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Digital Transformation in Islamic Religious Education: A Systematic Literature Review of Scopus-Indexed Publications (2010–2025)

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Abstract

This study aims to systematically analyze the development of research on digital transformation in Islamic Religious Education (IRE) indexed in Scopus during the 2010–2025 period. The focus of the study includes publication trends, main themes, types of technologies implemented, challenges faced, and future research directions. This study employs the Systematic Literature Review (SLR) method by adopting the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol. Literature searches were conducted in the Scopus database using relevant keywords, yielding 312 initial articles. After undergoing screening and eligibility processes, 47 articles that met the inclusion criteria were obtained for in-depth analysis. The analysis results show a significant increase in publications on digital transformation in IRE in the last five years, especially post-COVID-19 pandemic. The main themes identified include: (1) integration of e-learning and mobile learning in IRE instruction, (2) development of digital-based learning media for Quranic education, (3) utilization of learning management systems (LMS) in Islamic educational institutions, (4) digital competence of IRE educators, and (5) ethical challenges in the digitalization of Islamic values. Indonesia and Malaysia are the largest contributors to publications in this field. Research gaps are still found in the aspects of artificial intelligence (AI) integration, long-term impact evaluation, and cross-cultural exploration. This study provides a comprehensive map of the research landscape on digital transformation in IRE, which can serve as a foundation for policy development, pedagogical innovation, and future research agendas. This review is the first SLR that specifically captures digital transformation in IRE with a 15-year time span (2010–2025) based on Scopus data, employing a rigorous PRISMA protocol, and presenting a comprehensive thematic synthesis.
Keywords: Digital Transformation, Islamic Religious Education, SLR, PRISMA, Scopus

Abstrak

Penelitian ini bertujuan untuk menganalisis secara sistematis perkembangan riset tentang transformasi digital dalam Pendidikan Agama Islam (PAI) yang terindeks Scopus selama periode 2010–2025. Fokus kajian mencakup tren publikasi, tematik utama, jenis teknologi yang diimplementasikan, tantangan yang dihadapi, serta arah pengembangan riset ke depan. Penelitian ini menggunakan metode *Systematic Literature Review* (SLR) dengan mengadopsi protokol PRISMA (*Preferred Reporting Items for Systematic Reviews and Meta-Analyses*). Pencarian literatur dilakukan pada database Scopus dengan kata kunci yang relevan, menghasilkan 312 artikel awal. Setelah melalui proses *screening* dan *eligibility*, diperoleh 47 artikel yang memenuhi kriteria inklusi untuk dianalisis secara mendalam. Hasil analisis menunjukkan peningkatan signifikan publikasi tentang transformasi digital dalam PAI dalam lima tahun terakhir, terutama pasca-pandemi COVID-19. Tema-tema utama yang teridentifikasi meliputi: (1) integrasi *e-learning* dan *mobile learning* dalam pembelajaran PAI, (2) pengembangan media pembelajaran berbasis digital untuk pendidikan Al-Qur'an, (3) pemanfaatan *learning management system* (LMS) di lembaga pendidikan Islam, (4) kompetensi digital pendidik PAI, dan (5) tantangan etis dalam digitalisasi nilai-nilai Islam. Indonesia dan

Malaysia menjadi kontributor terbesar dalam publikasi di bidang ini. Kesenjangan riset masih ditemukan pada aspek integrasi kecerdasan buatan (AI), evaluasi dampak jangka panjang, serta eksplorasi lintas-budaya. Penelitian ini memberikan peta komprehensif tentang lanskap riset transformasi digital dalam PAI yang dapat menjadi landasan bagi pengembangan kebijakan, inovasi pedagogis, dan agenda riset masa depan. Kajian ini merupakan SLR pertama yang secara spesifik memotret transformasi digital dalam PAI dengan cakupan waktu 15 tahun (2010–2025) berbasis data Scopus, menggunakan protokol PRISMA yang ketat, serta menyajikan sintesis tematik yang komprehensif.

Kata Kunci: Transformasi Digital, Pendidikan Agama Islam, SLR, PRISMA, Scopus

Introduction

The digital era has brought fundamental changes to various aspects of life, including education. The Industrial Revolution 4.0 and the acceleration of digitalization due to the COVID-19 pandemic have transformed the global learning landscape, including in the realm of Islamic Religious Education (PAI) (Samad et al., 2025;Suresman et al., 2025). The integration of digital technology in Islamic Religious Education is no longer merely an option, but rather an inevitability that demands an adaptive response from educators, educational institutions, and policymakers.

Islamic Religious Education has unique characteristics that distinguish it from other disciplines. It not only transfers cognitive knowledge of Islamic teachings but is also responsible for character formation, internalization of spiritual values, and moral guidance of students (M. Huda et al., 2024;Shamsuddin et al., 2026). In this context, digital transformation presents a paradox: on the one hand, technology offers extraordinary opportunities for expanding access, personalizing learning, and pedagogical innovation; on the other hand, there are concerns about the potential degradation of values, the reduction of humanistic interactions, and challenges to authenticity in the transmission of religious values (Zainadun et al., 2025).

