# Trends and Research Frontiers in Artificial Intelligence for Islamic Education: A Bibliometric and Systematic Literature Review Study

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**ABSTRACT**

Artificial Intelligence (AI) is widely acknowledged as a transformative influence in education, providing novel opportunities for personalized learning, administrative efficiency, and access to knowledge. Nonetheless, its incorporation within Islamic education presents distinct ethical, pedagogical, and structural issues requiring meticulous scholarly consideration. This study utilizes a mixed-method strategy, integrating a Systematic Literature Review (SLR) with bibliometric analysis, to delineate research trends, theme trajectories, and theoretical ramifications of AI in Islamic education. Data were extracted from the Scopus database (2013–2025) and evaluated utilizing the PRISMA 2020 framework, encompassing 10 peer-reviewed papers. A bibliometric analysis was performed utilizing VOSviewer to investigate publication trends, authorship networks, and keyword co-occurrence. The results indicate that AI research in Islamic education is a nascent and fragmented domain, with the initial indexed publications emerging in 2024 and demonstrating modest expansion in 2025. Indonesia leads in academic output, with minimal contributions from Malaysia, Palestine, Saudi Arabia, Thailand, and Uzbekistan, indicating a pronounced emphasis on Southeast Asia. Studies highlight cognitive and psychomotor benefits from AI adoption; however, emotive and ethical aspects are inadequately addressed. Theoretically, the field can be comprehended through Rogers' diffusion of innovations, the Technology Acceptance Model, and Islamic educational philosophy, all of which emphasize the necessity of harmonizing technical innovation with cultural and spiritual values. This study asserts that forthcoming research must emphasize ethical AI design aligned with Islamic pedagogy, hybrid human–AI instructional approaches, and enhanced international collaboration. By integrating innovation with Islamic principles, AI can serve as a transformative and ethically sound element of Islamic education.

Keywords: Artificial Intelligence; Islamic Education; Systematic Literature Review; Hybrid Pedagogy

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## Introduction

Artificial Intelligence (AI) transforms education by offering novel tools that enhance teaching, learning, and administrative functions. Nonetheless, its integration presents considerable ethical dilemmas that necessitate rigorous academic scrutiny. (Kazimova et al., 2025; Musolin et al., 2025). A systematic literature review (SLR) on AI in Islamic education is necessary to comprehend the associated potential and difficulties within Islamic ethics and values.

From an Islamic viewpoint, the integration of AI transcends ordinary technological progress, focusing instead on ethical and moral considerations, highlighting a socially and spiritually oriented framework. (Surtahman et al., 2025). This contrasts with the Western emphasis on innovation and data-centric results. A rigorous review may yield profound insights into the ethical integration of AI within Islamic education, ensuring that technology advancements adhere to Islamic norms. This congruence is essential for cultivating an intellectually proficient and ethically sound generation. (Kosasih et al., 2025; Surtahman et al., 2025).

Integrating AI introduces ethical concerns, including data privacy, algorithmic bias, student autonomy, and inclusivity (Kazimova et al., 2025; Musolin et al., 2025). These matters are especially significant in Islamic education, where ethical considerations are fundamental. A systematic literature review (SLR) can assess current literature to develop pragmatic principles for fostering ethical AI utilization, highlighting openness, fairness, and accountability. (Musolin et al., 2025). Such endeavors are crucial to provide equal and substantive learning experiences in Islamic educational settings.

Artificial intelligence technologies, including adaptive learning platforms and intelligent tutoring systems, have markedly improved individualized education and academic results. (Kazimova et al., 2025; Zekaj, 2025). Eical, privacy, and fairness challenges persist (Kazimova et al., 2025). A systematic evaluation may yield significant recommendations for the successful and ethical integration of modern technologies in Islamic education, ensuring that individualized learning fosters academic brilliance and Islamic principles.

