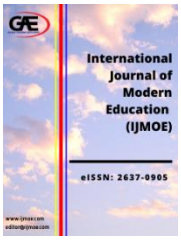
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A SYSTEMATIC LITERATURE REVIEW ON THE INTEGRATION OF ARTIFICIAL INTELLIGENCE IN QUR'ANIC EDUCATION

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Abstract:

Artificial Intelligence (AI) has emerged as a transformative technology that is increasingly influencing educational practices across various disciplines, including Qur'anic education. The growing adoption of AI-powered tools for Qur'anic learning, memorization, recitation assessment, and educational management presents significant opportunities for enhancing learning experiences while simultaneously raising pedagogical, ethical, and theological concerns. Despite the increasing scholarly attention devoted to this area, existing studies remain fragmented, making it difficult to obtain a comprehensive understanding of the current state of knowledge. Therefore, this study aims to systematically review the literature on the integration of artificial intelligence in Qur'anic education and identify the major research trends, applications, and challenges reported in recent studies. This review employed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. An advanced search strategy was conducted using the Scopus and Web of Science databases based on the keywords "Integration," "Artificial Intelligence," "Qur'anic," and "Education." The search was limited to journal articles published between 2024 and 2026. Following the identification, screening, eligibility, and quality assessment processes,

International Journal of Modern Education
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Volume: 8 Issue: 32 (December 2026) PP. 39-65

25 studies were selected for qualitative synthesis. The findings reveal that the literature can be classified into three major themes. The first theme, AI Applications in Qur'anic and Islamic Learning, highlights the use of machine learning, deep learning, automated assessment, recitation recognition, and personalized learning technologies to enhance learning effectiveness and student performance. The second theme, Pedagogical Integration and Educational Transformation, focuses on teacher readiness, curriculum innovation, digital transformation, and institutional adaptation to AI-supported educational environments. The third theme, Ethical, Theological and Religious Governance of AI, addresses concerns related to religious authority, spiritual authenticity, algorithmic bias, interpretative legitimacy, and responsible AI implementation. Overall, the review demonstrates that AI possesses substantial potential to enrich Qur'anic education; however, its successful integration requires a balanced approach that combines technological innovation with sound pedagogical practices, ethical safeguards, and Islamic educational values.

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Keyword:

Artificial Intelligence, Education, Integration, Qur'anic

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Introduction

The rapid advancement of artificial intelligence (AI) is reshaping education globally, including domains traditionally grounded in oral transmission and embodied practice such as Qur'anic education. Across Islamic education systems, AI is being deployed in Qur'an learning, Hadith study and broader Islamic religious education to address challenges of access, teacher availability, and large learner populations (Birgün, 2026; Nun et al., 2025; Salim & Aditya, 2025; Zaharah et al., 2024; Zuhriyeh et al., 2025). AI-driven platforms, speech recognition, and natural language processing (NLP) now support Qur'anic recitation, tajwīd practice, comprehension and personalized learning trajectories, responding to the needs of Generation Z and geographically dispersed Muslim communities (Abdelfattah et al., 2025; Agustina et al., 2023; Al-Zaro et al., 2025; Mahmudin & Pratiwi, 2025; Norman et al., 2025; Ridwan, 2025; I. Umar et al., 2025). Studies highlight a marked rise in AI-related Islamic education research since 2018 and a parallel proliferation of applications and platforms designed specifically for Qur'an learning and allied subjects (An et al., 2025; Rifah et al., 2024; Salim & Aditya, 2025; Zuhriyeh et al., 2025). Empirical work and structured reviews report that AI-based tools can improve learning efficiency, accessibility and outcomes, especially in recitation accuracy, memorization support, and conceptual understanding of Qur'anic meanings (Abdelfattah et al., 2025; Elsayed & Fathy, 2019; Mahmudin & Pratiwi, 2025; Ridwan, 2025; Sukmawati, 2024; I. Umar et al., 2025; Zaharah et al., 2024). At the same time, a growing body of scholarship emphasizes that AI should complement, rather than replace, traditional teacher–student relationships, due to the centrality of spiritual mentorship, affective formation, and the

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume: 8 Issue: 32 (December 2026) PP. 39-65

transmission of adab in Qur'anic pedagogy (Ahmad, 2025; An et al., 2025; Birgün, 2026; Hayati & Ushalli, 2024; Nun et al., 2025; Ruqeishi & Lone, 2025; Shofiyyah et al., 2024). This emerging field thus sits at the intersection of digital transformation, faith-based pedagogy and ethical technology design, making the integration of AI in Qur'anic education a globally relevant and normatively sensitive research agenda (Ahmad, 2025; An et al., 2025; Hayati & Ushalli, 2024; Norman et al., 2025; Rifah et al., 2024).

Despite rapid growth, current literature on AI in Islamic and Qur'anic education remains fragmented, with notable theoretical, methodological, and contextual gaps. Existing reviews largely address AI in Islamic education broadly, giving limited systematic attention to Qur'an-focused applications and often emphasizing descriptive mapping over rigorous comparative or theory-driven synthesis (An et al., 2025; Hayati & Ushalli, 2024; Rifah et al., 2024; Salim & Aditya, 2025; Shofiyyah et al., 2024; Zaharah et al., 2024; Zuhriyeh et al., 2025). Methodologically, qualitative and conceptual studies dominate, while robust quantitative, mixed-methods, and experimental designs especially those directly evaluating learning gains and spiritual outcomes in Qur'anic contexts are still scarce (Hayati & Ushalli, 2024; Nun et al., 2025; Ridwan, 2025; Rifah et al., 2024; Salim & Aditya, 2025; Shofiyyah et al., 2024; Zaharah et al., 2024; Zuhriyeh et al., 2025). At the application level, technical research in speech recognition and pronunciation error detection demonstrates impressive accuracy in tajwīd assessment and multi-speaker recognition, yet it is mostly evaluated in laboratory conditions and rarely integrated with pedagogically grounded learning models or long-term classroom implementations (Abdelfattah et al., 2025; Al-Zaro et al., 2025; Elsayed & Fathy, 2019; Mahmudin & Pratiwi, 2025; Ruqeishi & Lone, 2025). Studies repeatedly note critical unresolved issues: insufficient pedagogical scaffolding and spiritual orientation in many AI tools (An et al., 2025; Birgün, 2026; Nun et al., 2025; Ruqeishi & Lone, 2025; Sukmawati, 2024) limited attention to affective and character formation compared with cognitive and psychomotor gains (An et al., 2025; Rifah et al., 2024; Shofiyyah et al., 2024; Zaharah et al., 2024) underrepresentation of diverse learner groups and institutional settings, especially outside selected regions (Hayati & Ushalli, 2024; Norman et al., 2025; Nun et al., 2025; Ridwan, 2025; Salim & Aditya, 2025; Zaharah et al., 2024) and persistent ethical, theological, and governance concerns around data use, Shariah alignment, and the preservation of human centered mentorship (An et al., 2025; Birgün, 2026; Hayati & Ushalli, 2024; Norman et al., 2025; Rifah et al., 2024; I. Umar et al., 2025). These gaps indicate that the integration of AI in Qur'anic education remains conceptually and practically under-theorized: there is no widely accepted framework that systematically connects Qur'anic learning objectives (memorization, recitation, understanding, embodiment of values) with distinct AI affordances, risks, and implementation conditions. By conducting a systematic literature review focused specifically on AI integration in Qur'anic education, the present study aims to consolidate scattered evidence, develop a structured analytical lens linking pedagogical, technological, and ethical dimensions, and identify design principles for AI that genuinely support holistic Qur'anic learning. This contribution is necessary and original in offering a field-level synthesis that moves beyond tool description or generic digitalization narratives, providing a critical, evidence-based map of what is known, what remains contested, and where future research and practice should be directed to ensure that AI enhances, rather than dilutes, the spiritual and educational integrity of Qur'anic pedagogy (An et al., 2025; Birgün, 2026; Hayati & Ushalli, 2024; Nun et al., 2025; Ridwan, 2025; Rifah et al., 2024; Ruqeishi & Lone, 2025; Salim & Aditya, 2025; Shofiyyah et al., 2024; Zaharah et al., 2024; Zuhriyeh et al., 2025).