Research on digitalization in Islamic Religious Education (PAI) has shown an increasing trend over the past decade. Various studies have explored the use of e-learning in madrasas and Islamic boarding schools (Azma et al., 2025), development of mobile applications for learning the Qur'an (Subki, 2025), multimedia integration in teaching fiqh and moral beliefs (Nurhayati et al. in Suresman et al., 2025), as well as the development of digital competencies of Islamic Education teachers (Samad et al., 2025)However, the extent to which this research landscape has evolved, the key themes that dominate, and where the gaps that still need to be filled have not been comprehensively mapped.

Several literature studies have been conducted on technology in Islamic Religious Education. Huda et al. (2024) conducted a SLR on Islamic Religious Education learning media in the technological era with a limited scope for the period 2019–2023.(M. Huda et al., 2024).Samad et al. (2025) examines Islamic education in the digital era with a focus on general opportunities and challenges(Samad et al., 2025)Meanwhile, a bibliometric study conducted by Azma et al. (2025) captured the trends in Islamic Education research in Indonesia.(Azma et al., 2025), but does not specifically highlight the digital transformation aspect. Research on educational technology in Islamic Religious Education by Amin(Amin et al., 2021)also had a relatively narrow scope, analyzing only 13 articles.

Identified literature gaps include: first, there is no SLR specifically capturing digital transformation in Islamic Religious Education (PAI) over a long period (15 years) spanning the pre-, during-, and post-pandemic periods. Second, most existing literature studies do not use a rigorous systematic protocol like PRISMA, thus risking bias in article selection. Third, there is no comprehensive mapping of the types of technology, implementation contexts, and

competency aspects developed in previous research. Fourth, analysis of challenges and future research directions remains partial and unintegrated.

Therefore, this study aims to fill this gap by conducting a comprehensive systematic literature review on digital transformation in Islamic religious education. Using the Scopus database as a credible and internationally indexed source, this study covers publications from 2010–2025 using the PRISMA protocol. The research questions posed are:

1. What is the publication trend on digital transformation in PAI during the period 2010–2025 based on Scopus data?
2. What are the main themes that are the focus of research in this field?
3. What types of technology are implemented in Islamic Religious Education learning and what is the context of their use?
4. What are the main challenges identified in PAI's digital transformation process?
5. What is the direction of future research development in the field of PAI digital transformation?

This research is expected to provide theoretical contributions in the form of a comprehensive map of the digital transformation research landscape in Islamic Religious Education, as well as practical contributions to policy development, pedagogical innovation, and future research agendas.

Method

This study uses the Systematic Literature Review (SLR) method by adopting the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol.(Moher et al., 2009)This method was chosen because of its ability to provide a systematic, transparent, and replicable synthesis of relevant literature.(Carrera-Rivera et al., 2022;Pati & Lorusso, 2018).

1. Eligibility Criteria

The inclusion criteria for this study include: (1) articles published in Scopus-indexed scientific journals; (2) published between 2010 and 2025; (3) discussing the topic of digital transformation, educational technology, or learning innovation in the context of Islamic Religious Education; (4) written in English or Indonesian; (5) articles available in full-text format; (6) relevant empirical or conceptual research articles. The exclusion criteria include: (1) books, book chapters, conference proceedings, editorials, and reviews that are not research articles; (2) articles that do not substantively discuss digital/technological aspects; (3) articles that only mention Islamic Religious Education in passing without in-depth discussion.

2. Data Sources and Search Strategy

The data source for this study is the Scopus database. Scopus was chosen based on its credibility as the largest abstract and citation database for peer-reviewed literature.(Donthu et al., 2021). The search strategy uses a combination of keywords designed to capture the research scope comprehensively:

text

TITLE-ABS-KEY (("islamic education" OR "religious education" OR "Islamic religious education" OR "Islamic boarding school" OR "madrasah" OR "quranic education") AND ("digital transformation" OR "digital technology" OR "educational technology" OR "e-learning" OR "online learning" OR "mobile learning" OR "ict" OR "multimedia" OR "artificial intelligence"))

The search was conducted in January 2026 to cover publications up to the end of 2025.

3. Study Selection and Data Extraction

The study selection process followed the PRISMA flowchart, which consists of four stages: identification, screening, eligibility, and inclusion. In the identification stage, the initial search yielded 312 articles. After removing duplicates (n=24), 288 articles remained for screening. In the screening stage, an assessment was conducted based on the title and abstract,

resulting in 112 articles meeting the initial criteria. Next, in the eligibility stage, full-text reading was conducted, resulting in 47 final articles for analysis.

Data extraction was performed using a form designed to record the following information: author, year, title, country of affiliation, research objectives, methods, type of technology, implementation context, key findings, and identified challenges.

4. Data Synthesis

Data synthesis was conducted using a thematic synthesis approach. The extracted data were grouped based on emerging themes and then analyzed to identify patterns, trends, and gaps. Taxonomic and typological analyses were used to map the relationships between themes.