Integrating Islamic and Western viewpoints on AI could foster a more comprehensive awareness of its effects, particularly in nurturing a generation that is both intellectually adept and ethically accountable (Surtahman et al., 2025). An SLR could highlight convergences and divergences between these perspectives and propose integrative strategies that balance ethical and innovative imperatives (Kosasih et al., 2025; Surtahman et al., 2025)

Conducting an SLR on AI in Islamic education is critical for guiding future research and practice. By systematically analyzing the available literature, scholars can identify gaps, methodological limitations, and emerging challenges in AI integration (Chounta et al., 2025; Mustafa et al., 2025). This would lay a solid foundation for further research and provide evidence-based guidance for developing effective, ethical, and sustainable AI-enhanced Islamic educational environments.

Artificial Intelligence (AI) has gained prominence in Islamic education owing to its revolutionary capacity to improve teaching and learning approaches. A systematic literature review (SLR) on this subject is essential and timely, as it enables scholars to delineate the opportunities and problems associated with AI adoption within the Islamic values and ethics framework. Recent research indicates that AI substantially enhances cognitive and psychomotor domains, facilitating knowledge retention, adaptive learning, and skill acquisition, especially in Qur'anic recitation, prayer rituals, and Islamic jurisprudence (Syukur et al., 2024). Notwithstanding these developments, AI is constrained in promoting affective learning due to its deficiency in human emotional intelligence and its inability to offer moral and ethical guidance, both of which are crucial in Islamic pedagogy (Wedi et al., 2025)

The literature delineates multiple research deficiencies. First, the limitations of AI in facilitating affective learning underscore the need for hybrid AI-human teaching methodologies, wherein technology enhances rather than supplants educators in cultivating moral and spiritual ideals (Achruh et al., 2024; Mahmud et al., 2024). Second, ethical issues, including data privacy, algorithmic bias, and transparency, present significant hurdles that must be resolved to guarantee responsible integration. (Jawareh & Jimoz, 2025). These challenges necessitate the creation of ethical AI models specifically designed for religious educational environments, harmonizing technology advancement with the tenets of justice, equity, and responsibility (Papakostas, 2025).

AI integration evidently improves cognitive and psychomotor learning results. Nonetheless, due to its inadequacy in addressing affective elements, there is an imperative to develop AI-driven affective learning systems that align with Islamic ethical principles. This would allow AI to play a supplementary role in promoting comprehensive student development, encompassing intellectual, spiritual, and moral growth.

In conclusion, although AI has considerable potential in Islamic education, it also poses obstacles that must be acknowledged. A rigorous literature evaluation is essential for detecting deficiencies, addressing ethical issues, and suggesting future trajectories. This study will aid researchers and practitioners in creating morally robust AI models, hybrid pedagogical approaches, and AI-enhanced emotional learning frameworks, guaranteeing that incorporating AI in Islamic education fosters significant and value-oriented learning experiences.

## Method

This study employed a mixed-method approach, integrating a Systematic Literature Review (SLR) with bibliometric analysis to thoroughly delineate research trends and new frontiers in applying Artificial Intelligence (AI) within Islamic Education. The systematic literature review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) methodology to guarantee transparency and rigor in the selection and assessment of research. The bibliometric analysis utilized quantitative methods, including citation analysis, co-authorship assessment, keyword co-occurrence,

and theme mapping to delineate the intellectual framework and research dynamics within this domain.

The data for this review were obtained from Scopus.com to encompass grey literature and other pertinent sources. These resources were selected due to their comprehensive coverage of peer-reviewed articles, conference proceedings, and book chapters relevant to Islamic Education and AI. A thorough search string was constructed utilizing Boolean operators and keywords including "Artificial Intelligence," "AI," "Machine Learning," "Deep Learning," "Islamic Education," "Islamic Pedagogy," "Religious Education," "Madrasah," and "Qur'anic Education." The search was confined to English and Indonesian publications from 2013 to 2025 to guarantee the inclusion of the most pertinent and contemporary studies. Duplicate entries were detected and eliminated utilizing reference management software.

