Integration of Tradition and Technology: Digitalization Strategies in Islamic Education at Pesantren in Banyuwangi, Indonesia

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Abstract: *This study analyzes the strategies employed by Islamic boarding schools (pesantren) to manage cultural conflicts in non-Muslim communities. Using a qualitative approach with a case study method, data were collected through interviews, observations, and documentation, and subsequently analyzed using an interactive model, which included data reduction, data presentation, data depiction, and conclusion drawing. The results revealed that the pesantren implemented various strategies, such as intercultural dialogue, joint social activities, synergy in religious social events, collaboration with government agencies, and enhancing their image through achievements. These strategies play a crucial role in preventing and resolving cultural conflicts, as well as fostering harmonious relationships with the surrounding community. This research demonstrates that pesantren serve not only as religious education institutions but also as social agents that contribute to intercultural integration and harmony, particularly in plural societies. These findings underscore the significant role of pesantren in promoting cross-cultural dialogue and collaboration, ultimately fostering more inclusive and harmonious relationships in non-Muslim communities.*

Abstrak: Penelitian ini menganalisis strategi pesantren dalam mengelola konflik budaya di komunitas non-Muslim. Menggunakan pendekatan kualitatif dengan metode studi kasus, data dikumpulkan melalui wawancara, observasi, dan dokumentasi, kemudian dianalisis menggunakan model interaktif, yang meliputi reduksi data, penyajian data, pemaparan data, dan penarikan kesimpulan. Hasil penelitian menunjukkan bahwa pesantren menerapkan berbagai strategi, seperti dialog antarbudaya, kegiatan sosial bersama, sinergi dalam kegiatan sosial keagamaan, kolaborasi dengan lembaga pemerintah, dan peningkatan citra melalui prestasi. Strategi-strategi ini memainkan peran penting dalam mencegah dan menyelesaikan konflik budaya, serta membangun hubungan harmonis dengan komunitas sekitar. Penelitian ini mengungkapkan bahwa pesantren tidak hanya berfungsi sebagai lembaga pendidikan agama, tetapi juga sebagai agen sosial yang berkontribusi pada integrasi dan keharmonisan antarbudaya, khususnya di masyarakat yang plural. Temuan ini mengonfirmasi peran penting pesantren dalam mempromosikan dialog lintas budaya dan kolaborasi untuk menciptakan hubungan yang lebih inklusif dan harmonis di komunitas non-Muslim.*

INTRODUCTION

Digitalization in Islamic boarding schools (*pesantren*) is not merely about adopting new technologies but about integrating these technologies with existing traditions to produce harmonious and sustainable solutions (Rifat, et al., 2020; Nasir, et al., 2024; Al-Jayyousi, et al., 2022; Suroso et al., 2021; Mursidi et al., 2021). Technologies like social media, websites, and online learning applications can effectively disseminate Islamic values and teachings. Research indicates that Islamic boarding schools that successfully integrate technology report increased student participation in learning activities (Syafei, I. 2023; Wahono, et al., 2023; Salsabila et al., 2022). However, this integration faces challenges, as it must balance traditional values with technological advancement to ensure sustainability and relevance (Abulibdeh, et al., 2024; Martínez-Peláez, et al., 2023; Furstenau, et al., 2020).

From a theoretical perspective, digitalization in education is often explained using concepts like technology adoption and digital transformation, focusing on the use of digital tools to enhance learning efficiency and reach (Mohamed Hashim, et al., 2022; Bygstad, et al., 2022; Mukul, et al., 2023; Qureshi, et al., 2021). However, these theories are predominantly developed in the context of general education and fail to address the unique needs of traditional institutions like Islamic boarding schools. Moreover, while theories of cultural and technological integration exist in cultural studies, their application to religious education is limited (Zembylas, 2023; Weisberg & Dawson, 2023; Qury, 2024). This creates a theoretical gap in understanding how technology can support spiritual and ethical values within traditional educational systems (Zhao, et al., 2024; Alshahrani, et al., 2024; Sadid & Munir, 2024).

