

Pesantren Studies in the Global Era: Educational Transformation, Digitalization, and Religious Moderation

Wali Saputra¹, Babun Suharto², Imam Syafii³

¹State Islamic University of Sultan Syarif Kasim Riau

²Islamic University of Darul Ulum Lamongan

³Islamic University of Darul Ulum Lamongan

Email : wali.saputra@uin-suska.ac.id

Abstract

Pesantren, as indigenous Islamic educational institutions, play a strategic role in responding to global dynamics through educational transformation, the integration of digital technologies, and the promotion of religious moderation. This study aims to examine research trends, synthesize key findings, and identify gaps in the existing literature concerning the transformation of pesantren in the global era by employing a Systematic Literature Review (SLR) approach. The review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines. A comprehensive literature search was performed across Scopus, Web of Science, Dimensions, Crossref, Google Scholar, and Garuda using keywords related to pesantren, educational transformation, digitalization, and religious moderation. The initial search yielded 486 publications. Following the processes of identification, screening, eligibility assessment, and the exclusion of studies that did not meet the inclusion criteria, 30 articles were selected for thematic analysis. The findings reveal that 12 studies (40%) focus on educational transformation, 10 studies (33.3%) examine the digitalization of pesantren, and 8 studies (26.7%) address religious moderation. Educational transformation is characterized by the integration of Islamic and general education curricula, the modernization of institutional governance, and the development of twenty-first-century competencies. Meanwhile, digitalization has facilitated the adoption of technology in teaching and learning, institutional administration, and Islamic outreach (da'wah), although its implementation continues to face challenges related to limited technological infrastructure and inadequate digital literacy. Religious moderation emerges as a fundamental pillar in fostering students who are tolerant, inclusive, and well equipped to navigate the complexities of an increasingly interconnected global society. Overall, this review concludes that educational transformation, digitalization, and religious moderation constitute three interrelated pillars that collectively enhance the quality, relevance, and global competitiveness of pesantren while preserving their Islamic identity and long-standing scholarly traditions.

Keywords: pesantren, educational transformation, digitalization, religious moderation, systematic literature review.

Introduction

Pesantren, Indonesia's indigenous Islamic boarding schools, have long been recognized as Islamic educational institutions with strong scholarly traditions and significant social influence within society. As social contexts continue to evolve and global developments reshape educational landscapes, the role of pesantren has expanded beyond preserving the classical Islamic intellectual heritage to encompass broader responsibilities in addressing contemporary challenges (Arif et al., 2024; Suryati et al., 2025). Recent studies indicate that pesantren have increasingly transformed into multifaceted institutions that integrate educational, social, and religious functions in a more comprehensive manner (Suryati et al., 2025; Ubaidillah & Faiz, 2025). This transformation has positioned pesantren as strategic actors in preserving Islamic identity amid the growing influence of globalization while simultaneously responding proactively to ongoing societal changes (Mustafidin et al., 2025; Faizin, 2024). Consequently, examining the development of pesantren in the global era has become increasingly important because it contributes not only to the advancement of academic knowledge but also to the improvement of educational policy and institutional practice.

Globalization has profoundly influenced nearly every aspect of education, including Islamic educational systems implemented within pesantren. Rapid technological advancement, intensified competition among educational institutions, shifting social values, and increasing demands for globally relevant competencies have compelled pesantren to strengthen their adaptive capacity and develop more progressive institutional strategies (Mustafidin et al., 2025; Faizin, 2024). Previous studies emphasize that preserving the classical traditions of Islamic scholarship must be accompanied by innovations in institutional governance and curriculum development to ensure that pesantren remain relevant to contemporary educational needs (Arif et al., 2024; Ubaidillah & Faiz, 2025). However, these transformation processes frequently encounter substantial obstacles, including limited financial and human resources, deeply embedded organizational cultures, and institutional resistance to change (Permanasari et al., 2026; Jamil et al., 2025). These challenges underscore the need for a comprehensive and systematic synthesis of the existing literature to provide a clearer understanding of the issues confronting pesantren in the era of globalization.

Educational transformation has become one of the central concerns in pesantren studies because their educational systems continue to evolve in response to changing societal demands. Existing research demonstrates that Indonesian pesantren adopt diverse educational models, ranging from traditional (salaf) and modern systems to integrated approaches that increasingly combine Islamic sciences with general education (Arif et al., 2024; Mustafidin et al., 2025). This transformation is reflected in the development of integrative curricula, the adaptation of instructional strategies and educational management, and the cultivation of twenty-first-century competencies while preserving the distinctive characteristics of pesantren (Faizin, 2024; Suresman et al., 2025). Furthermore, several studies argue that

educational reform within pesantren is intended to enhance graduates' relevance and strengthen their competitiveness within an increasingly globalized educational environment (Saputro & Sukiman, 2024; Faizin, 2024). Nevertheless, empirical evidence regarding these developments remains fragmented across individual studies, highlighting the need for a systematic synthesis capable of providing a more comprehensive understanding of these transformations.

Curriculum reform has become increasingly urgent as pesantren seek to reconcile traditional Islamic values with the demands of modernity. Numerous studies report that integrative curriculum approaches combine the study of kitab kuning (classical Islamic texts), the national curriculum, character education, and life-skills development as strategic responses to global challenges (Mustafidin et al., 2025; Arif et al., 2024). Similar efforts are evident in the implementation of technology-enhanced learning models that broaden access to knowledge while preserving the ethical values, cultural heritage, and spiritual traditions that distinguish pesantren (Munawar & Endang, 2026; Suresman et al., 2025). Accordingly, curriculum transformation should not be viewed merely as the addition of new learning materials but rather as a fundamental reorientation of the philosophy, objectives, and overall direction of pesantren education (Faizin, 2024; Saputro & Sukiman, 2024). These developments further highlight the importance of systematic investigations capable of identifying the forms, trajectories, and implications of curriculum transformation within pesantren in the global era.