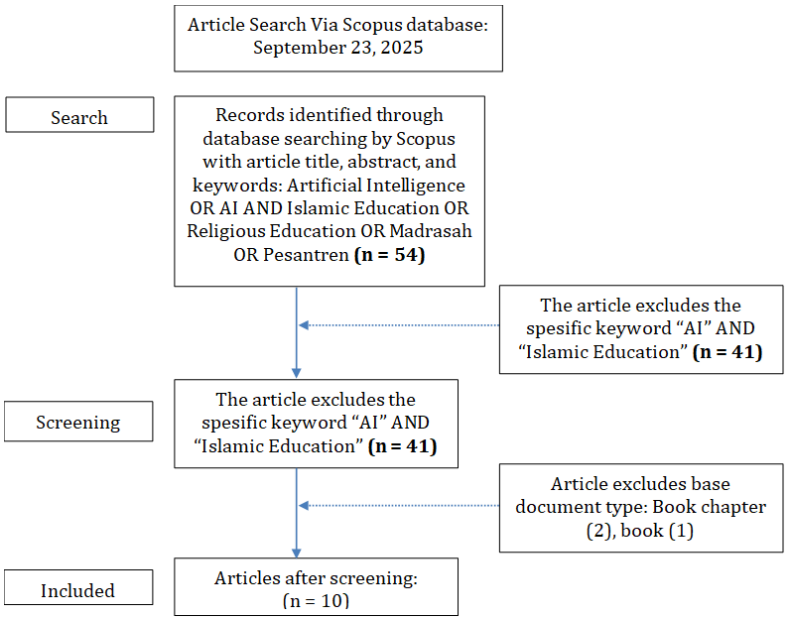
The inclusion criteria comprised peer-reviewed publications, conference papers, and book chapters that specifically focused on Islamic Education and the use or discourse of AI, encompassing empirical, theoretical, and conceptual investigations. Non-academic publications irrelevant to AI or Islamic Education, or not available in English or Indonesian, were eliminated. For each selected paper, data including author, year of publishing, country of origin, research design, discussed AI technology, level of Islamic education (school, madrasah, higher education, or informal), and major findings were rigorously retrieved and coded.

The bibliometric analysis assessed publishing trends, prolific authors, countries, and institutions, citation and co-citation networks, keyword co-occurrence, and thematic clusters to delineate research frontiers and emerging themes. VOSviewer was utilized to generate visual maps and networks. The quality of the included studies was evaluated using a modified checklist that emphasized relevance, methodological rigor, and clarity of reporting, ensuring that only research satisfying minimum quality levels was subjected to further analysis.

The findings from the systematic literature review were synthesized narratively to elucidate patterns, identify gaps, and propose future study areas. At the same time, the bibliometric analysis offered supplementary insights by displaying structural and thematic tendencies. These methodologies provided a comprehensive insight into the academic terrain at the convergence of Artificial Intelligence and Islamic Education.

Figure 1 depicts the PRISMA framework for the information flow in this systematic literature review procedure. The preliminary search was conducted via the Scopus database on September 23, 2025, utilizing keywords from the title, abstract, and keywords sections. The search query comprised terms including "Artificial Intelligence," "AI," "Islamic Education," "Religious Education," "Madrasah," and "Pesantren." This inquiry produced a total of 54 records.

Figure 1: Systematic Literature Review Information Flow using PRISMA




During the screening phase, papers lacking the explicit combination of "AI" and "Islamic Education" were removed, removing 41 entries. This stage guaranteed the retention of only those studies specifically addressing the interface of Artificial Intelligence and Islamic Education. Subsequently, during the eligibility phase, further exclusions were implemented depending on document type. In particular, two chapters and one book were excluded, as this review concentrated solely on peer-reviewed journal articles and conference proceedings.

After implementing all inclusion and exclusion criteria, ten papers were selected for the final synthesis and bibliometric analysis. These publications constitute the fundamental literature that underpins the analysis of trends, research frontiers, and theme topics in Artificial Intelligence within Islamic Education. The PRISMA flow in Figure 1 clearly depicts the identification, screening, eligibility, and inclusion processes, ensuring scientific rigor and repeatability in the systematic review.

