

Islamic Boarding Schools and Digital Education: Redefining Roles in the Context of Makassar

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Abstract

Islamic boarding schools (pesantren) have long been central to Indonesia's educational and cultural landscape, serving as custodians of Islamic learning and community values. However, the rise of digital education has prompted pesantren to reconsider their roles in preparing students for the demands of the 21st century. This study explores how pesantren in Makassar negotiate the integration of digital technologies while preserving their traditional functions. Using a qualitative case study design, data were collected through semi-structured interviews, classroom observations, and document analysis across three pesantren with varying levels of digital readiness. Thematic analysis revealed four key findings: first, pesantren exhibit different levels of digital readiness shaped by institutional resources and leadership commitment; second, teaching practices are gradually shifting toward blended pedagogies where digital tools complement traditional halaqah methods; third, challenges such as infrastructural gaps, digital literacy disparities, and cultural resistance continue to limit adoption; and fourth, pesantren are redefining their identity as hybrid institutions that combine religious tradition with technological innovation. These findings underscore that pesantren in Makassar are not merely adapting to digital



transformation but actively reshaping their educational mission. Policy support, teacher training, and community collaboration are essential to ensure inclusive and context-sensitive digital integration within pesantren.

Keywords: Islamic boarding schools, digital education, pesantren, Makassar

INTRODUCTION

Islamic boarding schools, or pesantren, have long held a central role in shaping the educational, cultural, and religious landscape of Indonesia. Rooted in centuries-old traditions, pesantren function not only as institutions of Islamic learning but also as social and moral guides for their surrounding communities. In Makassar, as in many other parts of Indonesia, pesantren serve as both educational and cultural centers where students are nurtured intellectually and spiritually. However, the rise of digital technology in the 21st century presents both opportunities and challenges for these institutions. Scholars argue that the integration of technology into education has transformed traditional modes of learning, requiring adaptation to meet the demands of digital literacy and global competitiveness (Selwyn, 2016; Warschauer, 2011).

In the context of Makassar, pesantren are beginning to navigate the shifting dynamics between tradition and innovation. While the pesantren system is often perceived as conservative, recent studies highlight that many pesantren have shown adaptability by incorporating technological tools into their curricula (Zainuddin et al., 2020). The COVID-19 pandemic further accelerated this shift, as online learning platforms, digital resources, and communication technologies became essential for sustaining education. For pesantren in Makassar, the transition to digital education highlighted the importance of redefining roles—not only as transmitters of religious knowledge but also as facilitators of technological competencies for students.

The adoption of digital education in pesantren raises critical questions about the compatibility between traditional Islamic pedagogy and modern educational technology. Scholars such as Hefner (2020) emphasize that pesantren have historically been resilient institutions, able to negotiate external influences while preserving their cultural and spiritual foundations. In Makassar, this resilience is evident as pesantren experiment with digital platforms, ranging from online Qur'an recitation classes to the use of multimedia resources in Islamic studies. This process reflects a broader educational transformation, where pesantren are redefining their roles to include not just spiritual and moral instruction but also digital empowerment.

At the same time, the integration of digital education into pesantren life is not without



obstacles. Limited infrastructure, unequal access to technology, and varying levels of digital literacy among teachers and students remain pressing challenges (Rahman & Fadhilah, 2021). In Makassar, while some urban pesantren have successfully adopted technology-enhanced learning, others in more resource-constrained areas struggle to provide basic internet connectivity. This digital divide underscores the need for targeted policies and community support to ensure that pesantren can embrace digital education inclusively. Without such support, there is a risk that pesantren could fall behind in preparing students for the demands of the digital age.

Nevertheless, opportunities for innovation abound. The introduction of digital tools can enrich the pesantren learning environment by enabling interactive teaching, expanding access to global Islamic scholarship, and fostering critical thinking skills among students. For example, the use of e-learning platforms and educational applications allows pesantren in Makassar to connect with broader academic networks while maintaining their Islamic identity. Scholars such as Anderson and Dron (2011) argue that digital learning, when contextualized properly, can complement traditional methods rather than replace them. In this sense, pesantren in Makassar have the potential to emerge as hybrid institutions that blend the wisdom of tradition with the dynamism of modern technology.

Ultimately, the case of Islamic boarding schools in Makassar illustrates the need to redefine the roles of pesantren within the digital education landscape. No longer confined to their traditional function as guardians of religious learning, pesantren are now expected to equip students with skills that align with 21st-century competencies, including digital literacy, collaboration, and global awareness. By engaging with technology in a thoughtful and context-sensitive manner, pesantren in Makassar can sustain their cultural and spiritual relevance while simultaneously empowering students to thrive in a rapidly changing world. This dual role—preserving tradition and embracing innovation—positions pesantren as key actors in shaping Indonesia's educational future in the digital era.