Previous studies have explored the challenges and benefits of digitalizing Islamic boarding schools. For example, Mukarromah et al. (2024), Muhith et al. (2023), and Nikmatullah et al. (2023) highlight the importance of adapting to technological advancements to maintain relevance in the digital era. Furthermore, research by Sadid & Munir (2024), Zhao, et al, (2023), Adel (2024), and Lasekan, et al (2024) underscores that technology can enhance student participation and learning effectiveness without compromising traditional values. Despite these insights, most studies lack depth in exploring effective solutions for integrating technology and tradition harmoniously, leaving a critical gap in understanding sustainable digitalization strategies for Islamic boarding schools.

This study aims to provide a comprehensive strategy for integrating technology and tradition in Islamic boarding schools. By addressing the challenges of balancing traditional values with digital advancements, this research seeks to ensure these institutions remain relevant and attractive to the younger, tech-savvy generation. The strategies proposed here are intended to help Islamic boarding schools navigate the digital era without compromising their core values. Additionally, the study will utilize case studies to identify factors that support or hinder the adoption of technology, offering practical recommendations for improving digitalization in Islamic boarding schools.

The integration of technology in Islamic boarding schools is most effective when approached holistically. Existing research often focuses either on the advantages or the obstacles of technology adoption without proposing actionable strategies to harmonize tradition and innovation (Enstroem, et al., 2024; Mehta, et al., 2024; Barikzai, et al., 2024). This study argues that active involvement from all community stakeholders, including administrators, teachers, and parents, is crucial for creating a robust digital adaptation model. Furthermore, a well-defined integration strategy can help Islamic boarding schools maintain their identity while remaining relevant in the modern age (Jubba, et al., 2022; Roqib, 2021; Hanafi, et al., 2021). This argument is supported by the need for theoretical advancements that combine traditional values with technological capabilities, as highlighted by recent studies (Maatuk, et al., 2022; Lynch, et al., 2021; Miranda, et al., 2021).

Research addressing the integration of tradition and technology in Islamic boarding schools is essential for several reasons. First, it provides practical guidance for these institutions to remain competitive and relevant in the digital era. Second, it bridges the theoretical gap in understanding how technology can complement traditional educational values. Lastly, the findings can serve as a model for similar traditional institutions worldwide, demonstrating how to adapt effectively to digital advancements while preserving cultural and religious identities. This research contributes not only to the academic field but also to the practical development of Islamic boarding schools, reinforcing their role in spreading Islamic teachings in a modern, connected world.

The integration of technology in Islamic boarding schools requires a theoretical framework that bridges cultural and technological perspectives. Existing theories on digital transformation and technology adoption often overlook the unique needs of traditional educational systems. For instance, educational technology models are generally designed for institutions focused on academic outcomes rather than holistic spiritual development (Chanifah, et al., 2021; Joshi, 2022; Alam & Mohanty, 2023; Selwyn, 2023). Therefore, this research aims to contribute to the development of a theoretical framework that incorporates the spiritual, ethical, and traditional dimensions of Islamic boarding schools into digitalization strategies.

This study will propose a set of practical strategies to address the challenges of integrating technology in Islamic boarding schools. These include fostering collaboration between stakeholders, providing adequate training for teachers and administrators, and developing customized technological tools that align with the values and traditions of Islamic boarding schools. Additionally, case studies will illustrate successful examples of digital integration, offering a blueprint for other institutions to follow. Case studies conducted in various Islamic boarding schools will provide insights into the factors that support or hinder the adoption of technology. These case studies will highlight the role of leadership, community involvement, and resource availability in shaping the success of digital initiatives. Furthermore, they will explore the impact of digitalization on student engagement, learning outcomes, and the preservation of traditional values.

The findings of this research will serve as a foundation for future studies exploring the long-term impacts of digitalization in traditional educational settings.

Potential areas of exploration include the development of digital tools specifically designed for Islamic education, the role of government policies in supporting digitalization, and the impact of global digital trends on local traditions. The digitalization of Islamic boarding schools represents a critical area of study for balancing tradition and modernity. By integrating theoretical insights with practical strategies, this research aims to contribute to the sustainable development of these institutions in the digital era. The findings will not only benefit Islamic boarding schools but also provide valuable lessons for other traditional educational systems worldwide, ensuring they remain relevant and effective in a rapidly evolving technological landscape.