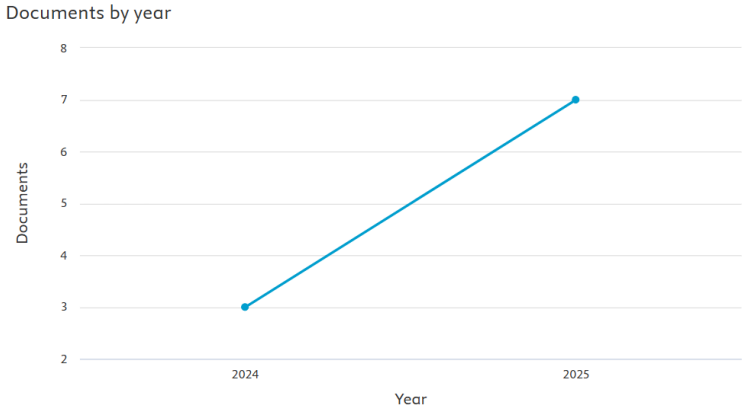
This study investigated the supplied documents to address three primary research topics. RQ1: To what degree does the investigation of Artificial Intelligence in Islamic Education maintain academic relevance as a domain of study for the future? RQ2: What is the geographical distribution of current research on the application of artificial intelligence in Islamic education across countries and regions, and what are the institutional affiliations of the researchers? Research Question 3: What are the principal theoretical and practical implications expected from forthcoming research directions on Artificial Intelligence in Islamic Education? Collectively, these inquiries establish a thorough framework for comprehending the present condition, thematic emphasis, and prospective study directions at the convergence of Artificial Intelligence and Islamic Education.

## Results

This study's conclusions are derived from 10 papers from the Scopus database concerning Artificial Intelligence in Islamic Education. The data were acquired by quantifying the number of articles, analyzing their temporal distribution, and identifying the journals in which they were published. This study emphasizes the most significant elements of the area, including prominent authors, institutional affiliations, and the nations contributing to research on Artificial Intelligence in Islamic Education.

*RQ1: To what extent does the exploration of Artificial Intelligence in Islamic Education continue to hold scholarly significance as a field of inquiry for the future?*

Figure 2: Number of Artificial Intelligence in Islamic Education Publications




Research on Artificial Intelligence (AI) in Islamic Education, as indicated by data from the Scopus database, exhibits a significant rise between 2024 and 2025. Before 2024, no indexed papers were discernible in this subject domain, signifying that academic focus on AI in Islamic Education is notably recent. In 2024, three publications were documented; by 2025, this number had increased to seven. The accompanying graph illustrates a significant rise, indicating an increasing academic and institutional interest in incorporating AI into Islamic Education at both postsecondary and secondary levels. The ascending trend depicted in the graph signifies not only a numerical increase but also the establishment of AI as a significant research domain within Islamic educational studies.

The 2024 papers mostly concentrate on the preliminary incorporation of AI into Islamic higher education institutions, addressing both the problems and prospects of its acceptance, with a systematic review connecting Islamic educational methods to various intelligences (Achruh et al., 2024; Mahmud et al., 2024; Syukur et al., 2024). In 2025, the research scope significantly broadened to encompass various themes, including student acceptance of AI, digital transformation models for Islamic Religious Education, AI's efficacy in examination responses, fostering religious literacy and tolerance through AI methodologies, the influence of AI on student learning resilience, and SWOT analyses of AI integration in Islamic Education (Adryna et al., 2025; Andri

Nirwang et al., 2025; Faiq et al., 2025; Jawareh & Jimoz, 2025; Musolin et al., 2025; Seriyadi et al., 2025; Wedi et al., 2025).

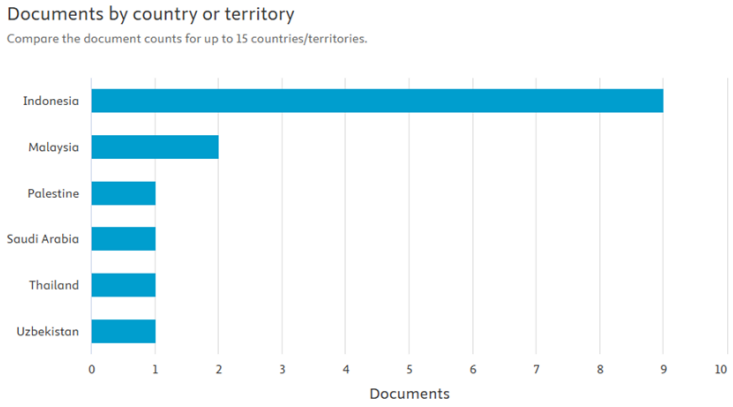
2025, the study focus diversifies, moving beyond technology adoption to include pedagogical, cognitive-affective-psychomotor, and socio-religious factors. This development indicates that research on AI in Islamic Education has entered a phase of multifaceted study, highlighting technological capabilities and their pedagogical, ethical, and societal consequences.