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume: 8 Issue: 32 (December 2026) PP. 39-65

Literature Review

The integration of Artificial Intelligence (AI) into Qur'anic education has emerged as a transformative development, offering innovative tools to enhance traditional teaching and learning methods. AI-powered applications have been particularly impactful in areas such as Quran memorization, tajwid (pronunciation rules), and exegesis. Features like voice recognition, natural language processing, and adaptive learning algorithms enable personalized learning experiences, real-time feedback, and global accessibility, making Qur'anic education more inclusive and efficient (Al-Namarneh et al., 2025; Nasir et al., 2025; Zainadun et al., 2025). For instance, applications like Tarteel and Qara'a provide automated assessments and pronunciation corrections, allowing learners to refine their recitation skills independently (Aljabr, 2025; Nasir et al., 2025). However, challenges such as linguistic complexities, algorithmic bias, and ethical concerns related to religious sensitivity and data privacy remain significant barriers to widespread adoption (Abdelgelil et al., 2025; Nasir et al., 2025; Zainadun et al., 2025).

AI's role in Qur'anic education extends beyond technical enhancements to include pedagogical and theological dimensions. Generative AI (GenAI) has been explored for its potential in creating spiritually tailored learning experiences, such as AI-assisted Qur'anic exegesis and hadith verification (Abubakari, 2025a, 2025b). These tools shift the focus from rote memorization to critical, evidence-based engagement with Islamic texts, fostering deeper theological understanding and independent inquiry (Shehab et al., 2025; Yahya et al., 2026). However, scholars emphasize that AI should complement rather than replace human educators, as the spiritual and ethical dimensions of Islamic education require human guidance (Abdelgelil et al., 2025; Abubakari, 2025b; Zainadun et al., 2025). A Shariah-aligned framework has been proposed to ensure that AI integration respects Islamic values and traditions (Abdelgelil et al., 2025; Abubakari, 2025b).

Despite its potential, the integration of AI in Qur'anic education faces ethical and technical challenges. Concerns include the risk of over-reliance on technology, the generation of inauthentic content, and the inability of AI to fully grasp the spiritual and moral nuances of Islamic teachings (Abdelgelil et al., 2025; Zainadun et al., 2025). To address these issues, researchers advocate for the development of ethical guidelines and Shariah-compliant protocols for AI applications in Islamic education 5. Additionally, teacher training and infrastructure improvements are essential to optimize the use of AI while maintaining the integrity of traditional pedagogical methods (H. S. Siregar et al., 2025).

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume: 8 Issue: 32 (December 2026) PP. 39-65

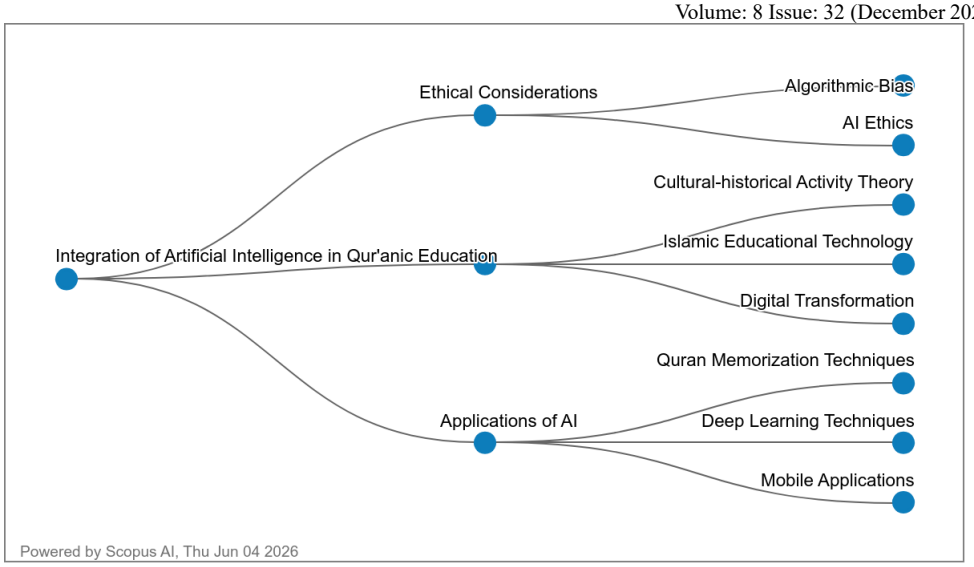


Figure 1: Conceptual Map of the Integration of Artificial Intelligence in Qur'anic Education

Figure 1 presents a concept map illustrating the integration of Artificial Intelligence (AI) in Qur'anic education, highlighting three major thematic dimensions identified in the literature. The first dimension, Applications of AI, focuses on the practical implementation of AI technologies in Qur'anic learning through deep learning techniques, mobile applications, and Quran memorization technologies that support personalised and accessible learning experiences. The second dimension, Islamic Educational Technology, emphasises the role of AI in facilitating digital transformation within Qur'anic education and is conceptually linked to Cultural-Historical Activity Theory, which explains how technological tools mediate teaching and learning processes in educational settings. The third dimension, Ethical Considerations, underscores the growing concern regarding AI ethics and algorithmic bias, reflecting the need to ensure that AI applications in Qur'anic education remain accurate, transparent, fair, and aligned with Islamic values. Overall, the concept map suggests that the integration of AI in Qur'anic education is a multidimensional phenomenon that extends beyond technological innovation to encompass pedagogical transformation and ethical responsibility. The literature collectively indicates that while AI offers significant opportunities to enhance Qur'anic learning, its successful implementation requires a balanced approach that integrates educational effectiveness, technological advancement, and ethical governance.