METHOD

The object of this research is the Darussalam Blokagung Islamic Boarding School in Banyuwangi, which has integrated technology into various aspects of its education. This Islamic boarding school was selected as a case study to gain a comprehensive understanding of how technology is implemented within the context of Islamic boarding schools in the region. The Darussalam Blokagung Islamic Boarding School was chosen because it has a long history of maintaining traditional Islamic values while adapting to technological advancements in education. This institution not only serves as a center for religious learning but also seeks to integrate technology in order to expand access to education and enhance its quality for students.

The successes and challenges encountered during the digitalization process at this Islamic boarding school provide an opportunity to explore how tradition and technology can be harmoniously aligned. Additionally, the school has a large and diverse community, making it a representative example for other Islamic boarding schools to address the challenges of sustainable digitalization. The purposive sampling method (Budiman & Rosmiati, 2020) was used to select this institution due to its representativeness and the relevance of its experience in integrating technology.

This study adopts a qualitative approach with a case study method, allowing for an in-depth exploration of the unique context of Pondok Pesantren Darussalam Blokagung, including how technology is applied in both education and religious teachings. The case study approach aligns with the theory that emphasizes the use of case studies in qualitative research to examine complex issues within specific contexts (Efrem Jelahut, 2022).

The main informants in this study are teaching staff, school administrators, and students who are directly involved in the use of technology at Darussalam Blokagung Islamic Boarding School. Purposive sampling will be employed to select informants with relevant experience and knowledge concerning technology implementation. Data triangulation theory (Susanto & Jailani, 2023) will be applied to ensure the validity of the data by combining information from multiple sources. The following table presents the informants for the research on technology implementation at Darussalam Blokagung Islamic Boarding School, Banyuwangi, using purposive sampling and data triangulation to ensure data validity.

Table 1. Determination of Research Informants

No.	Type of Informant	Selection Criteria	Number of Informants
1	Teaching Staff	Teaching experience at Islamic Boarding School	5 people
2	Islamic Boarding School Manager	Playing a role in technology decisions	3 people
3	Active Students	Engage in everyday use of technology	10 people

This study will involve a total of 18 informants consisting of teaching staff, Islamic boarding school managers, and active students selected based on the criteria of relevance and experience in using technology in the context of the Darussalam Blokagung Islamic Boarding School.

Data collection techniques will involve in-depth interviews with teaching staff and Islamic boarding school managers, as well as group discussions with students who actively use technology in their education. Participatory observation will also be conducted to directly observe the implementation of technology in daily activities at Darussalam Blokagung Islamic Boarding School. This approach aligns with Cohen theory, which highlights the importance of diverse and in-depth data collection in qualitative research (Rifa'i, 2023).

The qualitative data collected will be analyzed using a thematic analysis approach. This approach enables researchers to identify thematic patterns or motifs emerging from the data and interpret them within a relevant theoretical context (Sitasari, 2022; Rozali, 2022). Thematic analysis will reveal various aspects of how Pondok Pesantren Darussalam Blokagung integrates technology into its education and its impact on the learning process and traditional values.

In this study, data analysis will follow the thematic analysis approach to identify emerging patterns related to technology integration at Darussalam Blokagung Islamic Boarding School. The stages of thematic analysis include: first, familiarization with the data, which involves repeatedly reading and understanding data from interviews, observations, and discussions to gain a comprehensive overview. Second, initial coding, where the data is broken down into meaningful units and coded according to the emerging themes. Third, theme discovery, which involves grouping similar codes into relevant themes, such as the role of technology in learning or its impact on Islamic boarding school values. Fourth, theme review, which ensures that each theme aligns with the research objectives and has clear meaning. Finally, naming and interpretation of themes, where descriptive names are assigned to the themes, and they are interpreted within a theoretical context to reveal the strategies used by the Islamic boarding school in combining tradition with technology. This approach provides an in-depth understanding of the interaction between technology and tradition in the Islamic boarding school environment.