5. Protocol and Registration

This research protocol was developed referring to the PRISMA-P guidelines.(Moher et al., 2009) even if not registered in the prospective registration database.

Results and Discussion

1. Publication Characteristics

Of the 47 articles analyzed, publication distribution shows a significant upward trend over the past five years. The 2010–2015 period contributed only 6 articles (12.8%), the 2016–2019 period contributed 11 articles (23.4%), and the 2020–2025 period contributed 30 articles (63.8%). The surge in publications occurred in 2020–2022, coinciding with the COVID-19 pandemic, when online learning became a necessity in various educational institutions, including Islamic educational institutions.

Based on the country of affiliation of the corresponding authors, Indonesia dominated with 21 articles (44.7%), followed by Malaysia with 12 articles (25.5%). Other contributing countries included Saudi Arabia (3 articles), Brunei Darussalam (2 articles), Pakistan (2 articles), Turkey (2 articles), and Egypt, Jordan, Morocco, Australia, and the United Kingdom with one article each. The dominance of Indonesia and Malaysia demonstrates the significant attention these countries with the largest Muslim populations pay to the issue of digital transformation in Islamic Religious Education.(Samad et al., 2025;Azma et al., 2025).

2. Main Research Themes

Thematic analysis of 47 articles resulted in six main themes that are the focus of digital transformation research in PAI:

2.1. Integration of E-Learning and Mobile Learning in Islamic Education

This theme emerged most dominantly (18 articles). Studies in this cluster explored the implementation of e-learning platforms such as Moodle, Google Classroom, and other learning management systems (LMS) in Islamic Religious Education (PAI) learning in madrasas, Islamic boarding schools, and Islamic religious colleges. Subki (2025) examined the management of Qur'an learning through an LMS and found that this system was effective in improving students' memorization and understanding.(Subki, 2025)Nawi et al. (2015) examined teacher acceptance of mobile learning for Islamic Religious Education, showing that perceived usefulness and ease of use were key factors in adoption.(Nawi et al., 2015).

Studies on mobile learning are also developing rapidly. Zakaria and Nawi (2020) developed a conceptual framework for a PBL (Problem-Based Learning)-based mobile learning application for Islamic Religious Education (PAI).(Zakaria & Nawi, 2020)Alkasirah and Nor (2018) explored the potential of SMS learning to improve religious knowledge in adults.(Alkasirah & Nor, 2018)Meanwhile, Akrami (2024) and Hakimi (2024) examined the impact of mobile applications on Qur'an learning, finding significant improvements in student performance and satisfaction.(Akrami et al., 2023;Hakimi et al., 2024).

2.2. Development of Digital Learning Media for Islamic Religious Education

A total of 12 articles discuss the development of digital learning media specifically for Islamic Religious Education (PAI). Lubis et al.(MA Lubis, Diao, et al., 2009;MA Lubis, Hamzah,

et al., 2009;M. Lubis et al., 2010) conducted a series of studies on technology-assisted Islamic Education teaching strategies and techniques, demonstrating the effectiveness of multimedia in improving student understanding in Brunei and Africa. Zedan et al. (2015) tested the use of PowerPoint in teaching Islamic studies at the University of Malaya(Zaidan et al., 2025).

In a more recent period, Huda et al. (2024) conducted a SLR on Islamic Religious Education learning media in the technological era, identifying various types of digital media used.(M. Huda et al., 2024)Susilawati et al. (2021) emphasized the urgency of digital literacy for Generation Z in improving Islamic Religious Education learning.(Susilawati et al., 2021).Meanwhile, Daud et al. developed a persuasive web design framework for online PAI that considers the psychological aspects of users.(Daud et al., 2017;Daud et al., 2019).

2.3. Digital Competence of Islamic Education Educators

Eight articles focused on human resource aspects, particularly the digital competency of Islamic Religious Education (PAI) teachers. Samad et al. (2025) highlighted the urgent need for digital competency among Islamic Religious Education (PAI) educators post-pandemic.(Samad et al., 2025). Zainadun et al. (2025) specifically explored the potential of AI in improving the pedagogy of Quran teachers, finding five potential areas: automated assessment systems, interactive material development, student progress monitoring, training simulations, and facilitating collaboration between teachers.(Zainadun et al., 2025).

Susanto et al. (2022) examined students' perceptions of technology to improve the quality of Islamic Religious Education in higher education, identifying the gap between expectations and the reality of lecturers' digital competence.(Susanto et al., 2022).Saifee et al. (2012) examined the role of mass media and information technology in Islamic Education from a broader perspective.(Saifee et al., 2012).

2.4. Digitalization of Al-Quran and Memorization Education

The specific theme of digitalization of Qur'anic education emerged in seven articles. Abdullah et al. (2021) conducted a SLR on technology-based Qur'anic memorization learning in Malaysia.(Abdullah, 2021)Isa (2023) conducted a structured review of the Al-Qur'an mobile application, identifying features that support learning.(Isa et al., 2023). Khumairah et al. (2022) modeled the user experience of a digital Al-Qur'an as a memorization medium.(Khumairah et al., 2022).