In conclusion, AI holds significant promise for revolutionizing Qur'anic education by enhancing accessibility, personalization, and pedagogical effectiveness. However, its successful integration requires a balanced approach that harmonizes technological innovation with Islamic scholarly traditions. Ethical safeguards, context-specific designs, and close collaboration between technologists and educators are crucial to ensuring that AI serves as a supportive tool rather than a replacement for human educators. By addressing these challenges, AI can enrich Qur'anic education while preserving its spiritual and ethical foundations (Abdelgelil et al., 2025; Nasir et al., 2025; Zainadun et al., 2025).

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume: 8 Issue: 32 (December 2026) PP. 39-65

Research Question

Research questions constitute the cornerstone of a systematic literature review (SLR) as they establish the direction, scope, and overall focus of the review process. Clearly articulated research questions guide the identification, selection, and evaluation of relevant studies, ensuring that the review remains aligned with its intended objectives and research domain. They play a critical role in defining the boundaries of the investigation, facilitating a comprehensive and systematic search of the literature while minimizing the risk of selection bias. Furthermore, research questions provide a structured framework for organizing, analyzing and synthesizing evidence from the included studies, enabling researchers to derive meaningful insights and draw robust conclusions. By enhancing clarity, consistency, and methodological rigor, well-formulated research questions contribute to the transparency and reproducibility of the review, allowing future researchers to validate, replicate, or extend the findings. Ultimately, they ensure that the review effectively addresses existing knowledge gaps, identifies emerging trends, and advances understanding within a particular field of study.

According to Kitchenham (2007), the formulation of Research Questions (RQs) represents one of the most critical stages in the planning and execution of a systematic literature review because it drives the entire review methodology. The research questions determine the search strategy, inclusion and exclusion criteria, data extraction process, and subsequent synthesis of findings. Given that the objective of this review is to examine the integration of artificial intelligence in Qur'anic education, a systematic and structured approach was required to formulate appropriate research questions. Therefore, this study adopted the PICo framework proposed by Lockwood et al. (2015), a widely recognised mnemonic tool for developing research questions in qualitative and exploratory studies. PICo consists of three key elements: Population (P), Interest (I), and Context (Co), which collectively facilitate the development of focused and relevant research inquiries.

The application of the PICo framework enabled the research problem to be systematically deconstructed into its fundamental components, thereby ensuring conceptual clarity and alignment with the objectives of the review. By identifying the target population, the phenomenon of interest, and the educational context under investigation, the framework provided a coherent basis for developing research questions that accurately reflect the scope of the study. This structured approach also enhanced the efficiency of the literature search process by ensuring that only studies directly related to the integration of artificial intelligence in Qur'anic education were considered. Based on the PICo framework and the thematic analysis of the selected studies, three research questions were formulated to guide this systematic literature review, as presented below.

RQ1: How has artificial intelligence been applied to support learning, teaching, assessment, memorisation, and recitation practices in Qur'anic and Islamic education contexts?

RQ 2: How does the integration of artificial intelligence influence pedagogical practices, teacher readiness, curriculum development, and educational transformation in Qur'anic and Islamic education?

RQ 3: What ethical, theological, and governance-related issues have been identified regarding the use of artificial intelligence in Qur'anic and Islamic education?

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume: 8 Issue: 32 (December 2026) PP. 39-65

Material And Methods

This systematic literature review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, a globally recognised methodological standard designed to enhance transparency, methodological rigour, and reproducibility in evidence synthesis (Page et al., 2021). The PRISMA framework provides a structured and comprehensive approach for identifying, screening, evaluating and synthesising relevant literature, thereby minimising selection bias and strengthening the reliability of review findings. By adhering to these guidelines, researchers can ensure a systematic and transparent review process that facilitates the generation of robust and evidence-based conclusions. To achieve comprehensive coverage of the existing literature, this study utilised two leading multidisciplinary databases, namely Scopus and Web of Science, both of which are widely acknowledged for their extensive indexing of high-quality scholarly publications and strong citation tracking capabilities.

The PRISMA methodology comprises four sequential phases: identification, screening, eligibility, and inclusion. During the identification phase, a systematic search strategy was employed to retrieve potentially relevant studies from the selected databases. The screening phase involved the removal of duplicate records and the preliminary assessment of titles and abstracts against predetermined inclusion and exclusion criteria. Subsequently, in the eligibility phase, the full texts of the remaining studies were critically examined to determine their relevance and suitability for inclusion in the review. Finally, the inclusion phase focused on extracting, analysing, and synthesising data from the selected studies to generate meaningful insights into the current state of knowledge. This rigorous and transparent process ensures the credibility, validity, and comprehensiveness of the review, ultimately providing a reliable evidence base to inform future research, educational practice, and policy development in the field.

Identification

In accordance with the PRISMA framework, the identification stage represents the foundation of the systematic literature review process, as it aims to capture the widest possible body of relevant evidence related to the research topic. For this study, a comprehensive search strategy was developed based on four core concepts: Integration, Artificial Intelligence, Qur'anic, and Education. These keywords were expanded using relevant synonyms and combined through Boolean operators to maximise retrieval accuracy and coverage. The search was conducted across two internationally recognised multidisciplinary databases, namely Scopus and Web of Science (WoS), which are widely regarded as authoritative sources of high-quality scholarly publications as shown on Table 1. The initial search yielded a total of 184 records, comprising 143 records from Scopus and 41 records from Web of Science. The substantially higher number of records retrieved from Scopus reflects its broader journal coverage, particularly in the fields of educational technology, computer science, artificial intelligence, and interdisciplinary social sciences.

The identification results indicate that research concerning the integration of artificial intelligence in Qur'anic education remains an emerging yet increasingly significant area of scholarly inquiry. The retrieval of 184 records demonstrates the growing academic interest in exploring how AI technologies can support teaching, learning, memorisation, assessment, and digital transformation within Qur'anic educational contexts. The inclusion of both Scopus and

International Journal of Modern Education
EISSN: 2637-0905
IJMOE
Volume: 8 Issue: 32 (December 2026) PP. 39-65

Web of Science was methodologically justified to minimise publication bias and ensure comprehensive literature coverage. While Scopus contributed approximately 77.7% of the total records, Web of Science provided additional unique studies that may not have been indexed elsewhere, thereby enhancing the breadth and robustness of the review. Consequently, the identification phase successfully established a comprehensive evidence base from which subsequent screening and eligibility assessments could be conducted, ensuring the reliability and validity of the systematic review findings.

Table 1: The Search String.