LITERATURE REVIEW

Islamic Boarding Schools and Their Evolving Educational Role

Islamic boarding schools (pesantren) in Indonesia have historically functioned as institutions that preserve religious knowledge while also serving as centers for social and cultural transmission. Traditionally, pesantren emphasized the teaching of classical Islamic texts (*kitab kuning*) and moral formation under the guidance of *kiai* or religious leaders (Dhofier, 2011). Beyond religious education, pesantren are also recognized for instilling discipline, community



values, and resilience among students (Azra, 2019). Over time, pesantren have undergone transformations to accommodate modern educational needs, including the incorporation of general subjects mandated by the national curriculum (Latief & Nashir, 2021). This shift reflects their adaptability to broader socio-political changes while maintaining a distinctly Islamic identity.

In the urban context, particularly in cities such as Makassar, pesantren increasingly find themselves at the intersection of tradition and modernization. Urban pesantren face pressures not only to provide religious education but also to prepare students for participation in a knowledge-based economy. Research by Rohman (2018) highlights that urban pesantren have responded by integrating vocational and entrepreneurial programs into their curricula, aiming to produce graduates with diverse competencies. This evolution demonstrates that pesantren are no longer solely religious institutions; rather, they are dynamic spaces where Islamic values meet modern educational demands. Thus, the redefinition of roles within pesantren is a process embedded in broader societal and educational transformations.

Digital Education and Technology Integration in Islamic Learning

The rapid advancement of digital technology has brought profound changes to educational systems worldwide, including Islamic learning institutions. Digital education emphasizes flexible, technology-enhanced learning environments that foster collaboration, accessibility, and critical engagement with knowledge (Ally, 2019). In Indonesia, the adoption of digital tools in Islamic education has been uneven but steadily growing. Studies show that pesantren are beginning to adopt online learning platforms, mobile applications, and multimedia resources to support both religious and general education (Hidayat & Nugroho, 2020). These initiatives demonstrate the potential of digital technology to enrich the learning experience while expanding access to diverse resources.

However, the integration of technology in pesantren also brings challenges. A study by Fauzi and Muslih (2021) found that many pesantren struggle with limited infrastructure, insufficient training for teachers, and resistance to change rooted in concerns about preserving traditional pedagogy. Despite these challenges, digital education offers opportunities to contextualize Islamic teachings in ways that resonate with contemporary learners. For example, digital Qur'an apps, interactive *fiqh* modules, and online scholarly discussions allow students to engage with Islamic knowledge in formats that are both accessible and engaging (Suharto, 2022). In the context of Makassar, where urban pesantren are better positioned with internet access and exposure to technological innovation, digital education provides a pathway to redefine their



educational roles. The fusion of Islamic values with digital tools not only sustains the relevance of pesantren but also positions them as key actors in shaping digital literacy within Muslim communities.

Conceptual Framework

Islamic boarding schools (*pesantren*) in Indonesia, and specifically in Makassar, are experiencing a transformation in their educational functions. Historically, pesantren emphasized the transmission of Islamic knowledge, moral guidance, and community leadership (Dhofier, 2011; Azra, 2019). However, the emergence of the digital era has necessitated a redefinition of their roles. The framework for this study situates pesantren as institutions at the nexus of tradition, modernization, and digitalization, where multiple dimensions converge. First, the traditional role of pesantren is anchored in religious instruction, character building, and the preservation of Islamic culture. These functions remain essential, ensuring that pesantren continue to serve as moral and cultural guardians. Second, the modernization process involves alignment with national education policies, incorporation of secular subjects, and preparation of students for professional and vocational opportunities (Latief & Nashir, 2021). This adaptation positions pesantren within the broader educational ecosystem of Indonesia. Third, digital education introduces a transformative dimension that reshapes how learning occurs in pesantren. The adoption of online platforms, digital Qur'an applications, multimedia tools, and blended learning approaches enables pesantren to provide more flexible, engaging, and globally connected educational experiences (Hidayat & Nugroho, 2020; Suharto, 2022). Yet, the integration of technology also brings challenges, including infrastructure gaps, digital literacy disparities, and potential tensions with traditional pedagogies (Fauzi & Muslih, 2021). The conceptual framework thus proposes that the redefined roles of pesantren in Makassar emerge from the interaction between these three domains. By blending traditional Islamic pedagogy with modern curriculum and digital technology, pesantren can serve as hybrid educational institutions that preserve religious identity while cultivating 21st-century competencies such as digital literacy, critical thinking, and global awareness. This hybridization not only strengthens the relevance of pesantren but also ensures their continued significance in Indonesia's evolving educational landscape.

