Transforming *Kitab Kuning* Literacy in the Digital Era: Challenges and Future Prospects for Islamic Education

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Abstract

Islamic boarding schools or *pesantren*, integral to traditional Islamic education in Indonesia, presently confront a pivotal moment due to the rapid advancement of technology and digital transformation. While previous studies have emphasized enhancements in institutional and curricular frameworks, there has been inadequate attention to how these modifications fundamentally transform the notion of *kitab kuning* literacy. This study examines the improvement of *kitab kuning* literacy through an extensive literature analysis that integrates many research aspects of *pesantren* modernism, digital pedagogy, and critical literacy. A methodical examination of academic literature was performed utilizing major databases, concentrating on publications from the previous decade and foundational texts. The results indicate that the improvement of *kitab kuning* literacy involves not only technical integration but also a profound transformation of the *pesantren* environment. Contemporary literacy encompasses three interconnected components: traditional literacy, which preserves academic heritage (*sanad*); adaptive digital literacy, which utilizes technological tools for accessibility and hybridity; and critical literacy, which empowers students to assess and validate information in the post-truth era. This study provides a comprehensive framework that elucidates the epistemic progression of *kitab kuning* literacy and delineates practical consequences for policymakers and educators in curriculum development, teacher training, and the continuous improvement of Islamic education.

Keywords: *kitab kuning; pesantren modernization; Islamic education; digital literacy; critical literacy*

Introduction

Islamic boarding schools or *pesantren* in Indonesia have historically served as fundamental institutions of traditional Islamic education, with the study of the *kitab kuning* as a scholarly basis and authoritative reference (Mutamimah et al., 2025). However, the significant forces of modernization and swift social change, driven by the Industrial Revolution 4.0 and Society 5.0, position these institutions at a critical crossroads (Ichwan, Amin, et al., 2024). Traditional religious authority must now grapple with social media, which provides swift, if sometimes partial and less comprehensive, information (Zhang, 2025). This shift requires a comprehensive rejuvenation of *pesantren*, beginning with alterations in administration, curriculum, and teaching

methodologies, to guarantee their relevance and sustainability in the modern period (Zaini et al., 2022; Zarkasyi, 2020).

Despite comprehensive evidence in the literature concerning the adaptation of *pesantren* to modernization, understanding of the substantial ramifications of this change for *kitab kuning* literacy remains insufficient. Certain research concentrate on revising management practices and the curriculum. Zarkasyi (2020) examines the collaboration between the *pesantren* and *madrasah* education systems at *Pondok Modern Gontor*, while Rahmadani & Raharja (2025) investigate the curriculum adaptations at *pesantren* in Yogyakarta in response to societal changes. Thoha & Hannan (2022) examined the modernization of governance based on an accelerating paradigm in Madura Islamic boarding schools, and other studies such as Zaini et al. (2022) and Hafidzi (2020) documented curriculum adaptation and the development of students' abilities in facing the digital literacy era. These studies have enriched the understanding of *pesantren* innovations, including the integration of traditional education (*salaf*) with the tiered class system and general subjects, but it is still rare to examine how these changes fundamentally affect the meaning and practice of *kitab kuning* literacy.

The incorporation of digital technology has been a significant study focus, with the use of the *Maktabah Syamilah* application and the *Ngaji Online* trend on YouTube and social media enabling hybrid learning chances that surpass geographical and temporal constraints. Ibda et al. (2023) highlight *Maktabah Syamilah* as an alternative learning method in Islamic boarding schools that supports Islamic moderation and fights radicalism. Istiqomah et al. (2025) discovered that *As-Sa'idiyyah* 2 Islamic Boarding School has been disseminating the recitation of the *kitab kuning* on YouTube since 2014, thereby improving the accessibility of the teachings and transcending spatial and temporal limitations. Mustofa et al. (2023) introduced the concept of a hybrid Islamic boarding school, wherein in-person educational activities are conducted in a hybrid manner using digital media, thereby creating a new habitus within the Islamic boarding school learning tradition.

Based on this synthesis, this article argues that the literacy transformation of the *kitab kuning* is not just a partial adjustment to the demands of modernization or digitalization. Instead, this change demands a comprehensive restructuring of the *pesantren* education ecosystem, including pedagogical aspects, institutional management, and the role of *kiai*. A holistic understanding of this transformation is needed to assess how *pesantren* can remain relevant, maintain the sustainability of knowledge, and form an adaptive generation of students in the Society 5.0 era.