Scopus	TITLE-ABS-KEY (("integration" OR "incorporation" OR "application") AND ("artificial intelligence" OR AI OR "machine learning" OR "deep learning") AND ("Qur'an" OR "Quran" OR "Islamic education" OR "religious education" OR "Islamic studies")) AND (LIMIT-TO (PUBYEAR , "2024") OR LIMIT-TO (PUBYEAR , "2025") OR LIMIT-TO (PUBYEAR , "2026")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (PUBSTAGE , "final")) **Date of Access: Jun 2026**
WoS	("integration" OR "incorporation" OR "application") AND ("artificial intelligence" OR AI OR "machine learning" OR "deep learning") AND ("Qur'an" OR "Quran" OR "Islamic education" OR "religious education" OR "Islamic studies") (Topic) and 2026 or 2025 or 2024 (Publication Years) and Article (Document Types) **Date of Access: Jun 2026**

Screening

The screening phase was conducted to refine the initial pool of 184 records by applying the predefined inclusion and exclusion criteria presented in Table 2. Studies were excluded if they were published in languages other than English, published before 2024, classified as conference proceedings, books, review papers, or remained in the "In Press" publication stage. As a result, 119 records were removed, leaving 65 studies that met the eligibility requirements for further consideration. Of these, 41 records originated from Scopus and 24 from Web of Science. The substantial reduction in records demonstrates the effectiveness of the screening process in ensuring that only recent, peer-reviewed, and fully published journal articles relevant to the integration of artificial intelligence in Qur'anic education were retained.

Following the screening stage, a duplicate removal procedure was undertaken to eliminate overlapping records indexed in both databases. This process identified and removed 10 duplicate studies, thereby improving the accuracy and integrity of the review dataset. The use of both Scopus and Web of Science increased the comprehensiveness of the search strategy; however, overlap between databases was expected due to their shared coverage of high-impact journals. The removal of duplicate records ensured that each study was represented only once, reducing the risk of bias and enhancing the reliability of subsequent eligibility assessment and data synthesis procedures.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume: 8 Issue: 32 (December 2026) PP. 39-65

Table 2: The Selection Criterion Is Searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Time line	2024 – 2026	< 2024
Literature type	Journal (Article)	Conference, Book, Review
Publication Stage	Final	In Press

Eligibility

The eligibility phase involved a comprehensive full-text assessment of the 55 articles that remained after the screening and duplicate removal processes. At this stage, each study was critically evaluated to determine its direct relevance to the objectives of the review and its contribution to understanding the integration of artificial intelligence in Qur'anic education. As a result, 30 articles were excluded for several reasons, including being outside the scope of the study, having titles that were not sufficiently aligned with the research focus, presenting abstracts that did not address the review objectives, or lacking accessible full-text versions for detailed evaluation. These exclusion criteria were applied to ensure methodological rigor and maintain the relevance and quality of the evidence base.

Following the eligibility assessment, 25 studies were retained and included in the qualitative synthesis. The exclusion of more than half of the assessed articles highlights the importance of conducting a thorough full-text review rather than relying solely on titles and abstracts. This process ensured that only studies providing substantive insights into the application, benefits, challenges, or future directions of artificial intelligence in Qur'anic education were included. Consequently, the final dataset represents a focused and high-quality body of evidence, strengthening the validity, credibility, and analytical depth of the systematic literature review.

Data Abstraction and Analysis

An integrative thematic analysis was employed to systematically examine, interpret, and synthesise findings from the selected studies included in this review. This approach is particularly appropriate for systematic literature reviews as it enables the integration of evidence derived from diverse qualitative research designs, facilitating the identification of recurring patterns, themes, and conceptual relationships across the literature. The primary objective of the analysis was to generate meaningful themes and sub-themes that reflect the current state of knowledge regarding the integration of artificial intelligence in Qur'anic education. The thematic development process began with an extensive data extraction stage, during which the authors carefully reviewed and analysed the content of the 25 selected articles (details shown on Table 3). As illustrated in Figure 2, all relevant findings, concepts, and empirical evidence related to the application of artificial intelligence in Qur'anic educational contexts were systematically coded and organised. Particular attention was given to the research objectives, methodological approaches, theoretical foundations and key findings reported in each study to ensure a comprehensive understanding of the existing evidence base.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume: 8 Issue: 32 (December 2026) PP. 39-65

Following the initial coding process, the authors collaboratively examined the extracted data to identify similarities, relationships, and emerging patterns that could be grouped into broader thematic categories. Throughout the analysis, a detailed audit trail was maintained to document analytical decisions, reflections, interpretations, and emerging insights, thereby enhancing the transparency and trustworthiness of the review process. The preliminary themes were subsequently compared and refined through iterative discussions among the research team to resolve inconsistencies and achieve conceptual coherence. To further strengthen the validity and credibility of the thematic framework, the developed themes and sub-themes were subjected to expert review. Feedback from domain experts was incorporated to assess the clarity, relevance, and adequacy of the thematic structure. Any necessary modifications were made based on expert recommendations and consensus among the authors. This rigorous and collaborative analytical process ensured that the final themes accurately represented the evidence identified in the literature and provided a robust foundation for understanding the integration of artificial intelligence in Qur'anic education.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume: 8 Issue: 32 (December 2026) PP. 39-65

Table 3: Number and details of Primary Studies Database

No	Authors	Title	Year	Source title	Scopus	WOS
1	Cheong & Liu, (2025)	Generative Artificial Intelligence and Collaboration: Exploring Religious Human-Machine Communication and Tensions in Leadership Practices	2025	Human-Machine Communication	*I*	
2	Andri Nirwana et al. (2025)	SWOT Analysis of AI Integration in Islamic Education: Cognitive, Affective, and Psychomotor Impacts	2025	Qubahan Academic Journal	*I*	
3	(Birgün, 2026)	Integrating AI into Qur'an learning: Technical advances and pedagogical gaps	2026	Social Sciences and Humanities Open	*I*	
4	(Ramadani et al., 2026)	Machine learning techniques for analyzing student's performance in Islamic Studies	2026	Bulletin of Electrical Engineering and Informatics	*I*	
5	(Yahya et al., 2026)	Artificial intelligence in islamic education: strengthening religious tolerance or reproducing new socio-legal risks?	2026	Petita: Jurnal Kajian Ilmu Hukum dan Syariah	*I*	
6	Hamid & Salman (2025)	The Role of Artificial Intelligence in Enhancing Creative Thinking among Students of the Departments of Quranic Sciences and Islamic Education	2025	Educational Sciences: Theory and Practice	*I*	
7	Sulistio et al. (2024)	The utilization of machine learning on studying Hadith in Islam: A systematic literature review	2024	Education and Information Technologies	*I*	
8	Mustapa et al. (2025)	Traditional to Digital: Evaluating the Use of AI in the Tarteel Application to Enhance Quran Memorization;	2025	Quranica	*I*	
9	B. Siregar et al. (2026)	Enhancing Islamic Education Through Technology Integration: A Study Of Teaching Practices In Indonesia	2025	Jurnal Ilmiah Peuradeun	*I*	*I*