RESULT AND DISCUSSION

Utilization of Social Media for Preac hing and Education in Islamic Boarding Schools

In the current digital era, social media has become an effective and widely used communication tool in various aspects of life, including in the realm of religion and education (Saleh et al., 2022; Adiyono & Anshor, 2024; Kwaah, 2024). For Islamic boarding schools, social media offers great opportunities to expand the reach of da'wah and education. Through platforms such as Facebook, Instagram, and YouTube, Islamic boarding schools can disseminate Islamic values and religious teachings to a wider audience, both within the Islamic boarding school and outside the community. The use of social media for da'wah and education makes an important contribution to Islamic boarding schools in adapting to current developments (Kholili, et al., 2024; Raya, 2024; Ju'subaidi, et al., 2024). Besides helping spread religious messages, social media also allows Islamic boarding schools to display the students' educational and daily activities to the general public. This not only strengthens the positive image of Islamic boarding schools but also attracts the interest of the younger generation to become more familiar with Islamic boarding schools as educational institutions that are adaptive to technology.

Darussalam Blokagung Islamic Boarding School utilizes social media as the main tool for preaching and education. Educational content developed specifically for this platform not only supports Islamic learning but also improves students' understanding of Islamic teachings. The active involvement of the Islamic boarding school community in online activities is also recorded as high, indicating broad participation in spreading Islamic values through social media. Social media provides a broad and easily accessible platform for Islamic boarding schools to reach a global audience. By utilizing social media, Islamic boarding schools can effectively promote Islamic values and expand the positive impact of Islamic education (Islamic, et al., 2023; Ilham, et al., 2024). Preaching activities at the Darussalam Blokagung Islamic Boarding School are carried out through platforms such as YouTube, Facebook, TikTok and Instagram. The use of social media is illustrated by a pie chart.
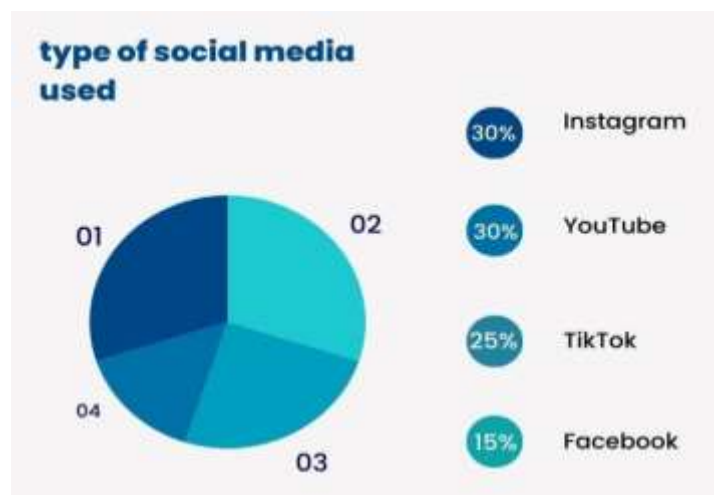

Figure 1. Utilization of social media for Islamic boarding school preaching and education

The pie chart above illustrates the use of various platforms as mediums for preaching at the Darussalam Blokagung Islamic Boarding School, specifically Instagram, YouTube, TikTok, and Facebook. Among these, Instagram and YouTube are the most widely utilized, each accounting for 30% of the total platform use. This preference is due to their popularity among alumni. TikTok and Facebook follow with usage rates of 25% and 15%, respectively. The content shared on these platforms includes updates on Islamic boarding school activities, *maqolah kyai* (the wisdom of religious scholars), educational materials, and more. Tailored educational content for social media further enhances students' learning quality and deepens their understanding of Islamic teachings.

The integration of social media in preaching and education at Islamic boarding schools not only reinforces Islamic values in the public sphere but also supports students' learning processes on a global scale. By engaging with the wider community through social media, the boarding schools extend their reach, amplifying the positive impact of Islamic education. This aligns with Junaidi, et al, (2024); Bhagat & Kim (2022); Chen, et al., (2022); David, (2021); Todisco, et al., (2021), which highlights the crucial role of social media in disseminating information and shaping public perception.