Transformation within pesantren extends beyond curriculum reform to encompass substantial changes in educational management and institutional governance. The rapid development of digital technologies has encouraged the implementation of digital administrative systems, online learning platforms, and capacity-building initiatives for educators and administrative staff as integral components of institutional transformation (Fauzi et al., 2025; Kusuma et al., 2025). Other studies further suggest that management reform plays a critical role in improving organizational efficiency, strengthening communication with parents and local communities, and enhancing institutional competitiveness (Faizin, 2024; Saputro & Arif, 2025). Nevertheless, modernization efforts must be implemented carefully to ensure that the Islamic identity, educational values, and local wisdom that define pesantren are preserved throughout the transformation process (Kusuma et al., 2025; Faizin, 2024). Consequently, institutional management constitutes an inseparable dimension of broader discussions concerning the transformation of pesantren.

Digitalization represents one of the most significant developments shaping contemporary pesantren. A growing body of research demonstrates that digital technologies have expanded opportunities for improving educational access, strengthening networks among pesantren, alumni, and surrounding communities, and extending Islamic outreach (da'wah) through various digital platforms (Fauzi et al., 2025; Saputro & Arif, 2025). Concurrently, instructional practices have evolved from traditional methods

such as sorogan and bandongan toward technology-supported hybrid learning models that promote greater inclusivity and emphasize digital literacy (Suresman et al., 2025; Arif et al., 2024). The emergence of virtual pesantren further illustrates the institution's capacity to utilize digital platforms—including YouTube, WhatsApp, Telegram, and institutional websites—as media for both education and religious outreach (Arif et al., 2024; Fauzi et al., 2025). These developments indicate that digitalization has become an integral component of pesantren transformation rather than a peripheral or temporary phenomenon.

Despite these opportunities, the implementation of digitalization within pesantren continues to face substantial challenges. Technology integration is frequently constrained by inadequate infrastructure, limited digital literacy, insufficient managerial support, and cultural resistance to organizational change (Permanasari et al., 2026; Jamil et al., 2025). Program evaluation studies further reveal that participants' understanding of educational decline and its underlying causes remains remarkably low, with achievement rates of only 16.4% and 19.5%, respectively, indicating that institutional readiness for technology adoption remains insufficient (Jamil et al., 2025). In addition, several scholars caution that digital transformation may alter the organizational culture of pesantren and even reshape the traditional authority of the kiai (Islamic boarding school leaders) if the transformation process is not managed appropriately (Arif et al., 2024; Saputro & Arif, 2025). Therefore, digitalization should be understood not only as an opportunity to improve educational quality but also as a complex institutional process that introduces new organizational challenges requiring thoughtful and strategic management.

Beyond its implications for teaching and learning, digital technological advancement has generated important moral and ethical challenges that directly affect young people studying in pesantren. Previous research has documented emerging issues such as cyberbullying, excessive dependence on social media, increased exposure to inappropriate online content, declining empathy, and weakened social interaction as consequences of digital lifestyles (Paramansyah et al., 2024; Jauharotul et al., 2025). Within this context, pesantren possess considerable potential to develop educational models that integrate digital literacy with moral formation and ethical responsibility in the use of technology (Paramansyah et al., 2024; Munawar & Endang, 2026). Such efforts have become increasingly important because digital learning that focuses exclusively on cognitive achievement has been shown to be insufficient for fostering character development and internalizing the principles of religious moderation (Jauharotul et al., 2025; Permanasari et al., 2026). Accordingly, moral challenges in digital spaces should be regarded as one of the primary motivations underpinning the present study.

Amid these multiple dimensions of change, religious moderation has emerged as an increasingly prominent theme in contemporary pesantren scholarship. A growing body of research demonstrates that pesantren play a strategic role in addressing the spread of intolerance, extremism, and

radicalization in digital spaces by cultivating the values of wasatiyyah (Islamic moderation), developing integrative curricula, promoting the exemplary leadership of kiai, and fostering communal living practices that constitute distinctive characteristics of pesantren education (Erihadiana et al., 2026; Huda, 2024). Furthermore, pesantren are widely regarded as institutions capable of constructing a paradigm of Islamic moderation that bridges the rich heritage of Islamic tradition with the evolving needs of modern society (Ubaidillah & Faiz, 2025; Suryati et al., 2025). The promotion of these moderate values benefits not only the internal educational environment of pesantren but also contributes to broader social cohesion, peaceful coexistence, and national integration (Erihadiana et al., 2026; Riswadi et al., 2024). These developments position religious moderation as one of the principal conceptual foundations underpinning the present study.

The cultivation of religious moderation within pesantren is realized through educational processes that possess distinctive pedagogical characteristics. Studies conducted in salafiyah pesantren reveal that moderate attitudes are developed through formal instruction, habitual practice, experiential learning, and the moral example demonstrated by the kiai as the central figure in students' ethical formation (Riswadi et al., 2024; Erihadiana et al., 2026). Other studies further indicate that the transmission of moderate values occurs through verbal, symbolic, and written communication, reinforced by the active involvement of teachers, peers, and students' parents as co-agents in shaping balanced religious identities (Junaedi et al., 2024; Huda, 2024). Through these interconnected educational processes, students are expected to develop tolerance, peaceful coexistence, respect for diversity, and a strong sense of social responsibility (Riswadi et al., 2024; Junaedi et al., 2024). These findings suggest that religious moderation in pesantren is embedded in everyday educational practices and social interactions rather than functioning merely as a normative concept within the formal curriculum.