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume: 8 Issue: 32 (December 2026) PP. 39-65

10	Awaludin (2024)	Documenting the Half-Century Evolution of Islamic Education Research: A Probabilistic Topic Modeling Study of the Literature from 1970 to 2023	2024	Studia Islamika	*I*	
11	Al-Omari et al. (2025)	Techniques of Quran reciters recognition: a review	2025	IAES International Journal of Artificial Intelligence	*I*	
12	Brumec & Platovnjak (2025)	Artificial Intelligence and Spirituality: A Tool for Engagement or a Threat to Transcendence?	2025	Scientia et Fides	*I*	*I*
13	Purkon et al. (2025)	Integration of Artificial Intelligence in Contemporary Ijtihad Process in Digital Era: Opportunities and Challenges from Maslahat Perspective	2025	International Journal of Islamic Thought	*I*	*I*
14	Palac (2025)	Croatian religious teachers' trust in artificial intelligence;	2025	Crkva u Svijetu	*I*	
15	Pahrudin et al. (2025)	Teacher Readiness for Deep Learning in Islamic Education: A Rasch Model Analysis of Challenges and Opportunities	2025	Journal of Teaching and Learning	*I*	*I*
16	Perera & Wathsala (2025)	AI in the House of God: Threat, Tool or Transformation?	2025	Proceedings of the Association for Information Science and Technology	*I*	
17	Suparto et al. (2025)	Deep Learning in Automated Essay Scoring for Islamic Education: A Systematic Review	2025	Online Learning In Educational Research	*I*	
18	A. Umar et al. (2025)	Artificial Intelligence and the Ethics of Tafsir: Integrating Digital Technologies and Islamic Humanities in Automating Interpretative Processes	2025	Journal of Educational Technology and Learning Creativity	*I*	
19	Papakostas (2025)	Artificial Intelligence in Religious Education: Ethical, Pedagogical, and Theological Perspectives	2025	Religions	*I*	*I*

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume: 8 Issue: 32 (December 2026) PP. 39-65

20	Matari et al. (2025)	Can AI-Optimized YouTube Videos Enhance Islamic Religious Education? A Quantitative Study on Student Learning Outcomes	2025	Jurnal Pendidikan Agama Islam	*I*	
21	Yu & Tian (2025)	Theological and philosophical perspectives on emotional design in ai and virtual reality learning: exploring spiritual formation and religious education	2025	European Journal for Philosophy of Religion	*I*	
22	Maylawati et al. (2026)	Data-Driven Insights of the Ecotheology Implementation at Islamic Schools in Indonesia using Machine Learning	2026	Journal of Applied Science, Engineering, Technology, and Education	*I*	
23	Al-Dawood (2025)	Levels of Islamic Studies Teachers' Implementation of Deep Learning-Oriented Teaching Practices in Intermediate Schools	2025	Journal of Educational and Social Research	*I*	
24	B. Siregar et al. (2026)	AI-Driven Islamic Classroom Management in the Digital Era: The Roles of Neuro-Pedagogy, Spiritual Intelligence, and Innovative Teaching Performance	2026	Qubahan Academic Journal	*I*	
25	Hwang (2026)	Grace and Community in the Age of AI: A Wesleyan-Theological Dialogue on Digital Technology and Religious Education	2026	Religious Education	*I*	*I*

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume: 8 Issue: 32 (December 2026) PP. 39-65

Quality of Appraisal

Following the recommendations of Kitchenham and Charters (Kitchenham, 2007), the quality of the selected primary studies was systematically assessed to ensure the reliability, credibility, and methodological rigor of the evidence included in the review. Quality assessment is a crucial stage in systematic literature reviews as it enables researchers to evaluate the robustness of individual studies and compare their contributions in a consistent and transparent manner. In the present study, the quality assessment framework developed by Anas Abouzahra et al. (Abouzahra et al., 2020) was adopted. The framework comprises six quality assessment criteria (QA1–QA6), designed to evaluate key methodological and reporting aspects of the selected studies.

Each criterion was assessed using a three-point scoring scale. A score of 1 ("Yes") was assigned when the study fully satisfied the specified criterion, indicating a high level of compliance with the quality standard. A score of 0.5 ("Partly") was awarded when the criterion was only partially fulfilled, reflecting the presence of minor limitations or insufficient reporting. Conversely, a score of 0 ("No") was given when the criterion was not addressed or failed to meet the required standard. This structured evaluation approach facilitated a systematic comparison of study quality and ensured that the synthesis of findings was grounded in evidence derived from methodologically sound and rigorously conducted research.

- QA1. Is the purpose of the study clearly stated?
- QA2. Is the interest and the usefulness of the work clearly presented?
- QA3. Is the study methodology clearly established?
- QA4. Are the concepts of the approach clearly defined?
- QA5. Is the work compared and measured with other similar work?
- QA6. Are the limitations of the work clearly mentioned?

The table outlines a quality assessment (QA) process used to evaluate a study based on specific criteria. Three experts assess the study using the criteria listed, and each criterion is scored as "Yes" (Y), "Partly" (P), or "No" (N). Each study was independently evaluated against the established quality assessment criteria by the experts. The scores assigned for each criterion were subsequently aggregated to generate an overall quality score for the study. To ensure methodological rigor and maintain the reliability of the review, only studies achieving a cumulative score above 3.0 were considered eligible for inclusion in the subsequent stages of analysis. This threshold served as a quality benchmark, ensuring that only studies demonstrating an acceptable level of methodological soundness, relevance, and reporting quality were retained for further synthesis and interpretation.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume: 8 Issue: 32 (December 2026) PP. 39-65

