

Integration of Digital Religious Literacy in Santri Education: A Case Study at Pesantren Daarul Mafaza Deli Serdang

Fahmi Arif. S, Mhd. Habibu Rahman, Charles Rangkuti

Abstract

This study aims to analyze the integration of digital religious literacy in the education of santri at Pesantren Daarul Mafaza Deli Serdang. Using a qualitative approach with a case study design, the research explores how digital technology is utilized in religious education at the pesantren and the challenges encountered in its implementation. Data were collected through in-depth interviews, participatory observations, and documentation, and analyzed using thematic analysis techniques. The results show that while the use of digital technology in religious education provides significant benefits, such as enriching learning resources and supporting independent learning, the main challenges faced include limitations in technological infrastructure, such as unstable internet access and limited digital devices. Additionally, the low digital literacy among santri is also a barrier to maximizing the use of technology for religious learning. Therefore, this study suggests the importance of digital literacy training and the development of more structured policies to optimize the use of technology in religious education without neglecting the religious values that form the foundation of pesantren education.

Keywords: *Digital Religious Literacy, Technology In Education, Santri*

Fahmi Arif. S¹

¹Islamic Religious Education, Universitas Pembangunan Panca Budi, Indonesia
e-mail: fahmiarif104@gmail.com¹

Mhd. Habibu Rahman², Charles Rangkuti³

^{2,3}Islamic Religious Education, Universitas Pembangunan Panca Budi, Indonesia
e-mail: mhdhabiburahman@dosen.pancabudi.ac.id², charles@dosen.pancabudi.ac.id³

2nd International Conference on Islamic Community Studies (ICICS)

Theme: History of Malay Civilisation and Islamic Human Capacity and Halal Hub in the Globalization Era
<https://proceeding.pancabudi.ac.id/index.php/ICIE/index>

Introduction

The development of digital technology in recent decades has transformed the educational landscape, including religious education. With the rapid advancement of information technology, access to religious knowledge is now more accessible through various digital platforms, such as social media, websites, mobile applications, and others. Digital religious literacy, which includes the ability to access, understand, and intelligently utilize religious information through digital media, has become a crucial skill in the modern era. Santri, as the next generation educated in pesantren, need digital literacy that is not only limited to technical aspects but also includes a deep understanding of religious values in the digital world (Zainuddin Abuhamid Muhammad Ghozali, 2024).

Pesantren, as an Islamic educational institution rooted in tradition, faces significant challenges in integrating digital literacy into the teaching and learning process (Dewi Fatmawati, 2021). Many pesantren still maintain traditional learning models based on classical Islamic texts (*kitab kuning*), where digital technology has not yet been fully utilized in religious education. However, in recent years, pesantren have started adapting by using technology to enrich their learning and preaching (Mukhamat Saini, 2024). Despite this, many pesantren face difficulties in integrating technology with their curriculum, due to limited digital infrastructure, lack of training for pesantren educators, and concerns about the negative impact of technology on the moral and ethical behavior of santri (Mahmudah & Ridwan, 2025).

Pesantren Daarul Mafaza Deli Serdang, one of the modern pesantren in Indonesia, has taken steps to introduce digital religious literacy to its santri. The pesantren has started incorporating technology into religious education by using digital-based applications and providing internet access for the santri. However, despite efforts to digitalize learning, its implementation on the ground still faces several challenges, including infrastructure issues, readiness of human resources, and the pesantren community's perception of the use of technology in religious education.

This study reveals a clear research gap between the ideal expectations and the reality in the field. Previous studies have shown that while many pesantren recognize the importance of digital literacy, its implementation remains limited and uneven. For example, research by (Sabiq, 2020) and (Rauf et al., 2024) reveals that most modern pesantren develop technology-based curricula, but in practice, many pesantren educators and santri are not accustomed to using digital devices in religious education. Even those pesantren that have made efforts to integrate technology still face problems in optimizing existing devices and applications, as well as difficulties in aligning the use of technology with the religious values they uphold (Pratama, 2025).

The expectations surrounding digital religious literacy in pesantren are to enhance accessibility to religious knowledge, introduce santri to more modern learning methods, and enrich their religious understanding with a broader global perspective. However, in reality, many pesantren struggle to provide adequate infrastructure and face resistance from some groups who are concerned about the negative effects of technology on the mindset and behavior of santri. As a result, digital literacy in pesantren still falls short of expectations, with a significant gap between existing digital education policies and real practices on the ground. This is reflected in limited access to technology, lack of training for pesantren educators, and the suboptimal implementation of technology-based curricula that could accommodate religious education needs in the digital age.