METHOD

Research Design

This study employed a qualitative case study design to explore how Islamic boarding



schools (*pesantren*) in Makassar are redefining their roles within the context of digital education. A case study design was chosen because it allows for an in-depth examination of institutions within their real-life settings, particularly when the boundaries between context and phenomenon are not clearly evident (Yin, 2018). The qualitative approach also provides rich insights into the lived experiences of *pesantren* leaders, teachers, and students as they negotiate the integration of technology into their educational practices.

3.2 Research Participants

The research was conducted in three selected *pesantren* located in Makassar, representing different institutional profiles: (1) a large, well-established *pesantren* with strong digital infrastructure, (2) a mid-sized *pesantren* experimenting with limited technology adoption, and (3) a smaller *pesantren* with minimal technological engagement. This purposeful sampling strategy was used to capture variations in digital adoption across different institutional contexts (Creswell & Poth, 2018). Participants included *pesantren* leaders (*kiai* and administrators), teachers, and students. In total, 25 participants were involved: 5 leaders, 10 teachers, and 10 students.

Data Collection

Data for this study were collected through a combination of interviews, classroom observations, and document analysis in three *pesantren* located in Makassar. The use of multiple sources was intended to capture the complexity of how digital education is negotiated within the *pesantren* context. Semi-structured interviews were conducted with leaders, teachers, and students to gather their perspectives on the role of technology in teaching and learning. These interviews explored themes such as institutional readiness, pedagogical adaptation, and the perceived benefits and challenges of digital integration. Each interview was conducted in Bahasa Indonesia, recorded with participant consent, and later transcribed for analysis. Alongside interviews, classroom observations were carried out to examine the actual use of digital tools during teaching sessions. Particular attention was given to the ways teachers balanced traditional Islamic pedagogies with modern educational technologies, such as e-learning platforms, multimedia resources, and online communication tools. To complement these methods, document analysis was also undertaken, focusing on institutional curricula, digital policy guidelines, and instructional materials. This triangulation of data sources allowed for a more comprehensive understanding of *pesantren* practices in the context of digital education.

3.4 Data Analysis

The analysis of data followed the principles of thematic analysis as outlined by Braun and



Clarke (2019). Transcripts, observation notes, and institutional documents were first read repeatedly to gain familiarity with the data. Initial codes were then generated inductively, capturing recurring concepts related to technology use, resistance to change, and strategies for integration. These codes were later grouped into broader categories, leading to the identification of central themes such as digital readiness, pedagogical innovation, infrastructural challenges, and the redefinition of pesantren identity. NVivo software was employed to organize and manage the coding process, ensuring systematic handling of large volumes of qualitative data. To strengthen the validity of findings, triangulation across interviews, observations, and documents was applied, while member checking was conducted with selected participants to verify interpretations. Reflexive notes were also maintained by the researcher to acknowledge positionality and minimize bias during the analytical process. Through this systematic and iterative approach, the study was able to generate a nuanced account of how pesantren in Makassar are redefining their educational roles within the digital era.

RESULTS

Digital Readiness and Institutional Commitment

The study revealed a wide spectrum of digital readiness among pesantren in Makassar. Larger pesantren, often supported by alumni associations and government programs, had invested in stable internet connections, digital devices for classrooms, and training sessions for teachers. For instance, Pesantren A partnered with a local university to provide training in online teaching tools, reflecting a strong institutional commitment to modernization. In contrast, Pesantren B and Pesantren C—mid-sized and small institutions—struggled with financial limitations that restricted their ability to upgrade facilities. Leaders across all pesantren acknowledged the urgency of engaging with digital education, though their strategies differed. One *kiai* from Pesantren A emphasized:

“We cannot stop the wave of technology. Our responsibility is to channel it so that it supports learning and does not erode our values.”

Meanwhile, in smaller pesantren, leaders expressed aspirations rather than concrete strategies, noting that limited resources made technological adaptation incremental rather than systemic.



