

Reconfiguring Islamic Education in the Age of Artificial Intelligence: A Bibliometric Mapping for Future Research Directions

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Abstract

This study explores the development and thematic structure of research on Artificial Intelligence (AI) in Islamic education using a bibliometric approach. A total of 234 English-language journal articles indexed in Scopus between 2010 and 2025 were analyzed using a focused keyword strategy combining “Islamic Education” and “Artificial Intelligence.” Bibliometric indicators and visualization techniques were employed to examine publication trends, influential contributors, and thematic patterns. The findings reveal a rapid growth of publications since 2022, with research output dominated by Indonesia and Malaysia. The thematic analysis shows that AI-related technological themes occupy a central position, while Islamic educational ethics, epistemology, and institutional dimensions remain marginal. This indicates that AI is largely treated as an instrumental tool rather than a transformative force within Islamic education. The study highlights the need for future research to integrate AI development with the philosophical, ethical, and spiritual foundations of Islamic education.

Keywords: Artificial Intelligence; Islamic Education; Bibliometric Analysis; Educational Technology

Introduction Section

Artificial Intelligence (AI) refers to the capability of computer systems to perform tasks that normally require human intelligence, such as learning, reasoning, problem-solving, and decision-making (Russell & Norvig, 2020). In the educational domain, AI has been widely recognized as a transformative technology that enables personalized learning, intelligent tutoring systems, learning analytics, and automated (Holmes et al., 2019; Zawacki-Richter et al., 2019). Education itself is a deliberate and systematic effort to develop learners' intellectual, moral, and social capacities. In the Islamic perspective, education is not merely a process of knowledge transmission but a holistic endeavor aimed at nurturing faith (iman), character (akhlak), and spiritual consciousness in accordance with Islamic values (Al-Attas, 1978; Ali, 2024).

Beyond its essential functions, artificial intelligence (AI) also proposes new epistemological significance in Islamic education, notably in the relation to the acquisition, validation and internalisation of knowledge. AI oriented systems depend heavily on datafication, algorithmic processes and probabilistic models, which could affect individuals' knowledge comprehension as fragmented, utilitarian and efficiency oriented. In the context of Islamic pedagogy, a critical tension arises as knowledge or 'ilm is conventionally seen as value oriented, purposive and closely associated with ethical and spiritual responsibility (Al-Attas, 1978; Rahman, 1982). Lack of proper guided learning, the implementation of AI entails the risks of reducing learning to cognitive performance indicators while undermining reflective, ethical and spiritually oriented dimensions that are integral to Islamic education. Hence, adopting AI requires reevaluating standards of knowledge that guarantee technological rationality does not dominate the integration of knowledge from an Islamic worldview.

Additionally, embedding AI in Islamic education calls for a careful analysis on its ethical structure that are aligned with the objectives of Islamic law, mainly in terms of justice, human nobility and the effort to achieve useful knowledge. Even though AI can assist on accustomed teaching strategies and diminish administrative workloads, its dependence on evidence-based decision processes flag a concern on its disclosure, responsibility and potential partiality (Al-Momani, 2025; Floridi et al., 2018). From an Islamic viewpoint, by giving algorithmic results precedence over human judgment and ethical consideration, educators and technologists must make sure that AI does not unintentionally reinforce injustices or jeopardize students' moral agency (Kannike & Fahm, 2025).

Islamic education emphasizes the integration of knowledge, faith, and ethics (Abdullah, 2007; Hashim, 1998; Kuntowijoyo, 2006) in shaping individuals who are intellectually competent and morally upright (Dewey, 1909; Rahman, 1982; Wiryopranoto et al., 2020). Therefore, the integration of AI into Islamic education should not be understood merely as technological adoption, but rather as a process of reconfiguration that potentially reshapes pedagogical practices, epistemological orientations, and ethical frameworks within Islamic educational institutions (Sholahudin & Hafidz, 2025).