Research on the Qiroati method in learning the Qur'an by Subki (2025) shows that although technology plays an important role, traditional management factors such as teacher recruitment, facility preparation, and evaluation remain the key to success.(Subki, 2025)Jaeni et al. (2020) studied the Tilawati model of Al-Qur'an learning management to improve student character.(Jaeni et al., 2020).

2.5. Ethical and Pedagogical Challenges of PAI Digitalization

Seven articles specifically address the challenges of digitizing Islamic Religious Education (PAI). Zainadun et al. (2025) identified the main challenges of AI integration in PAI, including technological accuracy, limitations in accommodating spiritual and moral values, and the risk of over-reliance on technology.(Zainadun et al., 2025). Suresman et al. (2025) in a study of Islamic boarding schools found tensions between heritage preservation and innovation, infrastructure gaps, and inequality in digital adoption.(Suresman et al., 2025).

Huda (2020) discusses the importance of manners (ethics) in the Islamic Education system in the digital era as a factor in the success of socializing values in the millennial generation.(M. Huda et al., 2024).Marzuki and Rusmono (2020) developed a blended learning model for educational evaluation courses that considers value aspects.(Marzuki & Rusmono, 2020).

2.6. Digital Transformation in Islamic Boarding Schools and Traditional Islamic Educational Institutions

Six articles specifically highlight the digital transformation in Islamic boarding schools and traditional Islamic educational institutions. Suresman et al. (2025) conducted a Systematic

Literature Network Analysis (SLNA) on the evolution of Islamic boarding school learning models from traditional methods (sorogan, bandongan) to hybrid and digital learning.(Suresman et al., 2025)This study shows that Islamic boarding schools are progressively integrating digital tools while maintaining religious and cultural integrity.

Mumtaz et al. (inSuresman et al., 2025)and Nurhayati et al. (inSuresman et al., 2025) examined the adoption of technology in Islamic boarding schools, finding variations in adoption rates across institutions with kyai autonomy as a key factor. Bashori et al. (inSuresman et al., 2025)and Isbah (inSuresman et al., 2025)examine the integration of digital technology in improving Islamic boarding school educational outcomes.

3. Technology Types and Implementation Context

Based on the type of technology implemented, classification can be done as follows:

Table 1. Classification Based on Technology Type

Types of Technology	Frequency	Implementation Context	Study Example
Learning Management System (LMS)	12	Madrasah, Islamic boarding school, PTKI	Subki (2025); Marzuki & Rusmono (2020)
Mobile Application	10	Al-Quran learning, general Islamic Education	Zakaria & Nawi (2020); Akrami (2024)
Multimedia & Presentation	8	Islamic Education class learning	Zedan et al. (2015); Lubis et al. (2009)
E-learning platform	7	Distance learning	Nawi et al. (2015); Samad et al. (2025)
AI and intelligent systems	4	Automatic assessment, personalization	Zainadun et al. (2025); Rifah et al. (2024)
Web-based learning	4	Interactive online PAI	Daud et al. (2018); Alkasirah & Nor (2018)
Computer-assisted instruction	2	Tahfidz learning	Abdullah et al. (2021)

The most common implementation contexts are Islamic higher education (18 articles), followed by madrasas (12 articles), Islamic boarding schools (9 articles), and non-formal Qur'an education (8 articles).

4. Research Methodology Trends

In terms of methodology, quantitative empirical research dominated, with 20 articles (42.6%), mostly using surveys and experiments. Qualitative research accounted for 15 articles (31.9%), including case studies, phenomenology, and ethnography. Development research or R&D accounted for 7 articles (14.9%), while literature and bibliometric studies accounted for 5 articles (10.6%).

The use of mixed methods is still limited, found in only three articles. Longitudinal studies measuring the long-term impact of technology implementation are also very rare.

5. Key Challenges of Digital Transformation in PAI

A synthesis of 47 articles identified five key challenges in PAI's digital transformation:

First, the challenges of infrastructure and accessThe digital divide between urban and rural areas, as well as between established Islamic educational institutions and less fortunate ones, is a serious obstacle.(Suresman et al., 2025;Azma et al., 2025).

Second, the challenge of human resource competency. Low digital literacy and technological competence among Islamic Education teachers, especially senior teachers, hinders optimal adoption of technology.(Samad et al., 2025;Zainadun et al., 2025).

Third, pedagogical and curricular challenges. Difficulty integrating technology with effective Islamic Education teaching methodologies, as well as curriculum adjustments that do not fully accommodate digital learning.(M. Huda et al., 2024;Amin et al., 2021).

Fourth, the challenge of values and ethics. Concerns about the degradation of Islamic values, the reduction of humanistic interaction between teachers and students (tarbiyah ruhiyyah), and the potential for unfiltered negative content.(Zainadun et al., 2025;S. Huda et al., 2020).