The expansion of digital media has further broadened the scope for implementing religious moderation within pesantren education. Existing literature suggests that digital technologies can serve as effective instruments for promoting the values of tolerance, justice, and balance when supported by integrated curricula, interactive learning media, enhanced teacher competencies, and project-based learning approaches (Jauharotul et al., 2025; Paramansyah et al., 2024). Nevertheless, the long-term effectiveness of these initiatives remains constrained by several limitations, including the scarcity of longitudinal studies, the limited development of value-oriented instructional designs, and inadequate technological infrastructure across many pesantren (Jauharotul et al., 2025; Permanasari et al., 2026). Consequently, although digital technology offers considerable potential for strengthening religious moderation, its effectiveness depends largely on the quality of pedagogical design and the institutional readiness of pesantren to manage technology-enhanced learning effectively (Munawar & Endang, 2026; Fauzi et al., 2025). These circumstances further underscore the importance

of studies that integrate digitalization and religious moderation within a comprehensive analytical framework.

Leadership within pesantren also constitutes a critical factor influencing the success of ongoing institutional transformation. Numerous studies consistently identify the kiai as occupying a central position, serving simultaneously as guardians of Islamic scholarly traditions and agents of change in curriculum reform, digital transformation, and the promotion of religious moderation (Erihadiana et al., 2026; Suryati et al., 2025). Leadership grounded in exemplary conduct is widely recognized for its contribution to students' character development, strengthening public trust in pesantren, and ensuring the sustainability of institutional innovation (Riswadi et al., 2024; Faizin, 2024). At the same time, rapid technological advancement has the potential to reshape traditional authority structures if innovation is not accompanied by institutional capacity to maintain an appropriate balance between technological progress and the long-established social structures of pesantren (Arif et al., 2024; Saputro & Arif, 2025). Accordingly, the leadership of the kiai represents an essential dimension that warrants particular attention in studies examining the transformation of pesantren.

The role of pesantren extends well beyond the provision of formal education to encompass broader functions in community development and social empowerment. Previous studies demonstrate that the revitalization of pesantren education is closely associated with strengthening religious commitment, fostering moral and ethical values, enhancing intellectual capacity, and developing competencies that are relevant to the needs of an increasingly interconnected global society (Saputro & Sukiman, 2024; Mustafidin et al., 2025). Institutional innovation has likewise been reinforced through alumni engagement, collaborative partnerships with external stakeholders, and the creation of learning environments that effectively support students' holistic development (Mustafidin et al., 2025; Suryati et al., 2025). Consequently, the transformation of pesantren influences not only the quality of students' educational experiences but also contributes more broadly to community capacity building and social development (Ubaidillah & Faiz, 2025; Faizin, 2024). This broader perspective demonstrates that contemporary pesantren studies have moved beyond a narrow institutional focus to become an important component of discussions on educational reform, social development, and religious transformation in the global era.

Although the number of studies on pesantren has increased substantially in recent years, research that integrates educational transformation, digitalization, and religious moderation within a single conceptual framework remains relatively limited. Previous studies have generally examined pesantren education from a broad perspective, whereas others have focused exclusively on either digital transformation or religious moderation as independent areas of inquiry (Arif et al., 2024; Fauzi et al., 2025; Erihadiana et al., 2026). Moreover, much of the available empirical evidence is derived from case studies conducted within limited geographical settings and over relatively short evaluation periods, making it difficult to

develop a comprehensive conceptual synthesis of these interrelated issues (Permanasari et al., 2026; Jauharotul et al., 2025). This fragmentation highlights a significant research gap that calls for a Systematic Literature Review (SLR) capable of integrating these three dimensions into a coherent analytical framework (Suresman et al., 2025; Faizin, 2024). Accordingly, the present study seeks to address this gap by providing a comprehensive synthesis of the existing literature and contributing to the advancement of knowledge on contemporary pesantren studies.

The need for a systematic review becomes even more compelling when considering the diversity of transformation processes occurring across different pesantren. Existing studies demonstrate that each institution follows a distinct trajectory of change. While some prioritize the development of integrated curricula, others focus primarily on technology-enhanced learning innovations, whereas another group emphasizes strengthening religious moderation through expanded social engagement and the establishment of more adaptive institutional structures (Mustafidin et al., 2025; Suryati et al., 2025). Furthermore, research on pesantren learning networks reveals a gradual evolution from traditional instructional methods toward digital and hybrid learning models throughout the 2007–2025 period (Suresman et al., 2025; Arif et al., 2024). These variations suggest that the transformation of pesantren is an evolutionary rather than uniform process, shaped by collaboration among multiple stakeholders and influenced by the unique contexts of individual institutions (Ubaidillah & Faiz, 2025; Suryati et al., 2025). Therefore, employing a Systematic Literature Review is essential for identifying overarching trends, mapping persistent challenges, and providing a comprehensive and evidence-based understanding of the direction of pesantren development in the global era.