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This reconfiguration raises fundamental questions regarding the compatibility of AI-driven systems with Islamic worldview, the role of teachers in digitally mediated learning, and the preservation of spiritual and moral objectives in technology-enhanced education (Achruh et al., 2024; Faizin et al., 2025; Nawi et al., 2021).

In many Muslim societies, including Indonesia, Islamic educational institutions such as pesantren, madrasah, and Islamic schools play a central role in shaping religious identity, moral character, and social values (Azra, 2019; Dhofier, 2011). However, these institutions often face challenges related to digital readiness, curriculum relevance, technological infrastructure, and human resource capacity (Puspitasari et al., 2025; Restu Hoeruman et al., 2023; Saini, 2024). The rapid development of AI has created a new educational ecosystem that demands adaptability, innovation, and strategic integration of technology (Julhadi & Ritonga, 2023). Yet, many Islamic educational institutions continue to rely on conventional pedagogical models and are slow to respond to digital transformation, creating a gap between technological advancement and educational practice (Al Burhan et al., 2025; Jamil et al., 2025; Yuliati A. S et al., 2024).

Recent studies have begun to explore the application of AI and digital technologies in Islamic education, particularly in areas such as Qur'anic learning, Arabic language instruction, online Islamic learning platforms, and adaptive learning systems (Pratama & Muhammad, 2025). Other studies highlight the potential of AI to enhance student engagement, personalize learning experiences, and improve instructional efficiency. At the same time, scholars have raised critical concerns regarding ethical issues, data privacy, algorithmic bias, the erosion of teacher authority, and the risk of secularizing Islamic educational values in AI-driven environments (Neama & Barhoom, 2025; Verma et al., 2024).

Recent bibliometric-oriented studies indicate that research on AI in Islamic education has begun to be systematically examined, although with varying scopes, keyword constructions, and analytical intentions. Hayuningsih and Dartim (2025), for instance, investigated the integration of Artificial Intelligence and Problem-Based Learning (PBL) in Islamic Religious Education using a hybrid approach that combines bibliometric mapping with a systematic review guided by the PRISMA framework. Their study focuses specifically on instructional models and pedagogical effectiveness, positioning AI as a supporting tool within PBL-based learning rather than mapping AI and Islamic education as a broader research domain (Hayuningsih & Dartim, 2025).

At a broader level, Wahyudi and Azzukhruf (2025) conducted a bibliometric analysis of Scopus-indexed articles and conference papers published between 2019 and 2025 to map research trends on technology and artificial intelligence in Islamic education. However, their keyword strategy employs multiple equivalents and alternatives, such as Islamic Education, Pendidikan Agama Islam, pesantren, and madrasah, combined with Artificial Intelligence, AI, technology, and digital learning. This expansive keyword construction allows for wide thematic coverage but simultaneously produces a heterogeneous research corpus that reflects technological applications in diverse educational contexts rather than a focused conceptual domain (Wahyudi & Azzukhruf, 2025).

In contrast, the present study adopts a more restrictive and conceptually focused keyword strategy by employing only two core terms: Islamic Education and Artificial Intelligence, without additional aliases or alternative descriptors. This deliberate limitation is intended to capture research that explicitly positions AI within the conceptual and institutional discourse of Islamic education, rather than studies that merely address technological tools used in religious or faith-based learning environments.

Conducting a critical and systematic analysis of existing research is essential to guide future scholars and provide strategic insights for policymakers and educational leaders. Bibliometric analysis has been widely used to evaluate scientific output, identify research trends, map knowledge structures, and trace the evolution of academic fields. In the context of Islamic education, bibliometric approaches can offer a macro-level understanding of how AI-related research has developed over time and how scholarly discourse has been shaped across disciplines and regions (Apriantoro et al., 2023; Jannah et al., 2022).

The Scopus database is employed in this study due to its extensive coverage, high-quality indexing, and reliability in representing global scientific publications (Ariona et al., 2023). By utilizing bibliometric indicators and visualization techniques, this study seeks to uncover publication patterns, dominant themes, influential authors, and collaborative networks in research on AI in Islamic education. By combining a focused keyword strategy with a broader temporal scope, this study aims to move beyond descriptive trend analysis toward a conceptual interpretation of how artificial intelligence functions as a reconfigurative force within Islamic education.