This study aims to identify and analyze the implementation of digital religious literacy at Pesantren Daarul Mafaza Deli Serdang, as well as to examine the factors that contribute to the gap between expectations and reality in its implementation. Specifically, this research will explore how the pesantren integrates technology into religious education, the challenges faced during the integration process, and the impact of digital literacy on the religious understanding of santri. It is hoped that this research will contribute to understanding how other pesantren can

optimize digital religious literacy in the context of religious education that is more relevant to the development of the times.

Literature Review 1. Pesantren in the Digital Transformation Stream

As an Islamic educational institution that has existed for over four centuries in Indonesia, pesantren has unique characteristics that distinguish it from other educational institutions, the presence of kiai as spiritual and intellectual authority, the tradition of learning classical Islamic texts (kitab kuning) as a means of transmitting classical Islamic knowledge, the community of santri who live together (residential), and an integrated life that encompasses spiritual, intellectual, and social aspects (Dhofier, 2019).

Research by (Azra, 2021) shows that pesantren actually has a long tradition of adapting to socio-cultural changes. This adaptive ability, which in Islamic terminology is known as "al-muhafazhah 'ala al-qadim al-shalih wa al-akhdzu bi al-jadid al-ashlah" (maintaining what is good from the past while adopting what is better from the new), has become a cultural capital in facing the digital transformation. However, the digitalization of pesantren is not without challenges; it raises fundamental questions about the future of the sanad tradition, the authority of the kiai, and the exclusivity of the pesantren community (van Bruinessen, 2022).

A comparative study by (Bashori, 2022) on 15 pesantren in East Java and North Sumatra found three patterns of digital adaptation: resistant pesantren (rejecting technology entirely), selective pesantren (adopting certain technologies with strict filters), and transformative pesantren (fundamentally reconfiguring the curriculum based on digital means). Based on initial observations by the researcher, Pesantren Daarul Mafaza falls into the third category, positioning it as a living laboratory for the study of Islamic education transformation.

2. Digital Literacy and Religious Moderation

The Ministry of Religious Affairs of the Republic of Indonesia, through its Religious Moderation program, has established religious digital literacy as one of the pillars of the national strategy for preventing radicalisme (Kementerian Agama Republik Indonesia, 2023). This policy is supported by findings from (Romli, 2023) and (Mhd. Habibu Rahman, 2025), which show a positive correlation between the level of digital literacy and an individual's ability to critically filter extremist religious content. In their study in pesantren in North Sumatra, (Hidayat & Lubis, 2023) found that santri who received digital literacy training had 3.2 times better religious information verification skills compared to those without training. However, the same study also revealed a paradox: unstructured social media access actually increases the risk of exposure to extremist content, indicating that digital literacy does not automatically lead to ideological resilience without a strong value framing.

Research Methodology

This study uses a qualitative approach with a case study design to gain an in-depth understanding of the integration of digital religious literacy in the education of santri at Pesantren Daarul Mafaza Deli Serdang. The research location was chosen because Pesantren Daarul Mafaza has begun integrating digital technology into religious learning. The subjects of the study include santri, ustaz/ustazah, and the pesantren management involved directly in digital-based learning activities. Data were collected through three main techniques: in-depth interviews with key informants, participatory observation of learning activities using digital media, and documentation of digital learning materials and policies related to technology use at the pesantren. In-depth interviews were conducted to understand the views, experiences, and challenges faced by the management and students regarding the use of technology in the

teaching and learning process. The collected data will be analyzed using the stages of data condensation, data display, and conclusion drawing.

Results

The results of this study reveal that the integration of digital religious literacy at Pesantren Daarul Mafaza Deli Serdang has been implemented in various ways, although its implementation has not been fully optimal. Based on interviews with the pesantren management and teachers, it was found that the pesantren has begun to introduce the use of digital technology to support the religious learning process. The technology used includes devices such as laptops, tablets, and smartphones, as well as various applications like WhatsApp, Google Classroom, YouTube, and e-books. The use of these digital platforms is intended to enrich learning materials, access additional learning resources, and facilitate remote teaching, especially during the pandemic.

Santri have also been involved in various digital-based learning activities. In interviews with the santri, the majority of them expressed that using YouTube lecture videos and application-based learning materials had helped deepen their understanding of religion. However, not all santri feel comfortable or can access this technology effectively. This is primarily due to infrastructure limitations such as unstable internet connections and a lack of digital skills among the santri, particularly those from areas with limited access to technology.