This study offers an analytical framework that synthesizes diverse modernization strategies within Islamic boarding school education and digital practices. It emphasizes the literacy evolution of the *kitab kuning* as a distinctive phenomenon that integrates technology, educational innovation, and tradition. The study aims to promote scholarly

discourse on the comprehensive modernization of traditional education and to provide a detailed analysis of the methodologies, challenges, and future potential of Islamic education.

Literature Review

The Concept of Modernization and the Typology of Islamic Boarding Schools

Islamic boarding schools or *pesantren*, as the oldest and original Islamic educational institution in Indonesia, has repeatedly proven its ability to adapt and revitalize itself in order to maintain its existence in the midst of changing times (Safitri et al., 2025; Zaini et al., 2022). Modernization has produced various typologies of Islamic boarding schools (Pasi et al., 2020), such as traditional (*salafiyah*) which still focuses on the study of the *kitab kuning* with classical methods (Arif et al., 2025), modern (*'ashriyah*) that integrates religious and general knowledge (Hajar et al., 2025), and semi-modern models that combine both (Muhyiddin et al., 2022).

This update includes the evaluation of traditional systems and the integration of modern approaches. For example, Zarkasyi (2020) explained how *Pondok Modern Gontor* modernized its education system by integrating Islamic boarding school and *madrasah* education, as well as making it a waqf to ensure sustainability. This kind of modernization is seen as a transformation from traditional ways to a more structured system to respond to the needs of a dynamic society (Hafidzi, 2020).

Curriculum Innovation and Learning Methods

The core of Islamic boarding school modernization lies in curriculum innovation and teaching methods (Pasi et al., 2020; Salim et al., 2024). The literature indicates a substantial transition from traditional *kiai*-centered methodologies (Siregar et al., 2023), exemplified by *sorogan* and *bandongan*, to a more organized framework (Mas'ud et al., 2025). The contemporary curriculum amalgamates Islamic studies (*dirasah islamiyah*) with various disciplines, including science and foreign languages (Zarkasyi, 2020).

Curriculum updates also involve more efficient learning methods (Dunlosky et al., 2013). In Madura, an accelerated program or *takhassus* is applied to compress the material and accelerate the mastery of religious knowledge (Thoha & Hannan, 2022). In addition, dialectical methods such as *Bahtsul Masail* are enriched with scientific and logical approaches, making *pesantren* a dynamic center of study in formulating solutions to contemporary religious issues (Sirojuddin & Yaqin, 2024).

The Digital Dimension and the Shift in Religious Authority

The modernization of the curriculum, along with the digital world, introduces an additional degree of complexity to the literacy of the *kitab kuning* (Halimi et al., 2022; Ritonga, 2020). The adoption of technology has given birth to the phenomenon of *Ngaji*

Online, where recitation is broadcast live via YouTube and social media, creating hybrid learning that crosses physical and time boundaries (Istiqomah et al., 2025; Mustofa et al., 2023). The use of digital software, such as *Maktabah Syamilah*, shows how *pesantren* utilize technology to facilitate learning while spreading Islamic moderation (Ibda et al., 2023).

This phenomena of digitalization has transformed not just pedagogical approaches but also altered religious authority (Collins & Halverson, 2018). Today, individuals frequently seek solutions to religious issues through social media, which provides immediate, fragmented, and often less thorough information than conventional consultations with experts (Ichwan, Amin, et al., 2024). This presents a challenge for Islamic boarding schools to uphold their position as the epicenter of scientific authority and preserve the quality of religious comprehension (Suwendi et al., 2024).

Redefinition of *Kitab Kuning* Literacy in the Modern Era

The literacy of the *kitab kuning* now surpasses the ability to read classical texts with traditional methods (Iankovskaia, 2024). Modern literacy requires students to have a holistic and critical understanding, the ability to think analytically about information from various sources, including digital (Hafidzi, 2020). More than that, this literacy requires digital skills to make effective use of technology, as well as participation in a hybrid learning environment that integrates pedagogical traditions and innovations (Bizami et al., 2023; Zakharova et al., 2024).