*RQ2: How is the current research on the application of Artificial Intelligence in Islamic Education distributed geographically across countries? What is the researchers' institutional origin, and what are the sources of articles?*

The bibliometric findings indicate that studies on utilizing Artificial Intelligence (AI) in Islamic education are still relatively scarce and geographically focused. The publishing distribution suggests that most contributions stem from nations with a robust Islamic educational heritage, especially in Southeast Asia and, to a lesser degree, the Middle East. This suggests that the advancement of AI in Islamic education remains nascent and is mostly occurring in nations with substantial Muslim demographics, established Islamic educational institutions, and an increasing interest in technical innovation for religious instruction. In contrast, contributions from Western nations or regions with minority Muslim populations are limited, indicating a geographical deficiency in this field of study.

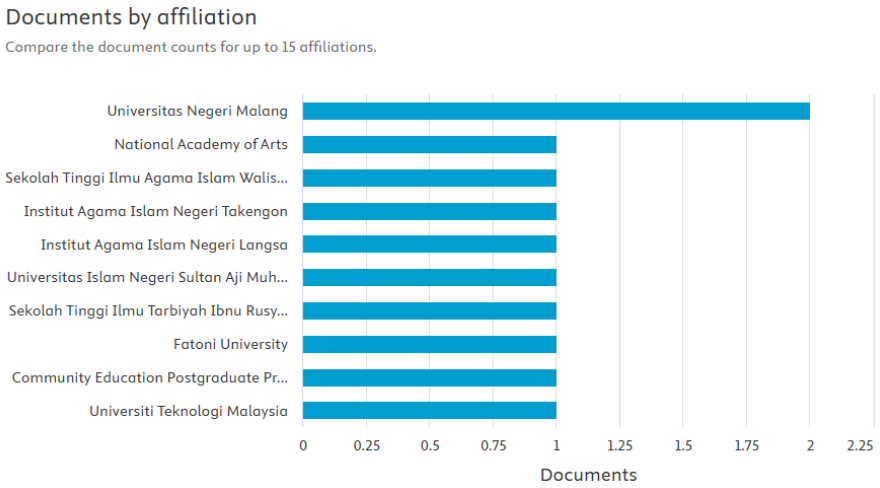
An examination of publication output by country reveals that Indonesia is the predominant contributor, with nine papers, markedly exceeding other nations. Malaysia has two articles, whilst Palestine, Saudi Arabia, Thailand, and Uzbekistan each have one publication. Indonesia's preeminence can be ascribed to the growing incorporation of technology within Islamic education and governmental initiatives that advocate for digital transformation in the educational sphere. In contrast, Middle Eastern countries, despite their profound Islamic scholarly traditions, have less involvement in this research domain. This discovery indicates that Southeast Asia has emerged as a more dynamic center for the integration of AI into Islamic education compared to other regions. Refer to Figure 3 below.

Figure 3: Number of articles by country or territory



Secondly, Universitas Negeri Malang has two publications on institutional affiliation. Simultaneously, additional institutions include Universiti Teknologi Malaysia, Universitas Islam Negeri Sultan Aji Muhammad Idris Samarinda, IAIN Takengon, IAIN Langsa, STAI Walisongo, and Fatoni University in Thailand, each of which provides one article. This pattern suggests that research on AI in Islamic education is not concentrated in a single institution but is distributed throughout numerous Islamic and non-Islamic universities with faculties of education and technology. This distribution illustrates the random character of the discipline, predominantly influenced by individual researchers or small collectives rather than organized institutional initiatives. Refer to Figure 4 below:

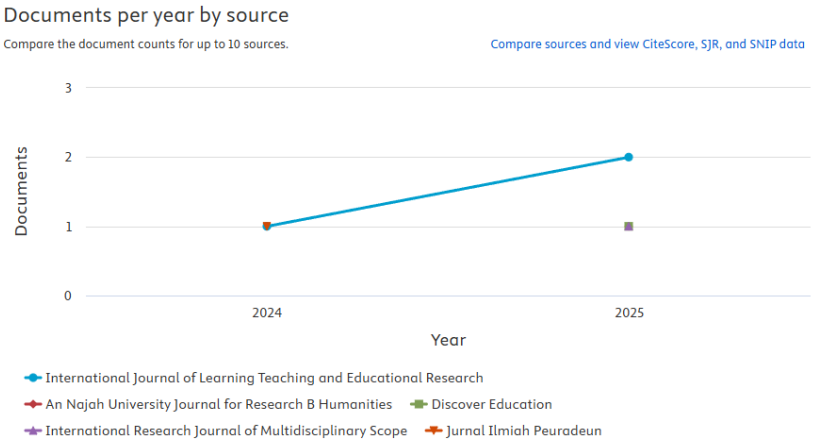
Figure 4: Number of articles by author's affiliation




The distribution of publications across sources and years, illustrated in Figure 5, demonstrates that research on the application of Artificial Intelligence in Islamic education remains nascent and has only lately started to achieve prominence. In 2024, preliminary contributions were disseminated in journals like An Najah University Journal for Research B Humanities, Discover Education, International Research Journal of Multidisciplinary Scope, and Jurnal Ilmiah Peuradeun, each featuring one paper. This pattern illustrates the disjointed and investigative character of the discipline, as academics disseminate their work among several journals, with no predominant publication venue appearing.

In 2025, there is a slight rise in the number of papers, notably with the International Journal of Learning, Teaching and Educational Research releasing two pieces in this domain. Numerous journals spanning various disciplines, from education and humanities to transdisciplinary research, indicate that the examination of AI in Islamic education remains within wider academic discussions rather than being firmly established in specialized publications. This distribution across many journals also signifies the multidisciplinary essence of the subject, situated at the convergence of educational technology, Islamic studies, and artificial intelligence.

Figure 5: Number of articles by sources

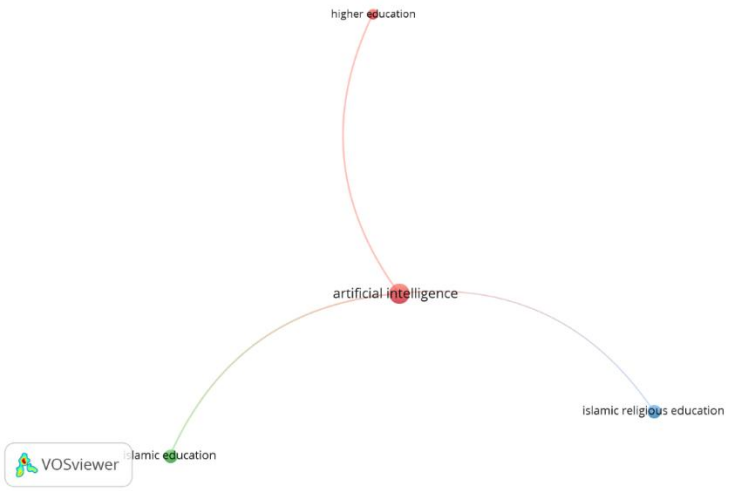



Research dissemination throughout countries, institutions, and publication venues reveals that the investigation of Artificial Intelligence in Islamic education remains nascent, disjointed, and geographically confined. Indonesia, bolstered by its extensive network of Islamic educational institutions and digitization initiatives, has assumed a prominent position, whilst contributions from other regions are rather constrained. The lack of a central research hub at the institutional level emphasizes the field's fragmented and individualistic character, highlighting the necessity for enhanced collaboration networks and creating centers of excellence. The distribution of publications among multiple journals without a dedicated outlet indicates the multidisciplinary nature of the issue and the absence of consolidation within a certain academic field. The findings suggest that although interest in AI for Islamic education is rising, progress in the subject necessitates enhanced international collaboration, institutional dedication, and the establishment of specialized publication platforms to guarantee its development and sustained influence.