Technology-Based Assessment in Islamic Boarding Schools: Improving Accuracy and Efficiency

Islamic boarding schools, as traditional Islamic educational institutions, are increasingly adapting to modern technological advancements, including in their assessment systems. The implementation of technology-based assessments within these institutions represents a significant effort to enhance the accuracy and efficiency of student evaluations. By utilizing specialized software or digital platforms, Islamic boarding schools can conduct assessments that are not only more structured and timely but also significantly reduce the risk of human error. This digital approach allows for a more streamlined evaluation process, enabling teachers to track student progress in both academic and religious domains with greater precision (Papakostas, 2024; Chenari, et al., 2024; Kamalov, et al., 2023; Al-Hail, et al., 2024).

The introduction of technology-based assessment systems in Islamic boarding schools is a key strategy for improving the management of student learning outcomes. With the help of advanced software, teachers can efficiently manage and analyze assessment data, ensuring that they can make more informed decisions about student performance. This shift is accompanied by comprehensive teacher training programs designed to equip educators with the skills necessary for the effective implementation of these systems. As noted by Alneyadi, et al., (2023); Oguguo, et al., (2021); Alam & Mohanty, (2023); and Cai, et al., (2022), the use of such technology allows for a more accurate and efficient process of evaluating student progress and achievements. At the Darussalam Blokagung Islamic boarding school, for example, a system called Si Santri has been adopted, which integrates daily student assessments, tracking of academic achievements, and monitoring of moral development. The Si Santri application offers a comprehensive and user-friendly approach to managing these assessments, providing a modern solution to the traditional educational setting.

Figure 2. Si Santri Application

By adopting technology in assessment systems, Islamic boarding schools have the potential to revolutionize their decision-making processes, thereby fostering a more effective and supportive learning environment for students. This perspective is strongly supported by studies such as those by Rahtikawatie et al. (2021), Ali et al. (2021), and Xu & Saleh (2021), which underscore the critical role of precise and efficient assessment mechanisms in enhancing educational outcomes. Technology-driven assessments allow for streamlined data collection, enabling schools to gather comprehensive insights into student performance, learning progress, and areas needing improvement.

Moreover, these systems facilitate advanced data analysis, providing actionable information that can be used to tailor teaching strategies, identify gaps in knowledge, and allocate resources more effectively. For Islamic boarding schools, where holistic education—encompassing both religious and general studies—is a priority, such innovations ensure a balanced approach to nurturing intellectual and moral development. In addition, the integration of technology in assessments not only aligns these institutions with modern educational standards but also empowers educators with tools to maintain accountability and transparency. Ultimately, this adoption can significantly enhance the overall quality and competitiveness of education provided by Islamic boarding schools in an increasingly technology-driven world.

Digitization of Islamic Boarding School Libraries

In an effort to enhance access to literacy and meet students' learning needs in the digital era, many Islamic boarding schools have started implementing digitalization in their libraries. The digitalization of libraries in Islamic boarding schools not only aims to archive and preserve collections of Islamic books and

literature but also facilitates quick and flexible access to references for students (Alshanqiti, 2021). By embracing digitalization, these schools can provide access to a wide range of relevant literature, encompassing both classical and contemporary works, which can be accessed online or via electronic devices (Suharto & Fatmawati, 2022; Lundeto et al., 2021; Nikmatullah et al., 2023).

One notable example is the successful digitization of libraries by Islamic boarding schools, providing students with easy access to thousands of classical books through digital platforms such as "*Maktabah Syamilah*." This initiative has significantly increased students' participation in library activities since the introduction of digital access. By enabling students to access various classical Islamic texts more efficiently, digitization reduces the need to carry multiple physical books for study. Instead, students can rely on the convenience of the Maktabah Syamilah platform, which consolidates extensive collections of books into a portable and efficient digital format. An illustration of the Maktabah Syamilah application is as follows.