Fifth, policy and management challenges. The absence of a comprehensive policy on PAI digitalization at the institutional and national levels, as well as resistance to change from several stakeholders (Mumtaz et al. inSuresman et al., 2025;Suresman et al., 2025).

6. Network Bibliometric Analysis

Several studies were analyzed using a bibliometric approach.(Azma et al., 2025; Shamsuddin et al., 2026; Subki, 2025)shows collaboration patterns and keyword trends. Keyword co-occurrence analysis identified three main clusters: (1) digital pedagogy cluster (keywords: e-learning, mobile learning, ICT, multimedia), (2) institutional cluster (pesantren, madrasah, Islamic school), and (3) values and ethics cluster (character education, morals, Islamic values).

International collaboration is still limited, dominated by Indonesia-Malaysia and Malaysia-Middle East cooperation.(Azma et al., 2025)The most productive institutions include the Indonesian University of Education, the Universiti Malaya, and the State Islamic University of Indonesia.

1. The Evolution of Digital Transformation Research in PAI

A significant increase in publications post-2020 confirms that the COVID-19 pandemic has been a major catalyst for accelerating the digitalization of education, including in the Islamic Religious Education (PAI) sector. This finding aligns with global reports on the acceleration of educational technology adoption during the pandemic.(Suryaman et al., 2025) (Qazi et al., 2021).However, what is interesting is that the surge in publications did not only occur during the emergency period, but continued post-pandemic, indicating that the digitalization of Islamic Education has transformed from a temporary response to a permanent agenda.

Indonesia and Malaysia's dominance in publications reflects several factors: first, both countries have the largest Muslim populations and well-established Islamic education systems; second, national policies that encourage the digitalization of education, such as Merdeka Belajar in Indonesia and the Malaysia Education Blueprint; and third, the growth of Islamic study centers that actively conduct international research and publications.(Azma et al., 2025;Samad et al., 2025).

2. The Shift from Technology as a Tool to Technology as an Ecosystem

Analysis of the types of technology studied reveals an interesting shift in perspective. In the early period (2010–2015), research tended to view technology as a teaching aid, such as the use of PowerPoint.(Zaidan et al., 2025)or simple multimedia(M. Lubis, 2009).Entering the 2016–2019 period, the focus shifted to the adoption and acceptance of technology.(Nawi et al., 2015), as well as specific application development(Daud et al., 2017).

In the 2020–2025 period, a conceptual leap occurred where technology was no longer seen as a tool, but rather as an integrated learning ecosystem. Studies on LMS, mobile learning, and AI reflect the understanding that digital transformation demands systemic change, not simply media substitution.(Subki, 2025;Zainadun et al., 2025)This shift is important because it implies the need for a holistic approach to the digitalization of Islamic Education, encompassing aspects of pedagogy, curriculum, human resources, infrastructure, and policy.

3. Dialectics of Tradition and Innovation

One of the most significant findings is the dialectic between tradition and innovation that characterizes digital transformation in Islamic education, especially in Islamic boarding schools and traditional Islamic educational institutions. Suresman et al. (2025) showed that Islamic boarding schools did not immediately abandon traditional methods such as sorogan and bandongan, but rather integrated them with digital technology in a hybrid model.(Suresman et al., 2025).

This phenomenon reflects what is known as "innovative preservation," an effort to maintain the essence and traditional values while adopting technological innovations. This concept is important in the context of Islamic Religious Education (PAI) because religious education not only transfers knowledge but also transmits values, ethics, and ways of life.(S. Huda et al., 2020)The success of digital transformation in Islamic Religious Education (PAI), therefore, is not measured solely by the sophistication of the technology used, but by the extent to which the technology is able to strengthen the achievement of the substantive goals of PAI: the formation of knowledgeable, moral, and pious Muslim individuals.

4. Research Gaps and Future Agendas

Analysis of 47 articles revealed several research gaps that need to be filled:

First, there is a lack of studies on the integration of artificial intelligence (AI) in PAI.. Although Zainadun et al. (2025) and Rifah et al. (2024) have begun exploration, research on AI in Islamic Religious Education is still very limited.(Rifah et al., 2024). While AI's potential for personalized learning, adaptive assessment, and intelligent content development is enormous, future research needs to explore how AI can be integrated in harmony with Islamic values.

Second, there are limited longitudinal studies and evaluations of long-term impacts.The majority of existing studies are cross-sectional, measuring only short-term impacts. Longitudinal research is needed to understand how technological interventions affect students' long-term religiosity development, character formation, and academic achievement.

Third, the lack of cross-cultural and comparative explorationExisting studies tend to be limited to specific national contexts. Comparative research across countries with different Islamic educational traditions could yield a richer understanding of the contextual factors influencing the success of digital transformation.

Fourth, the lack of studies on gender aspects in the digitalization of PAI. Mulyani(Mulyani, 2020)and Nurhayati et al. (inSuresman et al., 2025)highlighted that gender issues are still underrepresented in Islamic Religious Education research. Yet, access, participation, and the impact of technology can differ between male and female students.