Drawing upon the synthesis of previous research, it is evident that pesantren in the global era are required to maintain a delicate balance between preserving their long-standing Islamic traditions and pursuing institutional transformation. To remain relevant amid rapid social and technological change, pesantren must continuously reform their educational systems, optimize the responsible use of digital technologies, and strengthen the implementation of religious moderation in order to enhance their competitiveness while contributing positively to increasingly diverse and pluralistic societies (Faizin, 2024; Erihadiana et al., 2026). Nevertheless, these transformation processes continue to face structural, cultural, pedagogical, and conceptual challenges, while existing empirical evidence remains fragmented and has yet to be synthesized within a comprehensive analytical framework (Jamil et al., 2025; Permanasari et al., 2026). Against this background, the present study, *Pesantren Studies in the Global Era: Educational Transformation, Digitalization, and Religious Moderation*, is both timely and highly relevant. By systematically synthesizing the existing body of literature, this review aims to provide a more comprehensive understanding of the evolving role of pesantren in responding to global dynamics while

offering a robust conceptual foundation to inform future research, educational policy, and institutional practice.

Research Methods

This study employed a Systematic Literature Review (SLR) guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines. The SLR approach was selected because it provides a rigorous, transparent, objective, and reproducible framework for synthesizing existing evidence. Through this method, the processes of literature identification, screening, quality appraisal, and evidence synthesis were conducted using structured and standardized procedures, enabling the generation of more comprehensive and reliable findings than those typically achieved through conventional narrative literature reviews. Adherence to the PRISMA 2020 framework further ensured that every stage of the review complied with internationally recognized standards for conducting systematic reviews.

The research was designed to examine the evolving body of scholarship on the transformation of pesantren (Islamic boarding school) education in the global era. The review focused on three interrelated themes: the transformation of pesantren educational systems, the integration of digital technologies into teaching, learning, and institutional management, and the promotion of religious moderation as a strategy for strengthening inclusive Islamic values. These themes were selected because they represent key strategic issues in the development of Islamic educational institutions as they respond to rapid social change, technological advancement, and the growing need to reinforce national character and social cohesion within increasingly diverse societies.

This study relied exclusively on secondary data derived from peer-reviewed scholarly publications in reputable national and international journals. The use of secondary data enabled a comprehensive examination of existing research without the need for primary field data collection. Consequently, the review provides a broad and up-to-date understanding of current knowledge and emerging directions in the study of pesantren educational transformation across diverse geographical and institutional contexts.

The literature was retrieved from several internationally recognized academic databases, including Scopus, Web of Science, Dimensions, Crossref, and Google Scholar, with Garuda serving as an additional source to capture relevant Indonesian publications. Employing multiple databases expanded the scope of the literature search while reducing the likelihood of overlooking pertinent studies. All retrieved records were subsequently screened for their relevance to the research objectives, and only studies that directly addressed the focus of this review were included in the final analysis.

The literature search strategy employed combinations of keywords connected by Boolean operators (AND and OR) to ensure both precision and comprehensiveness. The search string included: ("Islamic boarding school"

OR pesantren) AND ("educational transformation" OR "education reform") AND (digitalization OR "digital learning" OR technology) AND ("religious moderation" OR moderasi beragama). Searches were conducted within article titles, abstracts, and keywords to maximize the retrieval of publications directly related to the research topic. In accordance with the PRISMA 2020 recommendations, the complete search strategy was carefully documented to ensure transparency and facilitate future replication.

To ensure methodological rigor and maintain the quality of the review, explicit inclusion and exclusion criteria were established prior to the literature search. The inclusion criteria comprised peer-reviewed journal articles published between 2015 and 2025, written in either English or Indonesian, available in full-text format, and addressing topics related to pesantren, Islamic education, educational digitalization, or religious moderation. In contrast, books, conference proceedings, theses, dissertations, editorials, opinion articles, studies not specifically focused on pesantren, inaccessible full-text publications, and duplicate records were excluded from the review. Defining these criteria before the screening process minimized selection bias and enhanced the validity and reliability of the review findings.

The article selection process followed the four stages recommended in PRISMA 2020: Identification, Screening, Eligibility, and Inclusion. During the identification stage, all records retrieved from the selected databases were compiled into a single reference database. The screening stage involved removing duplicate records and assessing studies based on their titles and abstracts. Articles that met the initial screening requirements underwent full-text assessment during the eligibility stage to verify their compliance with the predefined inclusion criteria. Studies satisfying all eligibility requirements were subsequently included in the final synthesis. The complete selection procedure will be presented through a PRISMA Flow Diagram, providing a transparent overview of the study selection process.

Following study selection, relevant information was systematically extracted from each eligible article using a standardized data extraction form. This structured approach ensured consistency and accuracy throughout the extraction process. The extracted information included bibliographic details (author(s), publication year, and country of study), research objectives, methodological approach, study context or research object, thematic focus, principal findings, and implications for the development and transformation of pesantren education. The extracted data were organized into summary tables to facilitate systematic comparison and cross-study analysis.

The collected data were analyzed using a thematic synthesis approach. The analysis began by categorizing the selected studies according to their principal research themes, followed by the identification of recurring patterns, emerging trends, and relationships across the literature. Comparative analysis was then undertaken to examine both convergent and divergent findings, thereby revealing the evolution of concepts, theoretical perspectives, and practical approaches to the transformation of pesantren education. Particular attention was also given to identifying the major challenges,

opportunities, and enabling factors influencing the successful transformation of pesantren institutions in the context of globalization.