Therefore, this study aims to map the development, thematic structure, and intellectual landscape of research on Artificial Intelligence in Islamic education through bibliometric analysis, and to identify future research directions that can contribute to the reconfiguration of Islamic education in the age of AI. By doing so, this research is expected to provide a strategic reference for academics, educators, and policymakers in navigating the integration of AI within Islamic educational contexts.

Methodology

This study employed a bibliometric research design to systematically map and analyze the development of scholarly publications on Artificial Intelligence (AI) in Islamic education. Bibliometric analysis is a quantitative method used to evaluate scientific literature by examining publication patterns, citation structures, thematic evolution, and intellectual

networks (Aria & Cuccurullo, 2017; Donthu et al., 2021; Zupic & Čater, 2015). It enables researchers to identify research trends, influential authors, core journals, and emerging themes within a specific field (Aprianoro et al., 2023).

Initial Stage

Initial Stage In the initial phase, a comprehensive literature review was undertaken to evaluate the relevance of the research topic within the context of bibliometric analysis. This process ensured coherence between the research focus and the search strategy, while also facilitating the identification of appropriate keywords that accurately and comprehensively represented the study area.

Second Stage

In the second stage, a systematic search was conducted in the Scopus database using the Boolean expression TITLE-ABS-KEY (“Islamic Education” AND “Artificial Intelligence”). To ensure consistency and quality, the search was limited to English-language publications and journal articles only. This filtering process allowed the retrieval of publications that explicitly addressed the intersection between artificial intelligence and Islamic education within peer-reviewed academic contexts. As a result, a total of 234 relevant articles were identified and subsequently included in the bibliometric analysis.

Final Stage

One methodological limitation of this study concerns the reliance on keyword-based search strategies, which may introduce selection bias by excluding relevant studies that employ different terminology. However, this limitation was partially mitigated by applying a focused and conceptually consistent keyword strategy “Islamic Education” and “Artificial Intelligence” to ensure thematic precision. Nevertheless, restricting the dataset to English-language journal articles may have resulted in the exclusion of pertinent studies published in other languages. The overall research procedure and analytical stages are visually summarized in Figure 1.