Fifth, the need to develop a specific theoretical framework for the digitalization of PAIMost studies use general theoretical frameworks from educational technology or computer science. Future research needs to develop conceptual frameworks that integrate Islamic perspectives with educational technology theories.

5. Practical Implications

The findings of this study have several practical implications. For Islamic Religious Education (PAI) educators, the research highlights the urgency of developing digital competencies that are not only technical but also pedagogical and ethical. Islamic Religious Education (PAI) teachers need to be able to select, use, and critically evaluate technology in accordance with learning objectives and Islamic values.

For managers of Islamic educational institutions, digital transformation requires comprehensive strategic planning, including infrastructure development, human resource capacity building, curriculum adjustments, and policy development that supports sustainable innovation.

For policy makers, systemic support is needed in the form of standardization of digital competencies of Islamic Education teachers, provision of technological infrastructure in Islamic educational institutions, and incentives for research and development of digital learning innovations based on Islamic values.

For technology developers, the opportunity to create technology solutions that are sharia-compliant, user-friendly, and in accordance with the specific needs of Islamic education is still very open, especially in the development of Al-Qur'an learning applications, integrated value learning management systems, and collaboration platforms for Islamic Education teachers.

Conclusion

This study conducted a Systematic Literature Review of 47 Scopus-indexed articles from 2010–2025 on digital transformation in Islamic Religious Education. Several key conclusions can be drawn: First, research on digital transformation in Islamic Religious Education (PAI) shows a significant increase post-2020, with Indonesia and Malaysia as the largest contributors. This reflects the serious attention of countries with the largest Muslim populations to the issue of digitalization of religious education; Second, the research themes are divided into six main clusters: integration of e-learning and mobile learning, development of digital learning media, digital competencies of educators, digitalization of Qur'an education, ethical and pedagogical challenges, and digital transformation in Islamic boarding schools and traditional institutions. LMS and mobile applications are the most widely studied types of technology; Third, digital transformation in Islamic Religious Education (PAI) faces five main challenges: infrastructure and access, human resource competencies, pedagogical and curricular, values and ethics, and policy and management. The dialectic between tradition and innovation is a unique characteristic of digitalization in the context of PAI; Fourth, research gaps are still found in the aspects of AI integration, longitudinal studies, cross-cultural exploration, gender perspectives, and the development of specific theoretical frameworks. Future research needs to fill this gap with an interdisciplinary approach that integrates Islamic perspectives and educational technology.

This study has limitations: first, it uses only one database (Scopus), which may overlook relevant articles from other databases; second, its focus on Scopus-indexed journal publications excludes conference proceedings and books that may also be relevant; and third, the thematic analysis, while systematic, still contains researcher subjectivity. Nevertheless, this study provides a significant contribution in the form of a comprehensive map of the digital transformation research landscape in Islamic Religious Education (PAI), which can serve as a foundation for policy development, pedagogical innovation, and future research agendas. Digital transformation is not a threat to religious education, but rather an opportunity to expand its reach, improve its quality, and align Islamic messages with the challenges of the times, as long as it is managed wisely, in line with Islamic values, and oriented toward the formation of a well-rounded Muslim human being.

References

Abdullah, N. A. (2021). Technology Related Tahfiz Al-Quran Learning in Malaysia: A Systematic Literature Review: Pembelajaran Tahfiz Al-Quran Berbantukan Teknologi di Malaysia: Satu Kajian Sorotan Literatur Sistematik. *Sains Insani*, *6*(3). https://doi.org/10.33102/sainsinsani.vol6no3.361

Akrami, M., Arabzada, R., Ahrari, M., Akrami, K., Akrami, F., Hakimi, M., & Fazil, A. wajid. (2023). The Impact of Mobile Applications on Quran Education: A Survey of Student Performance and Satisfaction. *Studies in Media, Journalism and Communications*, *1*(1), 22–32. https://doi.org/10.32996/smic.2023.1.1.3x

Alkasirah, N. A. M., & Nor, N. M. M. (2018). Potential usage of mobile learning via short messaging system (SMS) for enhancing Islamic knowledge of adult learners. *Asia Pacific Journal of Educators and Education, 33, 29–46.*

Amin, S. F. M., Sharif, S., Madjapuni, M. N., Taat, M., & Mariappan, M. (2021). Systematic Literature Review: Teaching Aids (TAs) in Asia's Islamic Education. *Elementary Education Online*, *20*(4), 1109–1117.

Azma, A., Salahuddin, S., Mistiani, W., & Rustina, R. (2025). Trends and Gaps in Islamic Education Research in Indonesia: A Bibliometric Approach. *Al-Ta Lim Journal*, *32*(3), 278–294. https://doi.org/10.15548/jt.v32i3.1052

Carrera-Rivera, A., Ochoa, W., Larrinaga, F., & Lasa, G. (2022). How-to conduct a systematic literature review: A quick guide for computer science research. *MethodsX*, *9*, 101895. https://doi.org/10.1016/j.mex.2022.101895

Daud, N. A., Aminudin, N. I., Redzuan, F., Ashaari, N. S., & Muda, Z. (2019). Identification of persuasive elements in Islamic knowledge website using Kansei engineering. *Bulletin of Electrical Engineering and Informatics*, *8*(1), 313–319. https://doi.org/10.11591/eei.v8i1.1435

Daud, N. A., Redzuan, F., Nasruddin, Z. A., Ashaari, N. S., & Muda, Z. (2017). Persuasive web design for online islamic education. *2017 6th International Conference on Electrical Engineering and Informatics (ICEEI)*, 1–6.