In addition, the pesantren management reported that, despite efforts to integrate technology into education, the main challenge faced is the unequal access to technology among the santri. Some santri are more accustomed to using digital devices and feel that the technology helps them understand religious teachings, while others still struggle and prefer conventional learning methods. Some ustaz/ustazah also expressed concerns about the negative impacts of technology usage, such as social media addiction and the harmful influence of unfiltered digital content.

The results of this study indicate that the implementation of digital religious literacy at Pesantren Daarul Mafaza Deli Serdang has brought several benefits, although challenges remain that need to be addressed to optimize it. Consistent with previous findings, as reported by (Hamid. S, 2019), the use of technology in religious education provides opportunities for santri to access a broader range of information and deepen their understanding of religious teachings. In this context, the integration of digital literacy allows santri to utilize video lectures, articles, and e-books that provide additional insights not easily obtained through conventional sources. This enriches the learning experience and facilitates more independent and interactive learning.

However, as found in this study, the biggest challenge in integrating digital literacy is infrastructure limitations. These limitations include poor internet network quality in some pesantren locations and a lack of adequate devices for all santri. Some santri, particularly those from economically disadvantaged backgrounds, do not have personal digital devices, limiting their access to digital learning materials. This finding aligns with research by (A. Prayetno, 2020), which shows that digital inequality, particularly in terms of internet access and devices, remains a major barrier to the adoption of educational technology in many pesantren.

In addition to access issues, the low level of digital literacy among santri also presents a challenge. Although most santri are familiar with using smartphones, they do not always have the skills to optimally utilize technology for religious learning purposes. For example, some santri expressed difficulty in searching for relevant materials or understanding how to use the provided learning applications. Research by (Widyastuti, 2021) reveals that digital literacy among pesantren students is still low, especially when it comes to the ability to assess the quality of information obtained through digital media. This highlights the need for comprehensive digital literacy training for santri to ensure they can use technology effectively and productively.

In addition to the benefits and challenges, the negative impact of technology use in the context of religious education also needs to be addressed. Some ustaz/ustazah expressed

concerns about the negative effects of technology, such as social media addiction, exposure to unfiltered content, and the reduction of face-to-face interaction between teachers and students. As reported by (Mayeni et al., 2019), technology can have negative impacts if not properly managed, especially in educational environments that emphasize moral and religious values. Therefore, it is important for pesantren to develop policies that regulate the use of technology wisely, ensuring that the use of digital media does not interfere with the primary goal of religious education based on Islamic values.

On the other hand, digital religious literacy can provide opportunities to address these issues if approached in a more structured manner. Some ustaz/ustazah have begun to develop strategies to integrate religious learning with more selective use of technology. For example, they use applications to restrict access to certain materials and organize training sessions on how to use technology in alignment with Islamic teachings. By doing so, pesantren can create a learning environment that not only uses technology effectively but also preserves the religious values upheld.

Overall, despite the challenges in integrating digital religious literacy, this study shows that the potential of technology to enrich religious education in pesantren is significant. Therefore, the development of policies supporting infrastructure improvement, digital literacy training for santri, and supervision of technology use should be prioritized to maximize the benefits of technology in religious learning at pesantren.

Conclusion

The integration of digital religious literacy at Pesantren Daarul Mafaza Deli Serdang has had a positive impact on religious education, although it still faces various challenges. The use of digital technology provides santri with broader access to the latest religious learning materials, enriches the learning experience, and supports more independent learning. However, infrastructure limitations, such as unstable internet access and the lack of devices available to santri, remain the main barriers to the implementation of this technology. In addition, although many santri are familiar with digital technology, their low level of digital literacy hinders them from fully utilizing technology for religious learning purposes. Therefore, more comprehensive digital literacy training is needed so that santri can use technology effectively and productively. Pesantren need to develop more structured policies for managing the use of technology, while maintaining the religious values that are the main objectives of pesantren education. Thus, despite the challenges, the potential of digital religious literacy to improve the quality of religious education in pesantren is significant and should be supported with improvements in infrastructure, training, and appropriate supervision.