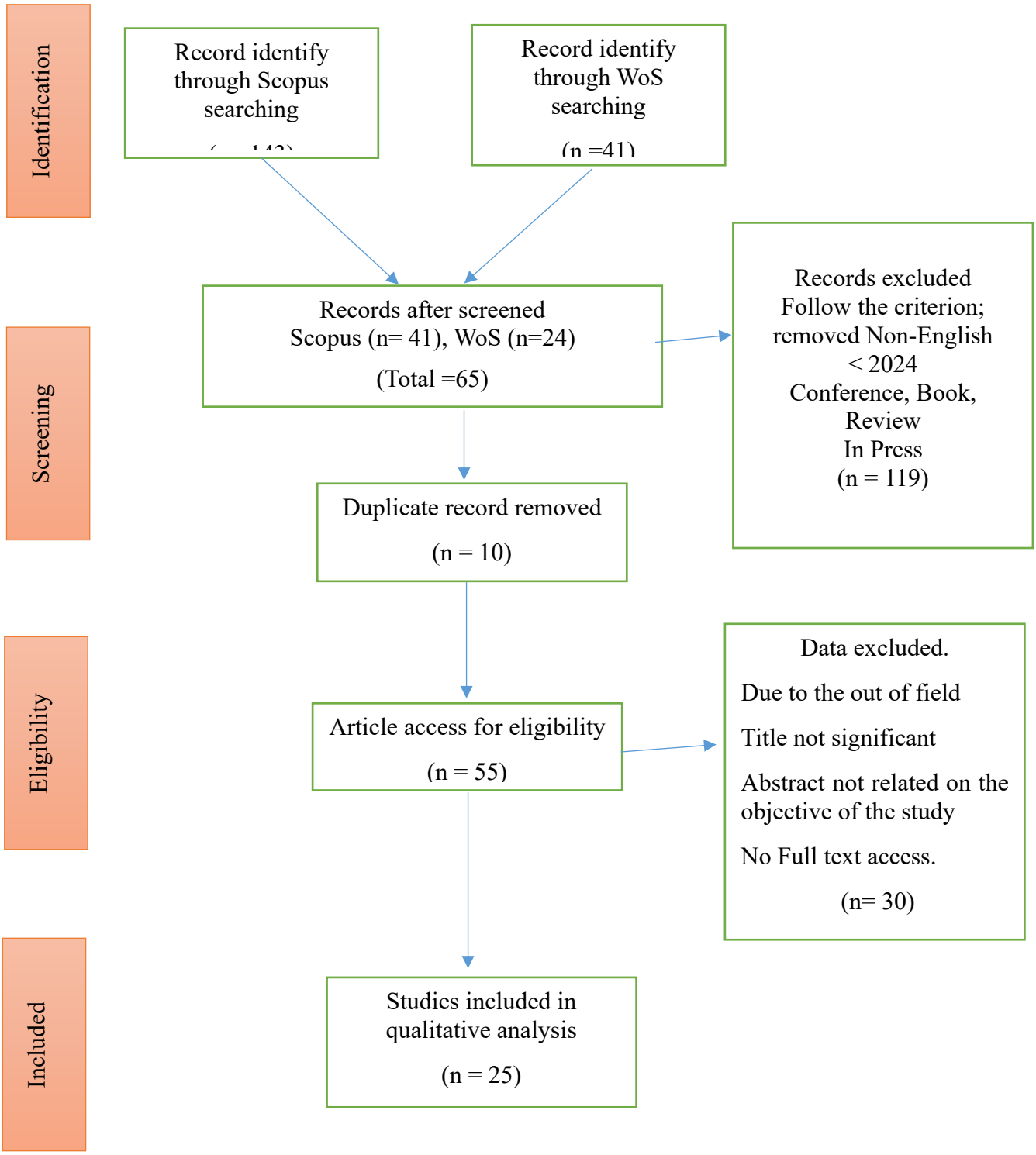


FIGURE 2. Flow Diagram Of The Proposed Searching Study [1]

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume: 8 Issue: 32 (December 2026) PP. 39-65

Result and Discussion

Quality of Assessment

The quality assessment results presented in Table 4 indicate that all 25 selected studies (PS1–PS25) satisfied the minimum quality threshold established for this review. Based on the six quality assessment criteria (QA1–QA6), all studies achieved scores ranging from 4.5 to 6.0, corresponding to percentages between 75.0% and 100%. Since the exclusion threshold was set at below 50%, none of the studies were rejected, and all were retained for qualitative synthesis. Three studies (PS17, PS18, and PS19) achieved the maximum score of 6.0 (100%), demonstrating full compliance with all quality criteria. Meanwhile, eight studies obtained scores of 5.5 (91.7%), eleven studies scored 5.0 (83.3%), and three studies recorded 4.5 (75.0%). These findings suggest that the overall quality of the selected literature was high, with most studies clearly stating their research objectives, highlighting the significance of the work, describing the methodology, and defining the key concepts and approaches employed. Lower scores were primarily associated with QA5 and QA6, where some studies provided limited comparisons with related research or insufficient discussion of study limitations. Nevertheless, the consistently high scores across all studies indicate that the selected articles possess adequate methodological rigor, relevance, and reporting quality, thereby providing a reliable and credible evidence base for the systematic literature review on the integration of artificial intelligence in Qur'anic education.

Table 4: Quality Assessment Results of the Selected Studies Based on QA1–QA6 Criteria

PS	QA1	QA2	QA3	QA4	QA5	QA6	Total	%
PS1	Y	Y	Y	Y	P	P	5.0	83.3
PS2	Y	Y	Y	Y	P	Y	5.5	91.7
PS3	Y	Y	Y	Y	P	P	5.0	83.3
PS4	Y	Y	Y	Y	P	N	4.5	75.0
PS5	Y	Y	Y	Y	P	N	4.5	75.0
PS6	Y	Y	Y	Y	P	N	4.5	75.0
PS7	Y	Y	Y	Y	P	P	5.0	83.3
PS8	Y	Y	Y	Y	P	Y	5.5	91.7
PS9	Y	Y	Y	Y	P	P	5.0	83.3
PS10	Y	Y	Y	Y	P	Y	5.5	91.7
PS11	Y	Y	P	Y	Y	Y	5.5	91.7
PS12	Y	Y	Y	Y	P	Y	5.5	91.7
PS13	Y	Y	Y	Y	P	P	5.0	83.3
PS14	Y	Y	Y	Y	P	P	5.0	83.3
PS15	Y	Y	Y	Y	P	Y	5.5	91.7
PS16	Y	Y	Y	Y	P	P	5.0	83.3
PS17	Y	Y	Y	Y	Y	Y	6.0	100
PS18	Y	Y	Y	Y	Y	Y	6.0	100
PS19	Y	Y	Y	Y	Y	Y	6.0	100
PS20	Y	Y	Y	Y	P	Y	5.5	91.7
PS21	Y	Y	Y	Y	P	Y	5.5	91.7
PS22	Y	Y	Y	Y	P	P	5.0	83.3
PS23	Y	Y	Y	Y	P	P	5.0	83.3

International Journal of Modern Education
EISSN: 2637-0905
IJMOE
Volume: 8 Issue: 32 (December 2026) PP. 39-65

PS24	Y	Y	Y	Y	P	P	5.0	83.3
PS25	Y	Y	P	Y	Y	P	5.0	83.3

Thematic Analysis

Before presenting the findings, a thematic analysis was conducted to synthesise the evidence from the 25 selected studies and to identify the major research directions concerning the integration of artificial intelligence (AI) in Qur'anic education. Through a systematic examination of the studies' objectives, methodologies, key findings, and contributions, three overarching themes emerged. The first theme, AI Applications in Qur'anic and Islamic Learning, focuses on the use of AI-driven technologies to enhance learning processes, including Qur'anic memorisation, recitation recognition, adaptive learning, automated assessment, and student performance improvement. The second theme, Pedagogical Integration and Educational Transformation, highlights the role of AI in reshaping teaching practices, teacher readiness, classroom management, curriculum development, and institutional digital transformation within Islamic educational settings. The third theme, Ethical, Theological and Religious Governance of AI, addresses critical concerns related to religious authenticity, spiritual formation, algorithmic bias, ethical accountability, scholarly authority, and the responsible use of AI in Qur'anic and Islamic education. Together, these themes provide a comprehensive framework for understanding how AI is currently being adopted, implemented, and debated within the field, while also revealing key opportunities, challenges, and future directions for research and practice.