Finally, the results of the thematic synthesis were integrated to develop a conceptual framework illustrating the relationships among pesantren educational transformation, digital learning, and religious moderation in fostering adaptive and resilient Islamic educational institutions. Beyond summarizing previous research, this systematic review identifies existing research gaps, maps the evolution of scholarly trends, and offers evidence-based recommendations for future academic inquiry and Islamic education policy development. Accordingly, the PRISMA 2020-based Systematic Literature Review provides a valid, comprehensive, and methodologically robust synthesis of current knowledge, contributing to a deeper understanding of the transformation of pesantren education in the global era.

Results and Discussion

Research Findings

This study employed a Systematic Literature Review (SLR) guided by the PRISMA 2020 framework to provide a comprehensive synthesis of research on the transformation of pesantren (Islamic boarding school) education, digitalization, and religious moderation. The literature search was conducted systematically across several reputable academic databases, including Scopus, Web of Science, Dimensions, Crossref, Google Scholar, and Garuda. The use of multiple databases ensured broad coverage of both international and Indonesian scholarly publications. Search keywords and Boolean operators were carefully designed to align with the research objectives, enabling the identification of studies relevant to the evolving role of pesantren in the context of globalization and digital transformation.

The initial search identified 486 publications related to the research topic. During the identification stage, duplicate records were removed, resulting in the exclusion of 76 articles and leaving 410 unique studies for subsequent screening. This step represents a critical component of the systematic review process, as it ensures that each study included in the review is unique and prevents duplication of evidence. Consequently, the synthesis is based on a valid and objective body of literature that accurately reflects the current state of research.

During the screening stage, 332 articles were excluded because they did not directly address the focus of this review. Most excluded studies discussed Islamic education in general without specifically examining pesantren, while others focused exclusively on digitalization or religious moderation without linking these issues to Islamic boarding schools. Following this process, 78 articles met the preliminary eligibility requirements and proceeded to the full-text assessment stage, where each study was comprehensively evaluated against the predetermined inclusion criteria.

The full-text assessment resulted in the exclusion of 48 articles that failed to satisfy the established inclusion criteria. Several studies were unavailable in full-text format, consisted of conference proceedings or books

rather than peer-reviewed journal articles, or did not specifically examine the transformation of pesantren education. Ultimately, 30 articles fulfilled all eligibility requirements and were included in the final thematic synthesis. These studies were published between 2015 and 2025, providing a comprehensive overview of the development of pesantren scholarship over the past decade.

The thematic analysis classified the 30 selected studies into three principal research themes: educational transformation of pesantren (12 articles; 40.0%), digitalization of pesantren (10 articles; 33.3%), and religious moderation (8 articles; 26.7%). This distribution indicates that educational transformation has attracted the greatest scholarly attention among the three themes. The predominance of this topic reflects growing academic interest in how pesantren adapt their educational systems to respond to advances in science and technology, as well as the evolving demands of contemporary society.

The synthesis of studies focusing on educational transformation reveals that pesantren have undergone substantial changes across multiple dimensions of educational practice. These transformations include curriculum reform, pedagogical innovation, improvements in institutional governance, and the enhancement of students' competencies. Importantly, the reviewed literature consistently emphasizes that these reforms have not diminished the traditional identity of pesantren as Islamic educational institutions; rather, they have strengthened their relevance and resilience in responding to contemporary educational challenges.

One of the most consistently reported forms of transformation is the integration of religious education with general academic disciplines. Contemporary pesantren curricula no longer focus exclusively on the study of kitab kuning (classical Islamic texts) but increasingly incorporate science, technology, mathematics, entrepreneurship, foreign languages, and twenty-first-century competencies, including critical thinking, creativity, communication, and collaboration. This curricular integration aims to produce graduates who possess balanced religious knowledge and professional competencies, enabling them to compete effectively at both national and international levels.

Educational transformation has also become evident in the leadership structure of pesantren. The role of the kiai has evolved beyond that of a traditional religious authority into that of an educational leader responsible for institutional management, innovation, and organizational development. Several studies demonstrate that successful institutional transformation is strongly influenced by the leadership capacity of the kiai, particularly in establishing strategic partnerships, strengthening human resource development, and implementing more professional governance practices.

With respect to digitalization, the reviewed studies consistently indicate that information and communication technologies have become an integral component of pesantren education. Digital transformation extends beyond classroom instruction to encompass institutional administration, academic

services, organizational communication, and religious outreach (da'wah). This trend accelerated significantly following the COVID-19 pandemic, which prompted educational institutions to adopt digital technologies at an unprecedented pace.

Numerous studies report that pesantren have increasingly implemented Learning Management Systems (LMSs), digital libraries, web-based administrative systems, social media platforms, and video conferencing technologies to support teaching and learning activities. These technological innovations have improved the distribution of learning materials, management of academic records, assessment processes, and communication among administrators, teachers, students, and parents. Furthermore, digitalization has expanded students' access to educational resources that were previously difficult to obtain through conventional learning methods.

Despite these advances, the implementation of digital transformation continues to face several significant challenges. The reviewed literature identifies inadequate technological infrastructure, unequal internet accessibility, limited digital competencies among educators, and insufficient financial resources as the primary barriers to effective digitalization within pesantren. Accordingly, successful digital transformation requires collaborative support from government agencies, educational institutions, and other stakeholders through improved infrastructure, professional development programs, and strengthened policy initiatives.

The findings further demonstrate that enhancing digital literacy has become an urgent priority for all members of the pesantren community. Digital literacy extends beyond the technical ability to operate digital devices and includes competencies such as evaluating the credibility of online information, critically interpreting digital content, maintaining ethical conduct in digital environments, and utilizing technology responsibly for educational and da'wah purposes. Therefore, digital transformation should not merely improve educational effectiveness but should also reinforce the moral and ethical values that characterize Islamic education.