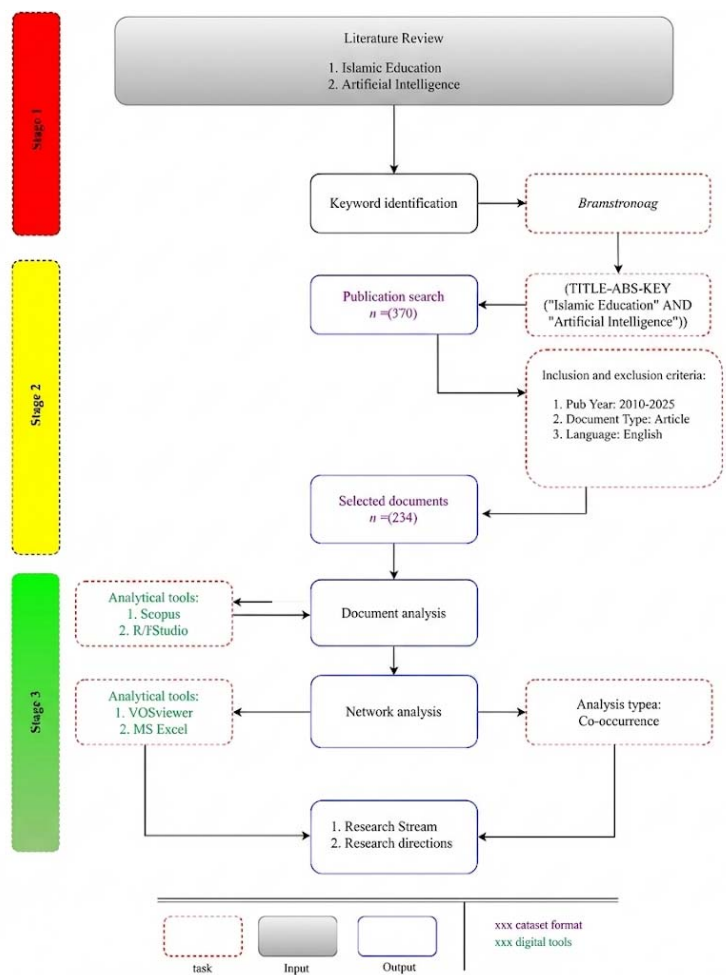


Figure 1. Research Workflow (Aprianoro et al., 2022)

Result

Document Analysis

Table 1. Main Information

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2010:2025
Sources (Journals, Books, etc)	143
Documents	234
Annual Growth Rate %	35,66
Document Average Age	2,73
Average citations per doc	5,09
References	2256
DOCUMENT CONTENTS	
Keywords Plus (ID)	252
Author's Keywords (DE)	941
AUTHORS	
Authors	851
Authors of single-authored docs	22
AUTHORS COLLABORATION	
Single-authored docs	22
Co-Authors per Doc	3,9
International co-authorships %	24,79
DOCUMENT TYPES	
article	234

Table 1 provides an overview of the 234 journal articles published between 2010 and 2025, sourced from 143 academic outlets, including journals and other indexed publications. The distribution of documents across a relatively large number of sources indicates that research on Artificial Intelligence in Islamic education is disseminated through a wide range of publication venues rather than being concentrated in a small group of core journals. In total, the analyzed documents cite 2256 references, reflecting the breadth of literature engaged by researchers in this field.

An examination of publication trends over time reveals a 15-year timespan (2010–2025) with an annual growth rate of 35.66%, indicating a substantial increase in scholarly output during the observed period. The average age of documents is 2.73 years, suggesting that most publications are recent and that the topic has gained heightened attention in the last few years. This temporal distribution reflects the growing prominence of Artificial Intelligence as a subject of inquiry within Islamic education research.

In terms of citation impact, the dataset shows an average of 5.09 citations per document. This level of citation indicates moderate scholarly visibility, which is consistent with the relatively young age of the publications. Many articles have not yet accumulated extensive citations, as they have only recently entered academic circulation. Analysis of document content identifies 252 Keywords Plus (ID) and 941 Author's Keywords (DE). The large number of author-defined keywords in relation to the total number of documents indicates considerable variation in the terminology used by researchers. This suggests that authors approach the topic of Artificial Intelligence in Islamic education from diverse thematic perspectives and employ a wide range of descriptive terms.

The authorship analysis shows that 851 authors contributed to the 234 publications. Of these, 22 articles were written by a single author, while the majority involved collaborative research. The average number of co-authors per document is 3.9, indicating that multi-authored studies are the dominant mode of knowledge production in this field. Furthermore, 24.79% of the publications involve international co-authorship, reflecting a notable level of cross-national collaboration among researchers. All documents included in the dataset are classified as journal articles, with no conference papers, book chapters, or other document types identified. This indicates that research on Artificial Intelligence in Islamic education is primarily communicated through peer-reviewed journal publications.