Nonetheless, the literature still does not fully synthesize the pedagogical aspects of curriculum pedagogy, digitalization, and innovation into a single, cohesive framework for modern *kitab kuning* literacy. This gap is the main focus of this study, as well as demonstrating the unique contribution of this study in bridging tradition, modernization, and the digital age holistically.

Method

This study employs a qualitative methodology utilizing an integrative literature review design (Whittemore & Knafl, 2005), considered most suitable for the research objective to analyze, critique, and synthesize various strands of scholarship to develop a comprehensive conceptual framework regarding the evolution of *kitab kuning* literacy. This technique allows the researcher to delineate and recognize deficiencies in the current discourse while also fostering a more comprehensive and theoretically informed understanding of the subject being studied.

The data were collected by a comprehensive assessment of relevant academic literature, encompassing peer-reviewed international and national journal articles, scholarly books, and conference proceedings. A systematic search strategy was implemented throughout prominent digital databases, utilizing keywords such as *kitab*

kuning, *pesantren* modernization, Islamic digital literacy, *pesantren* curriculum, and digital religious authority. Sources were chosen for their direct connection to the study area, recent publication (mainly within the previous 10–15 years to ensure currency, with the inclusion of important works when necessary), and their substantial theoretical or empirical contributions to the discourse.

The analytical approach unfolded in three interconnected phases of topic analysis and conceptual synthesis. Initially, salient arguments from the gathered literature were discerned and categorized into three primary strands: (1) investigations into the institutional and curricular modernization of *pesantren*, (2) analyses concerning the pedagogical and authoritative ramifications of digitalization, and (3) critical discourse on literacy in the digital era. The second stage entailed examining the convergences, divergences, and tensions among these threads to clarify the multifaceted processes of transition. In the final step, these concepts were integrated into a unified conceptual framework, given here as a model of contemporary *kitab kuning* literacy, comprising three interconnected dimensions: traditional, digital, and critical.

Results and Discussion

Shifting the Meaning of Literacy Kitab Kuning: Influence on Teaching Methods, Understanding, and Learning Practices

The evolution of *kitab kuning* literacy in the digital age is best understood as a profound metamorphosis that integrates traditional, digital, and critical dimensions, fundamentally reshaping pedagogical approaches, comprehension, and learning practices (Sugianto, 2024). This literacy traditionally depends on direct engagement between *kiai* and pupils via the *sorogan* and *bandongan* methods, wherein the transfer of knowledge (*sanad*) and blessings (*barakah*) are central to the educational process (Zarkasyi, 2020).

This fundamental transformation is not monolithic but is manifested in various modernization models implemented by various Islamic boarding schools in Indonesia (Fuady et al., 2024). Table 1 presents a systematic mapping of these modernization models, based on the synthesis of various previously reviewed studies. This table details the main focus of each model and its specific implications for *kitab kuning* literacy, as well as examples of *pesantren* that represent such innovative practices.

Modernization encourages the systematic integration of traditional curriculum with modern curriculum (Malisi et al., 2024). For example, *Pondok Modern Gontor* combines classical methods with a tiered class system and general subjects (Zarkasyi, 2020), while the *takhassus* program at the Madura *pesantren* compresses material to accelerate the mastery of religious science (Thoha & Hannan, 2022). This alteration signified the transformation of *kitab kuning* literacy from an entirely individual endeavour to a more organized and effective procedure.

Table 1.

Comparison of the Pesantren Modernization Model and Its Implications on the Literacy of Kitab Kuning

No	Modernization Model	*Pesantren Example*	Main Focus	Implications For *Kitab Kuning* Literacy
1	Hybrid *Pesantren*	*Pesantren As-Sa'idiyyah* 2 (Jombang)	Adoption of digital technology for teaching and *da'wah*	Expands access to *kitab kuning* learning without spatial and temporal constraints
2	Accelerated Learning	*Maktab Nubdhatul Bayan* (Madura)	Curriculum restructuring to accelerate mastery of religious knowledge	Learning practices become more efficient and structured; emphasizes mastery of foundational religious sciences (*nahwu* and *sharaf*)
3	System Integration	*Pondok Modern Darussalam Gontor*	Integration of *pesantren* (non-formal) and madrasah (formal) systems into one	Maintains oral and spiritual traditions while applying a balanced curriculum between religious and general sciences
4	Digital-Based Curriculum	*Pesantren Darul Falah* (Ponorogo)	Use of digital platforms and technology-based assessments	Enhances effectiveness, accessibility, and independent learning for students
5	Curriculum and Management Reform	*Pesantren Madinatul Ulum* (Jember)	Combination of traditional methods and modern (e-learning)	Ensures curriculum remains relevant to contemporary needs without sacrificing tradition; improves graduate competencies
6	Digital Literacy for Moderation	*Pesantren Nahdlatul Ulama*	Development of digital software as reference	Filters radical content; equips students with sources supporting Islamic moderation