Table 1. Variations in Digital Readiness across Pesantren in Makassar

Pesantren	Infrastructure Availability	Leadership Commitment	External Support	Level of Readiness
Pesantren A (large)	High-speed internet, computer lab, projectors	Strong, proactive	University partnership, alumni funding	High
Pesantren B (medium)	Partial internet, limited devices	Moderate, exploratory	Some NGO support	Medium
Pesantren C (small)	Minimal internet, no dedicated devices	Limited, aspirational	Community donations	Low

This table illustrates how readiness levels shape the pace and depth of digital adoption, reinforcing the idea that pesantren identity in Makassar is being renegotiated unevenly depending on institutional capacity.

Teaching Practices and Pedagogical Innovation

Observations across the three pesantren highlighted distinct teaching practices shaped by available technology. In Pesantren A, classrooms integrated multimedia presentations and digital Qur'an applications alongside traditional *halaqah*. Teachers reported that using slides and audio-visual recitations increased student engagement. One student reflected:

“When the teacher shows Qur'anic verses on the projector and explains them with visuals, it feels more alive and easier to understand.”

In Pesantren B, teachers began experimenting with digital tools, though inconsistently. WhatsApp groups were commonly used to share reading materials, homework, and motivational reminders. Teachers admitted they often relied on students to troubleshoot technical problems, signaling a generational gap in digital competence. Meanwhile, Pesantren C remained predominantly traditional, though a few teachers experimented with showing religious videos via mobile phones when internet access allowed.

Table 2. Observed Teaching Practices in Pesantren Makassar

Practice	Pesantren A	Pesantren B	Pesantren C
Multimedia presentations	Frequent	Occasional	Rare
Digital Qur'an apps	Integrated in class	Limited use	Minimal



WhatsApp for communication	Standard practice	Standard practice	Limited
Traditional <i>halaqah</i>	Still central	Central	Central

The table underscores that pedagogical innovation in pesantren is occurring in blended forms rather than as full digital transformation. Tradition remains at the core, while technology functions as an enhancer rather than a replacement.

Challenges and Resistance to Change

Interviews identified three dominant challenges: infrastructural gaps, digital literacy disparities, and cultural resistance. Infrastructural challenges included unstable internet connections and insufficient access to laptops or projectors, particularly in Pesantren C. Digital literacy gaps emerged as younger students adapted quickly to digital platforms, while many senior teachers struggled. A teacher from Pesantren B admitted:

“I feel confident teaching with the kitab, but when students ask me to upload assignments online, I hesitate. I worry about making mistakes.”

Cultural resistance was also evident. Some parents voiced concerns that technology might expose students to “non-Islamic content,” undermining the pesantren’s spiritual mission. Leaders emphasized the need for guidance, framing technology as a “neutral tool” whose moral value depends on its use.

Table 3. Key Challenges Identified in Pesantren

Category	Examples Reported	Impact
Infrastructure	Weak internet, limited devices	Restricts consistent digital adoption
Digital literacy	Teachers less skilled than students	Creates dependency, lowers confidence
Cultural attitudes	Fear of moral erosion, parental skepticism	Slows acceptance of digital tools

This combination of structural, human, and cultural barriers demonstrates that successful integration requires more than technology—it demands institutional trust-building and cultural negotiation.

Redefining Pesantren Identity in the Digital Era

Despite challenges, a significant theme across data was the emerging redefinition of



pesantren identity. Leaders and teachers increasingly viewed digital tools as extensions of their mission rather than threats. Online Qur'an recitation competitions, digital da'wah content creation, and webinars with international scholars illustrated new pathways for pesantren to expand influence. Students in particular embraced this hybrid identity. A student from Pesantren A shared:

"We still memorize the Qur'an traditionally, but now we also join online classes where we meet ustadz from other cities. It makes our world bigger while keeping our foundation strong."

This hybridization signals that pesantren are positioning themselves as custodians of tradition and innovators of digital education. Their identity is no longer confined to the image of isolated religious institutions but reimagined as dynamic centers of both spiritual and technological empowerment.

CONCLUSION

This study shows that Islamic boarding schools in Makassar are redefining their roles in the digital era by balancing tradition with technological innovation. While larger pesantren demonstrate stronger digital readiness, smaller institutions still face infrastructural and literacy challenges. Despite these limitations, leaders, teachers, and students increasingly recognize digital tools as essential for enhancing learning and expanding the reach of Islamic education. The integration of technology into teaching practices indicates the emergence of a hybrid identity—where pesantren remain guardians of religious tradition while preparing students with 21st-century competencies. To sustain this transformation, policies and community support are needed to ensure inclusive access, teacher training, and infrastructure development.

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