamic values. With the development of appropriate policies, Islamic boarding schools can become centers of digital literacy that contribute to the development of education in Indonesia.

¹⁸ M Zarkasyi, *Pesantren Dan Modernisasi Pendidikan Islam Di Indonesia* (Yogyakarta: Pustaka Pesantren, 2018).

¹⁹ A Hasan, *Regulasi Digital Dalam Pendidikan Pesantren* (Jakarta: Pustaka Islamiyah, 2020).

²⁰ D Rahayu, *Strategi Pesantren Dalam Meningkatkan Literasi Digital: Studi Kasus Pesantren Al-Ittifaq Bandung* (Bandung: Media Ilmiah, 2021).

²¹ H Suryadi, *Transformasi Digital Dalam Pendidikan Pesantren: Studi Kasus Pesantren Nurul Jadid Probolinggo* (Surabaya: Lembaga Riset Islam, 2019).

²² D. Boyd, *It's Complicated: The Social Lives of Networked Teens* (London: Yale University Press, 2014).

Case Studies: Pesantren and Digital Literacy in Indonesia

Pesantren is the oldest Islamic educational institution in Indonesia that has a role in building the knowledge and character of students.²³ Along with the development of the digital era, pesantren face challenges in adopting technology to improve digital literacy. Digital literacy is a person's ability to understand, use, and manage digital-based information wisely and responsibly.²⁴

Nurul Jadid Islamic Boarding School in Probolinggo is an example of an Islamic boarding school that has successfully adopted digital literacy. This Islamic boarding school provides technology training for students and teachers, equipped with a computer laboratory that can be accessed by all students. Social media is also used by this Islamic boarding school as a means of preaching and education.²⁵

Pesantren Darussalam Gontor has also succeeded in integrating digital literacy into Islamic boarding school education. Gontor has developed an e-learning platform that allows students to study online. Students at Gontor are also trained to access and analyze information from credible sources, as well as to utilize technology to support their academic and preaching activities.²⁶

Al-Mumtaz Islamic Boarding School in Cianjur is another Islamic boarding school that adopts digital literacy by providing computer training for students. Internet usage courses are also provided so that students can utilize technology for educational and preaching purposes. The use of digital applications such as Google Classroom and Zoom is also part of the learning at this Islamic boarding school. Al-Islah Islamic Boarding School in Malang develops a digital curriculum that integrates technology into students' daily learning. This Islamic boarding school uses software for learning Arabic and computers. In addition, this Islamic boarding school also utilizes the Islamic boarding school information system to facilitate student data management, administration, and finances.²⁷

Challenges and Opportunities in Implementing Digital Literacy in Pesantren

The implementation of digital literacy in pesantren (Islamic boarding schools) has become an urgent necessity in today's digital era. Digital literacy does not merely encompass the ability to use technological devices, but also involves understanding the ethics of using digital media, the ability to critically evaluate accurate information, and the skills to create positive and productive content. However, this effort does not always proceed smoothly due to various challenges faced by pesantren institutions, particularly those located in rural areas or regions far from technological hubs.

²³ A Azra, *Pesantren Dan Modernisasi Pendidikan Islam* (Jakarta: Kencana, 2012).

²⁴ D Buckingham, *Digital Media Literacy: Future Directions* (London: Polity Press, 2007).

²⁵ H Suryadi, *Transformasi Digital Dalam Pendidikan Pesantren: Studi Kasus Pesantren Nurul Jadid Probolinggo* (Surabaya: Lembaga Riset Islam, 2019).

²⁶ Azra A, *Pesantren Dan Pendidikan Islam Di Indonesia*. (Jakarta: Prenadamedia Group, 2012).

²⁷ Buckingham, *Digital Media Literacy: Future Directions*.

a. Challenges in Implementing Digital Literacy

1) Limited Access to Technology

One of the main challenges in promoting digital literacy in pesantren is the limited access to technology. Many pesantren situated in rural areas lack adequate infrastructure, both in terms of internet connectivity and the availability of digital devices such as computers, laptops, or even smartphones. Data from the Ministry of Communication and Information Technology.²⁸ shows that internet penetration in rural areas, including many pesantren, is still relatively low. This makes it difficult for students (santri) and educators to access digital learning resources, participate in online training programs, or utilize technology as an effective learning medium. In addition, limited operational funding prevents many pesantren from providing sufficient digital devices for all their students.