Across the studies examining religious moderation, a consistent finding is that pesantren play a pivotal role in promoting peaceful, tolerant, and inclusive religious life. Character education emerges as the primary strategy for cultivating the values of religious moderation among students. These values are transmitted not only through formal classroom instruction but also through the distinctive culture of pesantren, the exemplary leadership of the kiai, communal living practices, and community engagement activities that foster social responsibility.

Core principles of religious moderation—including tawasuth (moderation), tawazun (balance), tasamuh (tolerance), i'tidal (justice), and musyawarah (deliberative consultation)—are systematically internalized through students' daily experiences. The reviewed literature further indicates that religious moderation is strengthened through activities such as bahtsul masail (collective scholarly deliberation on contemporary Islamic issues), community service programs, intercultural dialogue, civic education, and

digital literacy initiatives that encourage students to evaluate and disseminate religious information responsibly. Collectively, these educational practices foster graduates who are open-minded, respectful of diversity, and capable of contributing constructively to pluralistic societies.

Overall, the thematic synthesis demonstrates that educational transformation, digitalization, and religious moderation constitute three mutually reinforcing pillars underpinning the contemporary development of pesantren. Curriculum reform and improved institutional governance enhance educational quality, digital transformation expands access to learning and increases institutional effectiveness, while religious moderation strengthens character formation and promotes social harmony. These findings underscore that pesantren have successfully preserved their Islamic identity while simultaneously adapting to contemporary challenges through educational innovation, technological advancement, and the cultivation of inclusive national and religious values. Collectively, the evidence suggests that the sustainable development of pesantren depends on the balanced integration of these three interconnected dimensions.

Discussions

The synthesis of the 30 selected studies indicates that educational transformation constitutes the most prominent theme in contemporary pesantren scholarship. The predominance of this topic reflects growing scholarly interest in reforming the pesantren educational system to address the demands of an increasingly dynamic global environment. Educational transformation is viewed as a strategic necessity because pesantren no longer function solely as institutions for Islamic religious education but also as centers for developing competent, ethical, and globally competitive human resources. Consequently, transformation extends beyond academic reform to encompass institutional governance, organizational effectiveness, and the capacity building of the entire pesantren community.

The findings further demonstrate that educational transformation has been pursued without compromising the fundamental identity of pesantren as Islamic educational institutions. Rather than replacing traditional values, the reforms seek to strengthen the sustainability and relevance of pesantren amid rapid social, economic, and technological change. While preserving their distinctive characteristics—including moral character formation, mastery of Islamic sciences, and the exemplary leadership of the kiai—pesantren have increasingly embraced modern educational approaches that are more responsive to the needs of contemporary society.

Curriculum modernization emerges as one of the most frequently discussed dimensions of educational transformation across the reviewed literature. The integration of Islamic studies with general education, science, technology, entrepreneurship, foreign languages, and twenty-first-century competencies reflects a significant paradigm shift in pesantren education. Curricula that were previously centered primarily on the study of classical Islamic texts (*kitab kuning*) have evolved into more comprehensive

educational frameworks designed to cultivate graduates with balanced spiritual, intellectual, social, and professional competencies. This development also demonstrates the growing responsiveness of pesantren to labor market demands and broader societal transformations.

Beyond curriculum reform, educational transformation is also reflected in improvements in institutional management. The reviewed studies indicate that many pesantren have gradually adopted modern management principles, including strategic planning, human resource development, performance evaluation, and the integration of information technology into administrative processes. Strengthening institutional governance enhances both the effectiveness of educational delivery and organizational accountability to stakeholders. Through more professional management practices, pesantren are better positioned to achieve sustainable institutional development.

Changes in leadership patterns represent another critical dimension of pesantren transformation. The kiai is no longer viewed solely as a religious scholar responsible for transmitting Islamic knowledge but increasingly serves as an educational leader with responsibilities extending to organizational management, partnership development, and institutional innovation. Visionary leadership has consistently been identified as a determining factor in the success of educational transformation because it enables pesantren to adapt to changing societal conditions while preserving the religious and cultural traditions that define their identity.

The prominence of digitalization as the second major theme underscores the growing significance of information and communication technologies in the development of pesantren. Digitalization is understood not merely as the adoption of technological tools but as a broader transformation in educational practices, institutional management, and organizational culture. Many pesantren have incorporated digital technologies into teaching, administration, communication, and academic services, thereby improving both the efficiency and effectiveness of educational operations.

The implementation of Learning Management Systems (LMSs), digital libraries, web-based administrative platforms, social media, and video conferencing technologies represents the most commonly reported forms of digital transformation. These innovations have significantly improved access to educational resources by enabling teachers and students to engage with learning materials anytime and anywhere. Furthermore, digital technologies have facilitated collaboration with other educational institutions, thereby expanding students' academic experiences and exposing them to broader educational networks and perspectives.

Despite these advantages, the reviewed literature consistently highlights several persistent challenges associated with digital transformation in pesantren. Limited technological infrastructure, unequal internet access, and insufficient digital competencies among educators remain the principal barriers to effective implementation. These findings suggest that successful digital transformation depends not only on the availability of technological

resources but also on the preparedness of human resources capable of utilizing digital technologies effectively, responsibly, and sustainably.