Table 5: Thematic Classification of Studies on Artificial Intelligence in Qur'anic Education

Theme	Focus Area	Main Research Direction
Theme 1: AI Applications in Qur'anic and Islamic Learning	AI tools, machine learning, deep learning, mobile apps, recitation recognition, memorisation, assessment and learning performance	Explores how AI enhances Qur'anic learning, Islamic studies, memorisation, student performance, automated feedback and digital learning engagement.
Theme 2: Pedagogical Integration and Educational Transformation	Teacher readiness, classroom practice, curriculum, institutional adoption, digital transformation and learning innovation	Examines how AI reshapes teaching practices, teacher preparedness, classroom management, Islamic school systems and educational policy.
Theme 3: Ethical, Theological and Religious Governance of AI	AI ethics, religious authority, spiritual authenticity, algorithmic bias, tafsir, ijtihad, human-machine communication and religious values	Discusses the ethical, theological, legal and spiritual implications of using AI in Qur'anic, Islamic and religious education contexts.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume: 8 Issue: 32 (December 2026) PP. 39-65

AI Applications in Qur'anic and Islamic Learning

The theme of AI Applications in Qur'anic and Islamic Learning shows that artificial intelligence is increasingly used as a practical support system for learning, assessment, memorisation, recitation, and student performance in Qur'anic and Islamic education. Al-Omari et al. (2025); Birgün (2026); Mustapa et al. (2025) emphasise that AI has strong potential in Qur'anic learning through pronunciation analysis, tajwid detection, recitation recognition, automated correction, and immediate feedback. These studies suggest that AI-based tools can assist learners in improving technical aspects of Qur'anic recitation and memorisation, especially when traditional face-to-face learning is limited. However, the findings also show that AI remains more effective as a complementary tool rather than a full replacement for human teachers, because spiritual transmission, sanad, barakah, and holistic guidance still require direct teacher involvement.

Several studies also demonstrate that AI applications can improve learning performance, assessment accuracy, creativity, and engagement in Islamic education. Ramadani et al. (2026) found that machine learning classifiers, particularly feature selection-fuzzy support vector machine, achieved very high accuracy in predicting student performance in Islamic Studies. Suparto et al. (2025) highlighted the usefulness of deep learning and BERT-based models in automated essay scoring, showing potential for objective and scalable assessment. Hamid & Salman (2025) found that machine learning and deep learning support students' comprehension and creative thinking in Qur'anic Sciences and Islamic Education. Similarly, Matari et al. (2025) reported that AI-optimised YouTube videos significantly improved student learning outcomes and engagement in Islamic Religious Education. These findings indicate that AI contributes not only to content delivery but also to assessment, feedback, innovation, and measurable learning achievement.

The abstracts further indicate that AI applications in Qur'anic and Islamic learning are expanding beyond recitation and assessment into data-driven, emotional, and pedagogical domains. Yu & Tian (2025) show that emotionally responsive AI and virtual reality learning environments may improve engagement, satisfaction, and moral reflection in religious education. Maylawati et al. (2026) demonstrate how machine learning can generate data-driven insights in Islamic school contexts, particularly through clustering, classification, association rules, and sentiment analysis. Al-Dawood (2025) focuses on deep learning-oriented teaching practices, showing that Islamic Studies teachers implement some aspects of deep learning but require further professional development, curriculum improvement, and better educational resources. Taken together, these studies reveal that AI applications in Qur'anic and Islamic learning are moving toward more adaptive, analytical, and learner-centred models, although issues such as accessibility, technical accuracy, infrastructure, teacher readiness, and pedagogical depth remain important challenges.

Pedagogical Integration and Educational Transformation

The theme of pedagogical integration and educational transformation shows that artificial intelligence is increasingly positioned as a catalyst for improving Islamic education through changes in teaching practice, learning design, curriculum direction, and institutional readiness. An et al. (2025) explain that AI supports cognitive and psychomotor learning through adaptive tools, chatbots, and skill-based training, although affective learning still requires human guidance. H. S. Siregar & Rizza (2025) similarly show that technology integration in Islamic

education improves student engagement and understanding when supported by suitable teacher strategies and digital infrastructure. Tumiran et al. further extend this discussion by linking AI-driven Islamic classroom management with neuro-pedagogy, spiritual intelligence, and innovative teaching performance, suggesting that pedagogical transformation in Islamic education must combine technological, cognitive, and spiritual dimensions.

Teacher readiness emerges as a central issue in implementing AI and digital transformation in religious education. Pahrudin et al. (2025) found that Islamic school teachers demonstrated moderate readiness for deep learning-based curricula, with ICT literacy acting as a strong predictor of AI adoption. Palac, (2025) also reported that religious education teachers recognised the potential of AI but expressed caution due to limited knowledge, uncertainty about religious content generation, and concerns about the interpersonal dimension of teaching. H. S. Siregar & Rizza (2025) likewise emphasise the need for stronger teacher training, improved infrastructure, and balanced pedagogical approaches. These studies suggest that successful AI integration depends not only on the availability of digital tools, but also on teacher competence, institutional support, and confidence in using technology within value-based education.

The reviewed abstracts also indicate that AI contributes to wider educational transformation by reshaping Islamic education as an interdisciplinary and policy-relevant field. Awaludin (2024) shows that Islamic education research has evolved across historical, philosophical, leadership, policy, citizenship, gender, and technological dimensions, with machine learning offering new possibilities for mapping research trends and identifying future directions. Yahya et al. (2026) demonstrate that AI-supported Qur'anic search, multilingual translation, semantic analysis, and cross-referential verification can transform Islamic Religious Education from authority-dependent learning into more critical, evidence-based engagement. B. Siregar et al. (2026) similarly propose a holistic AI-supported Islamic education framework that links classroom management, digital learning technologies, spiritual intelligence, and innovative teaching performance. Collectively, these studies show that AI integration is not limited to technical enhancement, but also influences educational governance, pedagogical reform, religious moderation, and institutional development.

At the same time, the theme reveals several challenges that may affect the sustainability of AI-driven educational transformation. Andri Nirwana et al. (2025) identify ethical concerns, technological disparities, and socio-cultural resistance as major barriers to AI adoption in Islamic education. Pahrudin et al. (2025) highlight infrastructure limitations, digital literacy gaps, and policy misalignment as obstacles for Islamic schools, particularly in rural contexts. Palac (2025) points to the need for clearer ethical guidelines, especially in relation to religious content, teacher trust, and the preservation of human interaction. These findings indicate that pedagogical transformation through AI requires careful planning, continuous professional development, ethical supervision, and institutional readiness. Therefore, AI should be understood as a supportive pedagogical resource that can strengthen Islamic education when integrated with teacher expertise, spiritual values, and context-sensitive educational policy.