2) Cultural Resistance to Digital Technology

Another significant challenge is the cultural resistance from certain pesantren communities, especially from religious leaders (ulama) and pesantren caretakers who are concerned that uncontrolled internet access may negatively affect the morality of the students. These concerns are not unfounded. The vast spread of negative content on the internet—such as pornography, radicalism, and the dissemination of fake news (hoaxes)—makes some pesantren leaders prefer to limit or even reject the widespread use of digital technology in their institutions.²⁹ notes that such concerns often lead pesantren caretakers to be cautious and reluctant to provide free internet access, even though digital technology could be utilized to support a more modern and effective learning process.

3) Lack of Training and Digital Competence among Educators

Many teachers or educators in pesantren have yet to receive specialized training on using digital technology in the learning process. As a result, they often lack confidence in integrating digital media into their teaching methods. According to Syaifuddin,³⁰ most pesantren educators still rely on conventional teaching methods, such as lectures or face-to-face discussions, without the support of digital devices that could enhance learning effectiveness. The lack of training also means that educators do not yet fully understand the importance of digital literacy, including aspects of cybersecurity and ethical media usage, which should also be taught to students.

b. Opportunities in Developing Digital Literacy in Pesantren

Despite these challenges, implementing digital literacy in pesantren presents various promising opportunities. With support from multiple stakeholders and appropriate approaches, pesantren can become pioneers in promoting digital literacy based on Islamic values.

1) Improving Technological Infrastructure

²⁸ Kominfo, *Laporan Gerakan Nasional Literasi Digital* (Jakarta: Kementerian Komunikasi dan Informatika, 2021).

²⁹ A Syamsuddin, *Dampak Digitalisasi Terhadap Pendidikan Islam* (Bandung: Alfabeta, 2018).

³⁰ R. Syaifuddin, *Pelatihan Literasi Digital Untuk Guru Pesantren* (Yogyakarta: Pustaka Madani, 2019).

One major opportunity lies in government programs and private sector support aimed at improving technology access in pesantren. Initiatives such as providing free or subsidized internet access, donating digital devices, and establishing community-based technology centers can address infrastructure limitations. Both central and local governments can collaborate with telecommunication operators and donor agencies to ensure that pesantren in remote areas receive proper digital facilities. With adequate infrastructure, pesantren can expand their technology-based learning activities, including online learning, webinars, and online courses that support the development of students' skills.

2) Digital Literacy Training for Teachers and Students

Another significant opportunity is the provision of regular and sustainable digital literacy training programs targeting both teachers and students. These training programs should not only focus on technical skills in operating digital devices but also emphasize critical thinking in evaluating digital content, creating positive content, and fostering awareness of ethics and security in internet use. With intensive training, pesantren teachers can become digital literacy agents who pass on their knowledge and skills to students. In turn, digitally literate students will be able to independently access various sources of knowledge and develop their potential through digital platforms such as social media, blogs, and sharia-compliant e-commerce.

3) Developing Digital Literacy Based on Islamic Values

One of the most effective approaches in implementing digital literacy in pesantren is to design curricula and digital programs that are grounded in Islamic values. With this approach, religious leaders and pesantren caretakers are more likely to accept and support digital literacy initiatives, as they align with the pesantren's mission to educate students in morality and ethics. The digital content developed can focus on materials for da'wah (Islamic preaching), online lessons on classical Islamic texts (kitab kuning), and the use of social media to spread positive messages and moderate Islamic values. This not only helps maintain the moral integrity of students in the digital era but also strengthens the role of pesantren as adaptive and relevant educational institutions in today's world.

The implementation of digital literacy in pesantren faces complex challenges, ranging from limited infrastructure to strong cultural resistance. However, behind these challenges lie significant opportunities to build modern, digitally literate pesantren communities that uphold Islamic values. Support from the government, private sector, and pesantren leaders' openness to adapting to technological developments are the keys to successfully fostering digital literacy within pesantren environments.

CONCLUSION

Pesantren play a strategic role in improving students' digital literacy to foster a critical and productive Muslim generation. Digital literacy in pesantren not only focuses on technical skills but also emphasizes morality and ethics grounded in Islamic values. Strategies include integrating digital literacy into the curriculum, strengthening internal policies, providing training, and empowering students through digital media. Despite facing technological limitations, cultural resistance, and a lack of trained educators, pesantren have great potential to become digital learning centers that maintain the essence of Islamic education while contributing to a healthier, more responsible digital ecosystem.

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