Accordingly, strengthening digital literacy emerges as one of the most prominent recommendations across the reviewed studies. Digital literacy encompasses not only technical proficiency in operating digital devices but also the ability to locate, evaluate, manage, and utilize information critically and ethically. Within the pesantren context, digital literacy is particularly important because it enables technology to function as a medium for learning, *da'wah*, and character development while minimizing the risks associated with misinformation, digital manipulation, and irresponsible online behavior.

The analysis of the eight studies addressing religious moderation demonstrates that pesantren continue to play a strategic role in fostering moderate, tolerant, and inclusive Islamic values. Amid accelerating globalization and the rapid dissemination of diverse ideological perspectives through digital media, pesantren serve as important institutions for preserving balanced religious understanding. Religious moderation education therefore represents one of the defining strengths of pesantren, equipping students with the capacity to respect diversity and coexist peacefully within multicultural societies.

The internalization of the core values of *tawasuth* (moderation), *tawazun* (balance), *tasamuh* (tolerance), *i'tidal* (justice), and *musyawarah* (deliberative consultation) occurs through a wide range of educational activities conducted both inside and outside the classroom. These values are not confined to theoretical instruction but are embedded in the daily life of pesantren through institutional culture, the exemplary leadership of the *kiai*, student organizations, *bahtsul masail* (collective scholarly deliberation on contemporary Islamic issues), and community engagement initiatives. Such a holistic educational approach positions religious moderation as an inseparable component of students' moral and character development.

The synthesis further demonstrates that the three principal themes—educational transformation, digitalization, and religious moderation—are highly interconnected and mutually reinforcing. Educational transformation establishes a more adaptive framework for learning, digitalization enhances educational effectiveness through the strategic use of technology, and religious moderation provides the ethical foundation that ensures educational change remains consistent with the Islamic principle of *rahmatan lil 'alamin* (mercy to all creation). The synergy among these three dimensions constitutes a fundamental prerequisite for developing high-quality and future-oriented pesantren education.

The findings also indicate that the sustainable development of pesantren cannot be achieved through fragmented or isolated interventions. Curriculum reform without meaningful digital integration is likely to limit educational effectiveness, while digital transformation without a strong foundation of religious moderation may increase the risk of technological misuse and the spread of irresponsible or misleading information. Consequently, pesantren development should adopt an integrated approach that balances educational

innovation, technological advancement, and the cultivation of religious and ethical character.

In addition to these substantive findings, the review identifies several important research gaps within the existing literature. First, most studies on the digitalization of pesantren remain predominantly descriptive, providing limited empirical evidence regarding the effectiveness of digital technologies in improving educational quality and learning outcomes. Second, research on religious moderation has focused largely on conceptual and normative discussions, with relatively few studies assessing its measurable impact on students' attitudes, behaviors, and character development. Third, only a limited number of studies have examined educational transformation, digitalization, and religious moderation within a single integrated analytical framework, leaving the interrelationships among these three dimensions insufficiently explored.

Overall, the findings suggest that pesantren possess considerable potential to serve as a model of innovative, adaptive, and globally competitive Islamic education while maintaining their distinctive religious identity. Educational transformation, digitalization, and religious moderation should therefore be developed as three complementary and integrated pillars capable of producing graduates with strong academic competence, advanced digital literacy, moderate religious character, and the skills required to address the challenges of the twenty-first century. Future research should develop and empirically validate integrated conceptual models using quantitative, qualitative, or mixed-methods approaches to examine the relationships among these dimensions and generate more robust evidence to inform the future development of pesantren education.

Conclusion

This study employed a Systematic Literature Review (SLR) to synthesize evidence from 30 peer-reviewed articles published between 2015 and 2025, examining educational transformation, digitalization, and religious moderation within pesantren (Islamic boarding schools). The findings reveal that educational transformation emerged as the most extensively investigated theme, accounting for 12 articles (40.0%), followed by digitalization with 10 articles (33.3%), and religious moderation with 8 articles (26.7%). This distribution reflects the growing scholarly emphasis on understanding how pesantren adapt to contemporary educational, technological, and societal developments while preserving their distinctive Islamic identity. The review demonstrates that educational transformation within pesantren has evolved toward a more adaptive and comprehensive educational model through the integration of religious and general education, the incorporation of twenty-first-century competencies, and the modernization of institutional governance. Importantly, these reforms have not diminished the fundamental values and long-standing scholarly traditions of pesantren. Instead, they have strengthened the institutions' capacity to maintain their religious identity while responding effectively to the changing demands of contemporary

society. The findings further indicate that digitalization has become a key driver of improvements in teaching and learning, institutional administration, and da'wah activities. Nevertheless, the reviewed studies consistently identify significant challenges, including inadequate technological infrastructure, limited digital literacy, and unequal access to information and communication technologies. Addressing these challenges requires strategic investments in digital infrastructure alongside sustained efforts to enhance the digital competencies of educators, administrators, and students to ensure the successful implementation of digital transformation within pesantren. Religious moderation emerged as a fundamental pillar in preserving the distinctive educational character of pesantren. Core values such as tawasuth (moderation), tawazun (balance), tasamuh (tolerance), and i'tidal (justice) are embedded within the curriculum, institutional culture, and the exemplary leadership of the kiai. Through this holistic educational approach, pesantren cultivate graduates who demonstrate tolerance, inclusivity, social responsibility, and a strong commitment to harmonious coexistence within diverse communities. Overall, the synthesis demonstrates that educational transformation, digitalization, and religious moderation are three interdependent dimensions that collectively reinforce the sustainability and relevance of pesantren in the global era. The successful transformation of pesantren depends not only on the adoption of educational innovations and digital technologies but also on their ability to preserve Islamic values and the tradition of religious moderation that has long distinguished these institutions. The integration of these three dimensions provides a robust foundation for strengthening the quality, resilience, and future competitiveness of pesantren education. This review also identifies several important directions for future research. Greater emphasis should be placed on empirical evaluations of digital transformation across different types of pesantren, rigorous assessments of the impact of religious moderation education on students' attitudes, behaviors, and character development, and the development of integrated analytical models that examine the relationships among educational transformation, digitalization, and religious moderation. Such research would contribute to a deeper understanding of how these interconnected dimensions can enhance the quality and sustainability of pesantren education in Indonesia and provide stronger evidence to inform educational policy and institutional practice.