Figure 3. Syamilah Mosque

This application not only increases students' interest in reading but also broadens the scope of literacy within the Islamic boarding school environment. According to the theory of diffusion of innovation, the successful adoption of new technology within a traditional cultural context relies on its integration with existing values (Okour, et al., 2021; Menzli, et al., 2022). The digitization of Islamic boarding school libraries exemplifies how technology can expand access to knowledge while preserving the foundational values of Islamic boarding schools in the digital age.

A more nuanced theoretical approach to analyzing the digitalization of Islamic boarding schools includes integrating educational technology concepts that respect the unique traditional and cultural dynamics of these institutions. For instance, the theory of adaptive change offers insights into how Islamic boarding schools, deeply rooted in tradition, can gradually adapt to technological advancements. This process minimizes conflicts with established values while safeguarding the core identity of these institutions (da Silva & Cardoso, 2024; Rohmatulloh, et al., 2023). Such an approach frames digitalization not as a disruptive transformation but as a measured evolution aligned with traditional principles.

Moreover, the educational ecosystem theory, provides a framework for understanding how the digitalization of Islamic boarding schools occurs within a multi-layered context. This context encompasses government policies, community support, and the technological readiness of the boarding school community (Kadir & Umiarso, 2023; Oyinlola, M., et al., 2024). This theory emphasizes that the success of technological adaptation is influenced not only by internal factors but also by the broader external environment that either supports or constrains innovation.

Rogers' (2003) theory of innovation diffusion further contributes to this discussion by highlighting the variability in how Islamic boarding schools adopt technology (Abubakari, et al., 2024; Rahman, et al., 2024). The theory categorizes adopters into groups such as innovators, early adopters, and the early majority. This perspective sheds light on the differing levels of success among Islamic boarding schools in implementing digitalization, depending on their position in the innovation adoption curve. Such a lens enables a deeper understanding of how readiness and adaptability impact the outcomes of digital transformation initiatives.

By combining these three theoretical perspectives, the analysis of Islamic boarding school digitalization becomes more robust, accounting for the interplay of tradition, community preparedness, and environmental factors. This comprehensive approach highlights digitalization not merely as a technical shift but as a social and cultural process that balances the preservation of traditional identity with the demands of modernity.

CONCLUSION

Based on the discussion of the findings above, it can be concluded that the Darussalam Blokagung Islamic boarding school has adopted a solution-oriented approach that combines tradition with technology to address the challenges of digitalization. The use of social media platforms such as Instagram, YouTube, TikTok, and Facebook has successfully become a primary tool for preaching and education, enhancing student engagement and amplifying the positive impact of Islamic education. Additionally, the implementation of a technology-based assessment system has improved the accuracy and efficiency of managing students' learning outcomes, while the digitization of libraries through platforms like *Maktabah Syamilah* has expanded access to classical Islamic literature. This approach not only reinforces Islamic values in the public eye but also supports global learning processes and elevates the quality of education in Islamic boarding schools. Thus, the Darussalam Blokagung Islamic boarding school demonstrates

that integrating technology with traditional values can provide effective solutions to the challenges of the digital era.

Based on the results of this study, several practical implications can serve as recommendations for other Islamic boarding schools planning to adopt technology for preaching, assessment, and library digitization. First, when utilizing social media for preaching, it is essential for Islamic boarding schools to create content that aligns with their target audience while leveraging popular platforms such as Instagram, YouTube, and TikTok to reach diverse groups, particularly alumni and the younger generation. Establishing a dedicated media team to manage preaching content can help maintain the consistency and quality of the message. Second, in adopting technology-based assessment systems, Islamic boarding schools should consider investing in software tailored to the specific needs of religious education. Providing intensive training for teachers on using these applications will ensure data accuracy and enhance the efficiency of learning outcome management. Technology-based assessments not only streamline processes but also support better decision-making in educational evaluations. Third, library digitization efforts can begin by identifying key literature frequently used by students and integrating them into easily accessible digital platforms, such as *Maktabah Syamilah*. Training students on the use of digital libraries is equally important to maximize the benefits of this technology. Library digitization facilitates broad access to classical texts without compromising the traditional values of pesantren learning.

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