Note. This table presents a comparison of the observed *pesantren* modernization models and their impact on *kitab kuning* learning system. The data shown are a synthesis of case studies from the institutions mentioned.

The adoption of digital technology has accelerated pedagogical innovation (Friedman & Deek, 2003). The phenomenon of *Ngaji Online*, where recitations are broadcast via YouTube and Facebook, creates a hybrid learning model that crosses geographical boundaries (Istiqomah et al., 2025; Mustofa et al., 2023). The utilization of software like *Maktabah Syamilah* enables students to instantaneously access thousands of religious texts, accelerates their study, and promotes moderate Islamic narratives as a counter to radical content (Ibda et al., 2023). Thus, the literacy practice of *kitab kuning* is now broader and more accessible, combining oral and textual traditions with digital practices.

This transformation also changed students' understanding of Islamic science. Modern *kitab kuning* literacy requires the ability to think critically to analyze information from various traditional and digital sources (Hafidzi, 2020). Digital literacy is an

important element so that students can participate in hybrid learning effectively (Tang & Chaw, 2016). However, the accessibility of immediate information may undermine comprehensive understanding and contest conventional authority (Ichwan, Amin, et al., 2024); hence, *pesantren* must achieve equilibrium between preserving tradition and adopting pedagogical innovation (Basori et al., 2023).

The Development of Islamic Literacy in Line with Social and Cultural Changes in Modern Society

The development of Islamic literacy in Islamic boarding schools cannot be separated from the context of social and cultural changes that take place in modern society (Pohl, 2006; Roqib, 2021). To maintain relevance in the midst of modernization, Islamic boarding schools are required to adapt to the needs of the times (Zaini et al., 2022). This transformation is essential to preserve Islamic scientific traditions, especially the literacy of the *kitab kuning*, in the midst of the disruption created by the Industrial Revolution 4.0 and Society 5.0 (Hafidzi, 2020). By integrating traditional and modern education systems, *pesantren* seeks to produce graduates who not only master religious science but also have skills relevant to professional and social demands, thus remaining influential agents of change (Halimah et al., 2024).

Figure 1.

The Ecosystem of Kitab Kuning Literacy Transformation
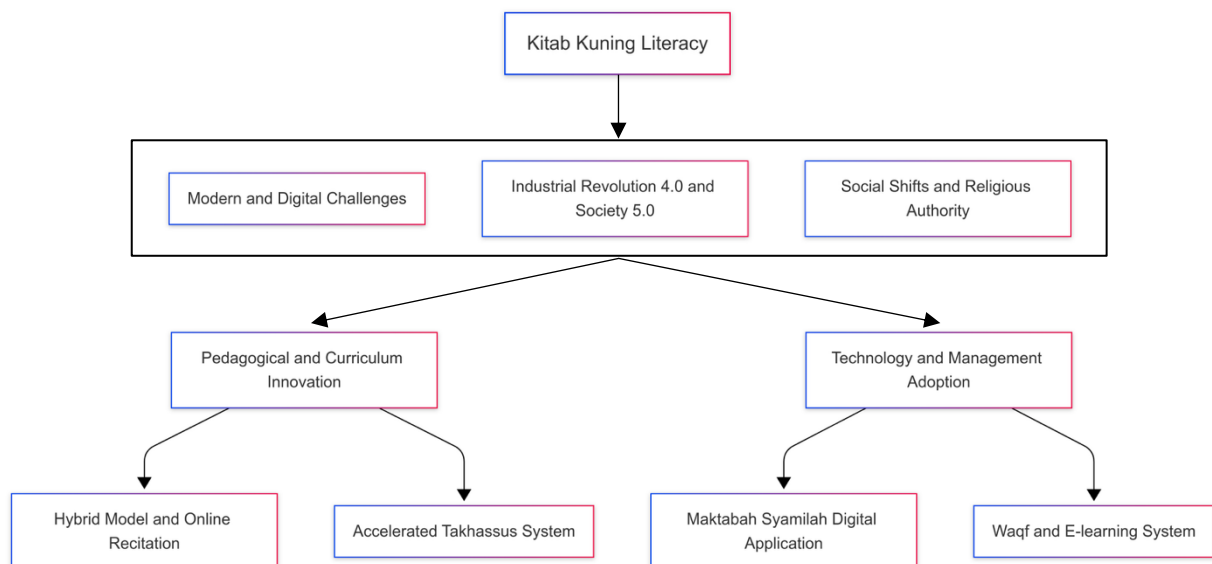
Note. This conceptual model maps the driving factors and responses in the transformation of *kitab kuning* literacy. The diagram connects external challenges with internal innovations in the fields of pedagogy and technology management, along with examples of their application. The model was developed by the author (2024).