*RQ3: What are the key theoretical and practical implications anticipated from future research trajectories on Artificial Intelligence in Islamic Education?*

The review was performed on a corpus of literature from the Scopus repository, employing bibliometric and systematic analysis to illustrate that the results possess substantial theoretical and practical significance for forthcoming research on Artificial Intelligence in Islamic Education. The metadata analysis conducted using VOSviewer allows researchers and practitioners to attain a more profound comprehension of prevailing ideas and discoveries concerning the incorporation of AI in Islamic educational settings. Moreover, bibliometric mapping facilitates the identification of extensively researched themes and variables, as well as those that are underexplored, thus establishing a basis for future investigations. This literature review will assist educators and policymakers in implementing and maintaining AI-driven innovations in Islamic education, while fostering learning models that integrate technological progress with Islamic pedagogical principles.

Figure 6: Co-occurrence framework and representation of key term




Source: Output VOSviewer

Table 1: Keywords by authors

| Rank | Keyword | Occurrences | Total link strength |
|---|---|---|---|
| 1 | Artificial Intelligence | 7 | 3 |
| 2 | Islamic Education | 3 | 2 |
| 3 | Islamic Religious Education | 3 | 1 |

Source: Output VOSviewer

According to the bibliometric mapping produced by VOSviewer, three principal keywords arise in the discussion of Artificial Intelligence (AI) and Islamic education. Artificial Intelligence is the predominant keyword, appearing seven times with a link strength of three. This conclusion underscores AI as a crucial issue with considerable interconnections, indicating its increasing importance in the existing research.

The term Islamic Education is mentioned three times with a link strength of two, suggesting that it has garnered some academic interest; however, research in this domain is still constrained and necessitates further investigation. Likewise, Islamic Religious Education records three instances, although it possesses a total link strength of merely one, indicating weaker relationships and diminished integration with other subject clusters.

The distribution of these keywords indicates that research on the integration of AI in Islamic education remains in its nascent phase. The comparatively low occurrence and association values indicate potential for future theoretical and practical research. Subsequent research may concentrate on formulating conceptual models and practical frameworks for implementing AI that correspond with Islamic education's ideals, objectives, and distinctive attributes.

## Discussion

This bibliometric and systematic review results indicate that research on Artificial Intelligence (AI) in Islamic education remains in its infancy, with the initial indexed publications appearing solely in 2024 and exhibiting limited development in 2025. This trend aligns with Rogers' Diffusion of Innovations hypothesis (Rogers, 2003), where the field presently resembles a phase of "early adoption." The limited number of studies, coupled with exploratory approaches, indicates that researchers remain in the adoption knowledge and persuasion phases. The pronounced focus on technology affordances, as opposed to congruence with Islamic educational principles, prompts inquiries regarding the compatibility aspect of innovation. Rogers posits that innovations misaligned with fundamental cultural or normative frameworks are prone to resistance or stagnation. Integrating AI into Islamic education necessitates showcasing its relative advantages and guaranteeing alignment with the philosophical and spiritual aims of *tarbiyah, ta'lim, and ta'dib* (Al-Attas, 1991).

The adoption discourse can also be interpreted through the *Technology Acceptance Model* (Davis, 1989) and the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003). An examination of the literature indicates that perceived usefulness is frequently emphasized, with AI characterized as enhancing efficiency, personalization, or accessibility in education. However, discourse regarding perceived ease of use and favorable conditions is constrained, especially within the framework of under-resourced Islamic institutions. TAM and UTAUT suggest that acceptance is contingent upon perceived utility, infrastructural support, and social influences. This may elucidate why enthusiasm at the conceptual level is not consistently reflected in actual application within madrasahs or Islamic universities. Fullan emphasizes that enduring educational transformation necessitates systemic capacity-building, leadership dedication, and a moral imperative, which seem inadequately addressed in the present research context (Fullan, 2007).