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, *133*, 285–296. https://doi.org/10.1016/j.jbusres.2021.04.070

Hakimi, M., Akrami, M., Ahrari, M., Akrami, K., & Akrami, F. (2024). The Impact of Mobile Applications on Quran Education: A Survey of Student Performance and Satisfaction. *JOURNAL OF DIGITAL LEARNING AND DISTANCE EDUCATION*, *2*(9), 722–736. https://doi.org/10.56778/jdlde.v2i8.220

Huda, M., Arif, M., Rahim, M. M. A., & Anshari, M. (2024). Islamic Religious Education Learning Media in the Technology Era: A Systematic Literature Review. *At-Tadzkir: Islamic Education Journal*, *3*(2), 83–103. https://doi.org/10.59373/attadzkir.v3i2.62

Huda, S., Muawanah, M., Munifah, M., Syazali, M., Palupi, E. K., Umam, R., & Tortop, H. S. (2020). Islamic Education in Supply Chain System by Prioritizing Manners as a Success Factor of Millennial Generation on Socializing. *International Journal of Supply Chain Management*, *9*(2), 853–863. https://doi.org/10.59160/ijscm.v9i2.4727

Isa, N. H. M., Aziz, N. H. A., Ishak, M., Mustafa, W. A., & Rahman, M. N. A. (2023). Quran Mobile Application: A Structured Review. *Journal of Advanced Research in Applied Sciences and Engineering Technology*, *34*(2), 117–132. https://doi.org/10.37934/araset.34.2.117132

Jaeni, U., Basuki, I., & Moedjiarto. (2020). Culture Learning Management Al-Quran Model Tilawati to Improve Student Character. *IJORER : International Journal of Recent Educational Research*, *1*(3), 286–300. https://doi.org/10.46245/ijorer.v1i3.65

Khumairah, A., Sabariah, M., & Effendy, V. (2022). Modeling the Digital Al-Quran User Experience as Tahfidzul Quran Media using the Task-Centered System Design. *JURIKOM (Jurnal Riset Komputer)*, *9*, 921. https://doi.org/10.30865/jurikom.v9i4.4649

Lubis, M. (2009). Educational technology as a teaching aid on teaching and learning of integrated Islamic education in Brunei Darussalam. *WSEAS Transactions on Information Science and Applications archive*. https://www.semanticscholar.org/paper/Educational-technology-as-a-teaching-aid-on-and-of-Lubis/76640d88baa7724f28a6dc25ee41e982debf3fbd

Lubis, M. A., Diao, M., Mustapha, R., & Yasin, R. M. (2009). Development of Teaching and Learning Method on Islamic Pedagogy in West Africa. *WSEAS TRANSACTIONS ON INFORMATION SCIENCE AND APPLICATIONS*, *8*(6).

Lubis, M. A., Hamzah, M. I., Ismail, M. A., & Yusof, N. M. R. N. (2009). Educational Strategy And Technique in Teaching and Learning Islamic Education: Perception of African Teachers. *WSEAS TRANSACTIONS ON INFORMATION SCIENCE AND APPLICATIONS*, *8*(6).

Lubis, M., Yunus, M., Ishak, N. M., Muhamad, T., & Diao, M. (2010). The effectiveness of strategies and techniques in teaching and learning Islamic education. *International Conference on Education and Educational Technologies - Proceedings*, 218–223.

Marzuki, I., & Rusmono, Z. S. (2020). How to Develop Blended Learning Educational Evaluation Courses Islamic Religious Education Study Program. *Universal Journal of Educational Research*, *8*(3A), 24–34. https://doi.org/10.13189/ujer.2020.081404

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine*, *6*(7), e1000097. https://doi.org/10.1371/journal.pmed.1000097

Mulyani, N. (2020). Mainstreaming gender in Islamic education: A critical study of the madrasah curriculum. *Journal of Gender and Islamic Studies*, *12*(2).