Social and cultural changes also influenced the role of the *kiai* as the center of religious authority (Faisal et al., 2022; Pribadi, 2013). Previously, the authority of the *kiai*

was centralistic and unparalleled (M. Alkaf et al., 2022). However, the presence of digital media has given birth to the phenomenon of *Ngaji Online* and religious content that can be accessed instantly by the public (Muttaqin, 2020). This changes the role of *kiai* from just a cultural broker to a cultural creator" or digital *kiai*, who actively produce content on platforms such as YouTube and Facebook to reach a wider audience and maintain their influence (Mustofa et al., 2023). This adaptation serves as a crucial strategy to combat the partial and less comprehensive dissemination of religious information on social media.

The adoption of technology by Islamic boarding schools is also a response to the challenges of the post-truth era, where traditional authority is beginning to be questioned (Ichwan, Pabbajah, et al., 2024; Muliana et al., 2024). The availability of instant information through social media may reduce the depth of understanding among students and the society (Ichwan, Amin, et al., 2024). The modernization of the *kitab kuning* literacy program aims to develop critical thinking skills in children, allowing them to read texts and assess and corroborate information from many sources (Hafidzi, 2020). Thus, in addition to adapting to social and cultural changes, *pesantren* also proactively form Islamic literacy that is holistic and relevant to the challenges of modern society.

Implications of Shifting the Meaning of Literacy of the Kitab Kuning in Sustainable Islamic Learning

The transformation in the literacy significance of the *kitab kuning* has considerable ramifications for the future of Islamic education, necessitating a synthesis of tradition and modernity (Achmadin et al., 2024). This novel literacy comprises three components: traditional literacy, digital literacy, and critical literacy. Traditional literacy, which prioritizes the capacity to read and comprehend ancient texts through direct engagement with *kiai*, serves as the cornerstone for acquiring genuine knowledge (Zarkasyi, 2020). This foundation is now enhanced with digital literacy, namely the capability of students to employ software like *Maktabah Syamilah* (Ibda et al., 2023), and engage in hybrid learning such as *Ngaji Online* (Mustofa et al., 2023).

Furthermore, critical literacy is an essential element that empowers students to assess immediate, fragmented, or inaccurate information circulated on social media (Hafidzi, 2020; Ichwan, Amin, et al., 2024). By integrating these three forms of literacy, *pesantren* aims to establish an educational paradigm that preserves its academic foundations while remaining relevant in contemporary society. This synthesis represents a distinctive contribution of this study, providing a new conceptual framework for a comprehensive explanation of the evolution of literacy in the *kitab kuning* during the digital age.

The innovative models that emerged from this shift offer great prospects for the sustainability of Islamic education. Digitalization broadens learning opportunities, removing geographical and temporal constraints, hence enabling alumni and the general

public to pursue continuous education (Istiqomah et al., 2025). The modernization of institutional governance, exemplified by the waqf system in Gontor (Zarkasyi, 2020), guarantees the viability of institutions independent of individual or familial leadership. Curriculum updates, evaluation, and more structured management allow *pesantren* to operate more efficiently and responsive to the needs of the community (Zaini et al., 2022).