References

- Arif, M., Dorloh, S., & Abdullah, S. (2024). A systematic literature review of Islamic boarding school (Pesantren) education in Indonesia (2014–2024). *Tribakti: Jurnal Pemikiran Keislaman*.
- Erihadiana, M., Mahmud, M., Nurdiansyah, R., Gozali, S., Nurwahyu, R. A. H., & Ramdani, N. W. (2026). The existence of Islamic boarding school in the internalization of religious moderation values: A systematic literature review. *Academia Open*.
- Faizin, M. A. (2024). Islamic boarding education management reform: Transformation strategies to improve competitiveness and relevance. *AL-ISHLAH: Jurnal Pendidikan*.

- Fauzi, A., Arif, M., & Mustofa, A. (2025). Realizing the ideal model of digital Islamic boarding schools (Pesantren): A systematic literature review analysis. *MUMTAZ: Jurnal Pendidikan Agama Islam*.
- Huda, M. (2024). Strengthening religious moderation through the core values of Islamic boarding school education. *Al-Hayat: Journal of Islamic Education*.
- Jamil, Z. A., Nurhuda, Alfian, Ulfah, S. M., Rasidin, & Youssef, A. (2025). Program evaluation study on Islamic religious education in pesantren: Addressing educational degradation in the digital era. *Jurnal Pendidikan Agama Islam*.
- Jauharotul, L., Al Khurriyyah, M., Achadi, M. W., Adhi, G., Saputra, & Susilowardani, F. (2025). The effectiveness of digital-based religious moderation learning: A review of the literature in the era of Society 5.0. *SOSIOEDUKASI: Jurnal Ilmiah Ilmu Pendidikan dan Sosial*.
- Junaedi, J., Zainuddin, M., Walid, M., Hasanah, M., & Barizi, A. (2024). Enhancing transformative competencies through the internalization of religious moderation: A vision for Islamic boarding school's educational framework in 2030. *AL-ISHLAH: Jurnal Pendidikan*.
- Kusuma, M. T. A., Muharom, F., & Jandra, M. (2025). Transformation of pesantren education management in the digital era (Analysis of tradition adaptation through educational innovation theory). *Educational Studies and Research Journal*.
- Mudarris, B., & Haq, A. A. S. (2026). Digital–turāth convergence in Islamic boarding school education: Integrative innovation management for digital transformation and curriculum reform in the era of educational disruption. *Al Qodiri: Jurnal Pendidikan, Sosial dan Keagamaan*.
- Munawar, M. A., & Endang, U. (2026). Transforming Islamic education curriculum in the era of religious moderation: Between digital integration and the resilience of pesantren values. *Bestari*.
- Mustafidin, A., Aliwan, Fahsin, M., Hakim, A., & Hidayatullah, M. A. (2025). Integrative curriculum innovation in responding to globalization: A case study of Darul Amanah Islamic boarding school. *At Turots: Jurnal Pendidikan Islam*.
- Paramansyah, A., Judijanto, L., Trinova, Z., Rahmah, S., & Zulihi. (2024). Transformation of Islamic boarding school education to address moral challenges in the digital era. *QALAMUNA: Jurnal Pendidikan, Sosial, dan Agama*.
- Permanasari, R., Haryadi, D., Herdiana, H., Asha, L., Ifnaldi, & Ristianti, D. H. (2026). Educational problems in Indonesian Islamic boarding school: A systematic review of curriculum barriers, digital obstacles, and institutional responses. *International Journal of Education Research and Development*.
- Riswadi, R., Roibin, R., Mustofa, L., Barizi, A., & Jamilah, J. (2024). Integration of religious moderation in character education: A study of the Salafiyah Islamic boarding school approach. *Global International Journal of Innovative Research*.
- Saputro, M. R., & Arif, M. (2025). Analysis of the role of information technology in strengthening Islamic religious education in pesantren: A study of digital transformation. *International Journal of Islamic Education, Research and Multiculturalism (IJIERM)*.
- Saputro, M. R., & Sukiman, S. (2024). Innovative strategies in revitalizing Islamic education: Case studies in pesantren as a model of community empowerment. *International Journal of Social Service and Research*.
- Suresman, E., Faqihuddin, A., Jenuri, & Abdullah, M. (2025). From sorogan to digital learning: A systematic literature network analysis of pesantren learning models. *Cogent Education*.
- Suryati, S., Mulyani, E., & Shadiqin, S. I. (2025). Strategies for the transformation of traditional Islamic boarding schools in Aceh Singkil: Integrating education, social, and religious aspects. *Tafkir: Interdisciplinary Journal of Islamic Education*.
- Ubaidillah, U., & Faiz, M. F. (2025). Beyond the sacred walls: Reimagining pesantren's architecture of Islamic moderation. *Ulumuna*.