References

- [1] A. Prayetno. (2020). Digital Divide dalam Pendidikan Pesantren: Tantangan dan Peluang. *Jurnal Teknologi Pendidikan*, 5(1).
- [2] Azra, A. (2021). *Pesantren: Kontinuitas dan Perubahan*. Kencana Prenada Media Group.
- [3] Bashori, K. (2022). Pesantren dan Transformasi Digital: Studi Komparatif Pola Adaptasi Pesantren di Jawa Timur dan Sumatera Utara. *Jurnal Pendidikan Islam*, 11(2), 145–170. <https://doi.org/10.14421/jpi.2022.112.145-170>
- [4] Dewi Fatmawati, A. R. (2021). Kurikulum Pesantren Ideal di Era Digital. *Syntax Literate : Jurnal Ilmiah Indonesia*, 6(6).
- [5] Dhofier, Z. (2019). *Tradisi Pesantren: Memadu Modernitas untuk Kemajuan Bangsa* (Edisi Revisi). Pesantren Nawesea Press.
- [6] Hamid. S. (2019). Pemanfaatan Teknologi dalam Pendidikan Agama Islam di Pesantren. *Jurnal Pendidikan Agama*, 24(3).
- [7] Hidayat, M. T., & Lubis, A. F. (2023). Literasi Digital Santri dan Ketahanan Ideologis:

- Studi Multi-Situs di Pesantren Sumatera Utara. *Islamitein: Journal of Islamic Education*, 5(1), 22–41. <https://doi.org/10.30829/islamitein.v5i1.2023>
- [8] Kementerian Agama Republik Indonesia. (2023). *Moderasi beragama: Dari {Indonesia} untuk dunia*. Badan Litbang dan Diklat Kemenag RI.
- [9] Mahmudah, S., & Ridwan, I. (2025). Religious Digital Literacy among Islamic Boarding School Students through a Critical Study of the Salafiyah Islamic Boarding School Curriculum. *West Science Islamic Studies*, 3(04), 333–342.
- [10] Mayeni, R., Syafti, O., & Sefrinal. (2019). Dampak Perkembangan Teknologi Dikalangan Remaja Dilihat dari Nilai-Nilai Karakter. *Jurnal Penelitian Dan Pengabdian*, 7(2), 234. <https://ejournal.uinib.ac.id/jurnal/index.php/turast/article/download/1298/1052>
- [11] Mhd. Habibu Rahman, S. I. A. L. (2025). Moderate Islamic Education as a Space For Negotiating the Religious Identity of Adolescents. *Al-Fikru: Jurnal Ilmiah*, 19(1), 203–216.
- [12] Mukhamat Saini. (2024). Pesantren dalam Era Digital: Antara Tradisi dan Transformasi. *Tasamuh: Jurnal Studi Islam*, 2(2), 343–356. <https://doi.org/10.25124/cosecant.v2i2.18657.2>
- [13] Pratama, A. I. (2025). Integration of Pesantren Curriculum with Digital Technology : Challenges and Opportunities in Islamic Education. *Proceedings of the 3rd International Conference on Pesantren (3rd ICOP)*, May, 1–8.
- [14] Rauf, B., Brutu, F. B., Helga, N., Samosir, A., & Wulan, B. (2024). Budaya Organisasi Pondok Pesantren Tarbiyah Islamiyah Ar-Raudhatul Hasanah Paya Bundung Medan. *Jurnal Pendidikan Kreativitas Pembelajaran*, 06(3), 485–502.
- [15] Romli, A. S. M. (2023). Literasi Digital Keagamaan: Strategi Pencegahan Radikalisme Daring di Lembaga Pendidikan Islam. *Jurnal Ilmu Dakwah*, 43(1), 67–89. <https://doi.org/10.21580/jid.v43.i1.2023>
- [16] Sabiq, S. (2020). Eksistensi Pesantren Sebagai Lembaga Pendidikan Islam. *Atta'dib Jurnal Pendidikan Agama Islam*, 1(2), 13.
- [17] van Bruinessen, M. (2022). The Modernization of Islamic Education in Southeast Asia: Perspectives from Pesantren. *Asian Studies Review*, 46(4), 589–607. <https://doi.org/10.1080/10357823.2022.2034521>
- [18] Widyastuti. (2021). Literasi Digital di Pesantren: Tantangan dan Solusi. *Jurnal Literasi Digital*, 3(1).
- [19] Zainuddin Abuhamid Muhammad Ghazali. (2024). Digital Literacy of Islamic Boarding Schools in Indonesia: Identifying Perception, Practice, and Challenges. *Proceeding International Seminar on Islamic Education and Peace*, 4, 465–473.