Figure 2.

Conceptual Framework for Modern Kitab Kuning Literacy
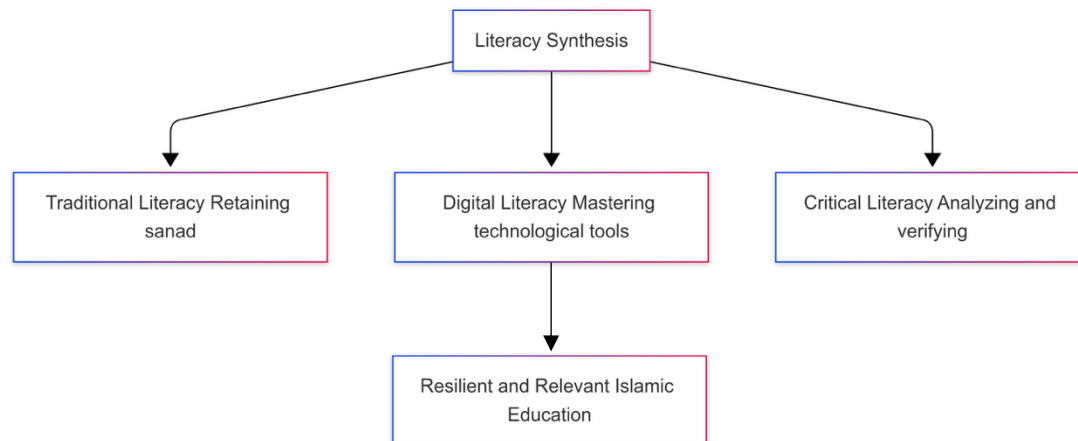
Note. This figure shows a model of modern kitab kuning literacy as a fusion of traditional literacy (*sanad*), digital literacy (technology), and critical literacy (analysis). The synthesis of these three competencies forms the foundation for a resilient and relevant Islamic education. The framework was developed by the author (2024).

Nonetheless, this shift presents significant challenges. The main risk is the erosion of the depth of knowledge and the spiritual relationship between teacher and student (*sanad* and *barakah*), which is difficult to replicate in digital interactions (Mustofa et al., 2023). In addition, the gap in technology mastery among teachers and students requires continuous training so that the implementation of innovation runs optimally. Consequently, a strategic measure for *pesantren* is to achieve a judicious equilibrium by adopting pedagogical and technological advancements to broaden the scope of tradition while preserving the fundamental principles that have defined the identity of *pesantren* for generations.

Conclusion

Digitalization has instigated a profound alteration in *kitab kuning* literacy, signifying a crucial transitional period for Islamic education in Indonesia. This transformation goes beyond just technology adoption but demands a thorough restructuring of the *pesantren* ecosystem to ensure its sustainability and relevance. Diverse modernization models have emerged, integrating classic and contemporary curricula, alongside the implementation of hybrid and accelerated learning methods that utilize digital platforms such as YouTube and *Maktabah Syamilah*. This transformation illustrates the ability of Islamic boarding

schools to skilfully adapt to modern requirements while preserving the integrity of long-established scientific traditions.

The implications of this transformation are multidimensional. Digitalization enhances accessibility, efficiency, and the scope of learning, enabling *pesantren* to engage a broader audience, including alumni and the general populace. Substantial concerns emerge, particularly concerning the possible degradation of comprehension and the spiritual bond between educators and learners. From this perspective, contemporary *kitab kuning* literacy should be perceived as a synthesis of three components: genuine traditional literacy, adaptive digital literacy, and critical literacy that enables students to assess and authenticate material in the post-truth era. As a practical implication, this framework can serve as a foundation for policymakers and *pesantren* organizations in designing curriculum guidelines and teacher training programs aimed at holistically strengthening traditional, digital, and critical competencies.

The sustainable future of Islamic education depends on the ability of Islamic boarding schools to balance innovation and tradition. With modern institutional management, relevant curriculum, and strengthened *pesantren* values, these institutions can continue to function as adaptive centers of science and moral authority. The literacy transformation journey of the *kitab kuning* affirms the resilience of Islamic boarding schools in meeting the needs of future generations while maintaining the identity and scientific traditions that have formed the foundation of Islamic education in Indonesia.

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