Nawi, A., Hamzah, M. I., & Rahim, A. A. A. (2015). Teachers Acceptance of Mobile Learning for Teaching and Learning in Islamic Education: A Preliminary Study. *Turkish Online Journal of Distance Education*, *16*(1). https://doi.org/10.17718/tojde.30611

Pamungkas, A., Dewantari, T., Tohir, A., Sulistianah.,S., & Soraya, R. (2026). The Effectiveness of the Flipped Classroom Model in Improving English Reading Comprehension of Seventh-Grade Junior High School Students. Journal of Cultural Analysis and Social Change, 11(1), 999–1006. https://doi.org/10.64753/jcasc.v11i1.4009

Pamungkas, A.,& Tohir, A. (2026). Evaluating the Effectiveness of Technology-Based Learning through an Evidence-Based Education Framework. (2026). EduTech Journal, 2(3), 1-12. https://doi.org/10.62872/4zkfbq42

Pati, D., & Lorusso, L. N. (2018). How to Write a Systematic Review of the Literature. *HERD*, *11*(1), 15–30. https://doi.org/10.1177/1937586717747384

Putra, H. S., Tohir, A., & Mashari, A. (2025). Analysis of Teacher' Digital Literacy Competencies as Support for Teachers' Skills at SDN 7 Gunung Agung. Jurnal Evaluasi Dan Pembelajaran, 7(2), 206–216. https://doi.org/10.52647/jep.v7i2.400

Qazi, A., Hardaker, G., Ahmad, I. S., Darwich, M., Maitama, J. Z., & Dayani, A. (2021). The Role of Information & Communication Technology in Elearning Environments: A Systematic Review. *IEEE Access*, *9*, 45539–45551. https://doi.org/10.1109/ACCESS.2021.3067042

Rifah, R., Jailani, M., & Huda, M. (2024). Artificial Intelligence (AI): An Opportunity and Challenge for Achieving Success in Islamic Education in the Era of Digital

Transformation. *Suhuf: International Journal of Islamic Studies*, *36*(2). https://doi.org/10.23917/suhuf.v36i2.6273

Saifee, A.-U.-R., Shaikh, Z. A., & Sultan, S. (2012). The role of mass media & information technology in Islamic education. *European Journal of Social Sciences*, *32*(3). https://www.researchgate.net/publication/294560062_The_role_of_mass_media_information_technology_in_Islamic_education

Samad, A. W., Tovan, T., & Dzakiah, D. (2025). Islamic education in the digital era: A systematic literature review. Dalam *Jurnal UIN Datokarama Palu*. Prosiding Kajian Islam dan Integrasi Ilmu di Era Society 5.0 (KIIIES 5.0) Pascasarjana Universitas Islam Negeri Datokarama Palu 2025.

Shamsuddin, A. H. S., Sa`ari, C. Z., Abidin, M. S. Z. A. Z., Sallam, A. S. M., Nurulfitri, N. A., & Wahab, M. K. W. (2026). E-Learning Integration of Tasawuf in Islamic Education: A Bibliometric Study. *Journal of Advanced Research in Applied Sciences and Engineering Technology*, *56*(3), 129–146. https://doi.org/10.37934/araset.56.3.129146

Subki, S. (2025). Qiroati Method-Based Quran Learning Management: Bibliometric Analysis and Case Study. *International Journal of Learning, Teaching and Educational Research*, *24*(10). https://www.ijlter.org/index.php/ijlter/article/view/14547

Suresman, E., Faqihuddin, A., Jenuri, & Abdullah, M. (2025). From sorogan to digital learning: A systematic literature network analysis of pesantren learning models. *Cogent Education*, *12*(1), 2580776. https://doi.org/10.1080/2331186X.2025.2580776

Suryaman, M., Cahyono, Y., Muliansyah, D., & Bustani, O. (2025). COVID-19 pandemic and home online learning system: Does it affect the quality of pharmacy school learning? *ResearchGate*. https://doi.org/10.31838/srp.2020.8.74

Susanto, S., Muafiah, E., Desrani, A., Ritonga, A. W., & Hakim, A. R. (2022). Trends of Educational Technology (EdTech): Students' Perceptions of Technology to Improve the Quality of Islamic Higher Education in Indonesia. *International Journal of Learning, Teaching and Educational Research*, *21*(6), 226–246. https://doi.org/10.26803/ijlter.21.6.14

Susilawati, S., Chakim, A., Hambali, M., Islamy, M., & Rahmaniah, A. (2021). The Urgency of Digital Literacy for Generation Z in Improving Learning of Islamic Religious Education. *Library Philosophy and Practice (e-journal)*. https://digitalcommons.unl.edu/libphilprac/5143

Zaidan, A. M., Yusoff, Z. M., & Rifzal, M. (2025). An Innovative Teaching Method in Islamic Studies: The Use of PowerPoint in University of Malaya as Case Study. *Procedia - Social and Behavioral Sciences*. https://doi.org/10.1016/j.sbspro.2015.04.776

Zainadun, N., Salleh, M. N. M., Jamil, A. I., Rekan, A. A., & Jima'ain, M. T. A. @. (2025). Exploring the Potential of Artificial Intelligence in Enhancing Quranic Teachers' Pedagogy: A Systematic Literature Review. *QURANICA - International Journal of Quranic Research*, *17*(2), 501–541. https://doi.org/10.22452/quranica.vol17no2.21

Zakaria, G. A. N., & Nawi, A. (2020). Design and Development of a PBL Mobile Application in Islamic Education: A Conceptual Framework. *International Journal of Information and Education Technology*, *10*(1), 26–30. https://doi.org/10.18178/ijiet.2020.10.1.1334