Ethical, Theological and Religious Governance of AI

The theme of ethical, theological and religious governance of AI shows that artificial intelligence in Qur'anic, Islamic and wider religious education is not only a technological matter, but also a question of authority, authenticity, spiritual formation and responsible use.

Cheong & Liu (2025) highlight tensions between innovation and established religious practices, particularly when generative AI is used as an idea generator, research assistant, co-author and translator in religious leadership. Brumec & Platovnjak (2025) similarly argue that AI may support access to spiritual resources, prayer applications and religious education, yet it cannot reproduce intuition, relational depth and transcendence. Papakostas (2025) also stresses that AI may enrich religious education through personalisation and institutional support, but it should not replace the relational and formational dimensions central to religious learning.

A second major concern relates to religious authority, interpretation and epistemological reliability. Purkon et al. (2025) explain that AI can assist contemporary ijtihad by improving efficiency, accessibility and consistency, but its use requires strict ethical supervision due to concerns over data validity, contextual limitations and the authority of ulama. A. Umar et al. (2025) raise similar concerns in relation to Tafsir, noting that AI and natural language processing may support the analysis of large interpretive corpora, but risks include algorithmic bias, loss of interpretive depth and possible disruption of scholarly legitimacy. Sulistio et al. (2024) show that machine learning has been used in Hadith studies, particularly for classification and corpus-based analysis, but the diversity of language, datasets and algorithms indicates the need for stronger methodological clarity and careful scholarly validation.

The abstracts also reveal recurring concerns regarding depersonalisation, bias, misinformation and spiritual reductionism. Brumec & Platovnjak (2025) identify risks such as algorithmic bias, misinformation, commercialisation of spirituality and the inability of AI to replicate embodied rituals and lived faith. Perera & Wathsala (2025) show that AI-generated sermons may create resistance among religious audiences because of concerns about authenticity, spiritual authority and technological mediation. Papakostas (2025) likewise identifies risks of theological distortion, overreliance on AI, data privacy issues and epistemic conformity. These studies suggest that AI integration in religious education requires ethical frameworks that protect both doctrinal integrity and human-centred spiritual development.

Overall, the reviewed abstracts indicate that responsible AI governance in Qur'anic and religious education must balance innovation with theological accountability, scholarly authority and human dignity. Hwang (2026) proposes a theological framework grounded in grace, accountability and community, emphasising formation over efficiency and communal life over technological convenience. A. Umar et al. (2025) recommend collaborative governance involving Islamic studies, ethics and digital humanities to ensure transparency, accountability and safeguards against misleading interpretation. Purkon et al. (2025) also emphasise collaboration between ulama and technology experts, technology education in sharia studies and ethical supervision. Therefore, AI should be positioned as a supportive instrument rather than an autonomous religious authority, with its use guided by ethical, theological and scholarly principles.

Conclusion

This systematic literature review was conducted to examine the current state of knowledge regarding the integration of artificial intelligence (AI) in Qur'anic education. Guided by the PRISMA framework, the review synthesised evidence from peer-reviewed journal articles indexed in the Scopus and Web of Science databases between 2024 and 2026. Following a rigorous identification, screening, eligibility, and quality assessment process, 25 studies were

selected for qualitative synthesis. The review sought to address three key research questions concerning the applications of AI in Qur'anic and Islamic learning, the influence of AI on pedagogical transformation, and the ethical, theological, and governance issues associated with its implementation in religious educational contexts.

The findings indicate that AI is rapidly becoming an influential component of Qur'anic education. Across the selected studies, AI technologies were applied to support Qur'anic memorisation, recitation recognition, pronunciation correction, adaptive learning, automated assessment, student performance prediction, and personalised educational experiences. The literature further demonstrates that AI is contributing to broader educational transformation through curriculum innovation, teacher readiness development, classroom management enhancement, and institutional digitalisation. At the same time, the increasing adoption of AI has generated significant discussions concerning religious authority, interpretative legitimacy, spiritual authenticity, algorithmic bias, ethical accountability, and the preservation of human-centred learning traditions. These findings reveal that AI integration in Qur'anic education extends beyond technological advancement and increasingly intersects with pedagogical, theological, and ethical considerations.

One of the major contributions of this review lies in its ability to consolidate fragmented evidence scattered across multiple disciplines and provide a coherent understanding of this emerging research field. Through thematic synthesis, the literature was systematically organised into three interconnected themes: AI Applications in Qur'anic and Islamic Learning, Pedagogical Integration and Educational Transformation, and Ethical, Theological and Religious Governance of AI. This thematic framework offers a structured perspective for understanding how technological innovation, educational practice, and religious values interact within contemporary Qur'anic education. The review therefore extends existing knowledge by providing a comprehensive conceptual lens through which future studies may examine AI adoption within Islamic educational settings.

The practical implications of these findings are substantial for educators, policymakers, curriculum developers, and technology designers. The evidence suggests that AI can improve accessibility, learn efficiency, assessment accuracy, and learner engagement when implement within appropriate pedagogical frameworks. However, successful integration requires continuous professional development, adequate technological infrastructure, institutional readiness, and clear ethical guidelines. Particular attention should be given to ensuring that AI functions as a supportive educational tool rather than a replacement for teachers, whose roles remain essential in transmitting spiritual values, moral guidance, and the holistic dimensions of Qur'anic learning.

Several limitations should be acknowledged. The review was restricted to English-language journal articles published between 2024 and 2026 and indexed exclusively in Scopus and Web of Science. Consequently, relevant studies published in other languages, databases, or publication formats may not have been captured. Furthermore, the rapidly evolving nature of AI technologies suggests that new developments may emerge beyond the timeframe covered in this review. Future research should explore longitudinal educational outcomes, learner acceptance, AI-assisted Qur'anic interpretation, intelligent tutoring systems, ethical governance models, and empirical evaluations of AI applications across diverse educational contexts and learner populations.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume: 8 Issue: 32 (December 2026) PP. 39-65

In conclusion, the integration of artificial intelligence in Qur'anic education represents a dynamic and expanding area of scholarship with considerable implications for educational innovation, digital transformation, and religious learning. The evidence synthesised in this review demonstrates that AI offers significant opportunities to enhance learning processes while simultaneously introducing important pedagogical, ethical, and theological challenges. Systematic literature reviews remain essential for consolidating emerging evidence, identifying research gaps, and guiding future scholarly inquiry. As AI technologies continue to evolve, evidence-based research will play a critical role in ensuring that technological innovation supports the educational objectives, spiritual foundations, and enduring values of Qur'anic education.

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International Journal of Modern Education
IJMOE
EISSN: 2637-0905
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