The geographical prevalence of Indonesian institutions in this corpus illustrates the convergence of global, national, and local processes, which can be examined through world society theory (Meyer et al., 1997) and the glonacal heuristic (Marginson & Rhoades, 2002). Global discussions on AI confer normative legitimacy; however, real research output is predominantly situated in local contexts where digitalization initiatives intersect with Islamic education reforms. Indonesia's status as a regional hub is attributable to its technology infrastructure and its policy focus on digital education and Islamic higher learning. However, the limited contributions from Middle Eastern institutions, typically linked to Islamic studies, indicate an uneven global dissemination. These tendencies indicate the necessity for increased international collaboration, which could enhance equilibrium in the discipline and augment its epistemic diversity.

Theories of sociocultural learning (Vygotsky, 1978) and connectivism (Siemens, 2005) provide valuable insights at the pedagogical level. Academics often portray AI tools as means of efficiency, but they seldom examine how they serve as mediational agents that facilitate collaborative learning, dialogic interaction, and networked knowledge construction.. The existing literature

indicates that researchers have yet to delineate the pedagogical potential of AI within the context of Islamic education. Researchers frequently characterize AI as a tool for efficiency, although they seldom depict it as a promoter of social interaction and ethical reflection. When scholars neglect this approach, they diminish AI to merely an automation tool rather than advocating for it as a catalyst for transformative learning. Vygotsky's idea of the zone of proximal development elucidates how educators might utilize AI as a scaffold for learners, contingent upon the design and implementation of the technology in alignment with the principles of Islamic education.

Theoretical frameworks indicate that AI research in Islamic education shows initial potential, although it is disjointed, technologically deterministic, and inadequately aligned with normative and systemic structures. Integrating Rogers' diffusion theory, TAM/UTAUT, Islamic educational philosophy, global societal viewpoints, sociocultural learning, and educational reform theory offers a thorough analytical framework. These frameworks collectively indicate that future research must monitor the proliferation of AI applications and rigorously assess their alignment with Islamic values, their acceptance by educators and students, their geographical distribution, and their enduring viability within educational systems.

## Conclusion

This study indicates that research on Artificial Intelligence (AI) in Islamic education is in its nascent yet swiftly growing phase, with its academic emergence first noted in 2024 and solidifying gradually in 2025. A rigorous literature study and bibliometric analysis indicate that the integration of AI in Islamic education has garnered considerable interest, especially in Southeast Asia, with Indonesia recognized as a prominent contributor. Notwithstanding this expansion, the domain continues to be fragmented, geographically inconsistent, and institutionally scattered, highlighting the necessity for enhanced collaborative networks and more internationally inclusive participation.

The findings theoretically underscore the significance of contextualizing AI adoption within many frameworks, including Rogers' diffusion of innovations, TAM/UTAUT, sociocultural learning theory, and Islamic educational philosophy. These viewpoints indicate that although AI is generally regarded as beneficial for improving efficiency, personalization, and accessibility, concerns related to compatibility, user-friendliness, and infrastructural support are still insufficiently examined. Moreover, the focus on cognitive and psychomotor advancements highlights the insufficient development of AI applications for emotive and moral education, which are fundamental to Islamic pedagogy. Absent the foundation of Islamic ethics, *tarbiyah, ta'lim, and ta'dib*, technological breakthrough in AI may be perceived only as an instrumental tool rather than a transformative force for comprehensive, value-oriented education.

The findings indicate that next research and execution must focus on three goals. The design of AI systems must incorporate ethical concepts of fairness, accountability, and inclusivity, assuring conformity with Islamic moral norms. Secondly, hybrid methodologies that integrate AI with human educators are

crucial for addressing the affective and spiritual aspects of learning that machines alone cannot fulfill. Third, enhanced international collaboration and the establishment of specialized research hubs are essential to consolidate this burgeoning subject and augment its epistemic diversity.

In summary, AI holds considerable potential for improving Islamic education; yet, its effective implementation relies on ethical congruence, pedagogical applicability, and institutional backing. By integrating technological innovation with Islamic educational principles, future study can transcend deterministic narratives and position AI as a transformational, sustainable, and ethically robust element of Islamic pedagogy.

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