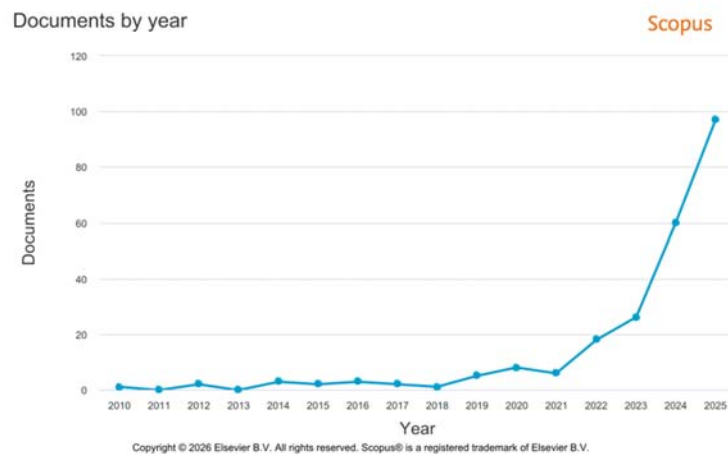


Figure 2. Documents by year

Figure X illustrates the annual distribution of publications on artificial intelligence in Islamic education indexed in the Scopus database from 2010 to 2025. The figure reveals a relatively low and fluctuating level of research output during the early phase (2010–2018), with only one to four publications per year. This pattern indicates that scholarly engagement with AI in Islamic education remained marginal for nearly a decade, reflecting limited awareness and adoption of artificial intelligence within Islamic educational research during this period.

A gradual increase in publication activity becomes visible starting in 2019, followed by a more noticeable rise between 2020 and 2021. This growth corresponds with the broader acceleration of digital transformation in education, particularly in response to the COVID-19 pandemic, which intensified reliance on digital learning environments and educational technologies. During this transitional phase, artificial intelligence began to attract greater scholarly attention as a potential solution for enhancing learning effectiveness, accessibility, and institutional adaptability within Islamic education.

The most significant surge in publications occurs from 2022 onward, with a sharp escalation in 2023, 2024, and peaking in 2025. This exponential growth reflects the consolidation of artificial intelligence as a central research theme, driven by rapid advancements in AI technologies, increased global discourse on generative AI, and heightened interest in tools such as intelligent tutoring systems and large language models. Overall, the trend demonstrates that research on AI in Islamic education has entered a rapid expansion phase, indicating a shift from exploratory studies toward a more mature and dynamic research domain with strong momentum for future scholarly development.

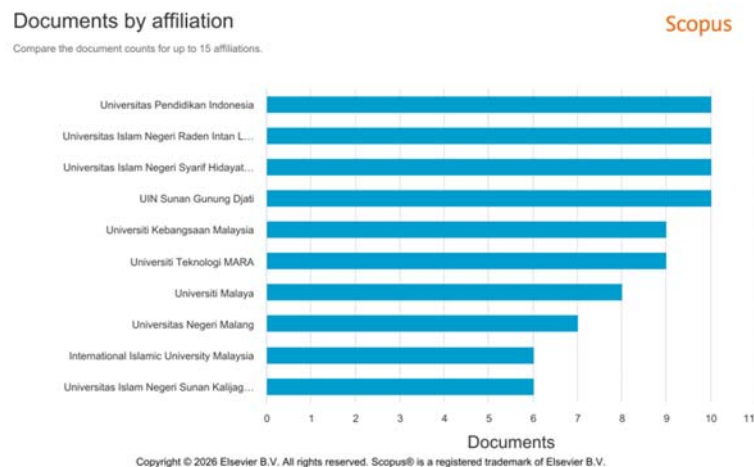


Figure 3. Documents by author

Figure 3 illustrates the distribution of publications by the most productive authors in the field of artificial intelligence in Islamic education. The results show that Baharun, H. and Supriyadi, T. are the most prolific contributors, each with four publications, followed by Maylawati, D.S., Mesraini, and Suwendi with three publications. Other authors, including Abubakari, M.S., Amin, I.M., Aridan, M., Badrudin, and Erdina, have contributed two publications each. The absence of

a single dominant author and the relatively even distribution of output among scholars indicate that this field is still in an early stage of consolidation. Notably, a significant proportion of the most productive authors are affiliated with Indonesian institutions, highlighting Indonesia as an early epicenter of scholarly engagement with AI in Islamic education. This pattern suggests that Southeast Asian Muslim societies play a leading role in shaping the initial intellectual landscape of this emerging field, reflecting the region’s strong institutional base in Islamic education and its growing responsiveness to digital transformation. Such a dispersed authorship structure indicates that the field remains open and dynamic, offering substantial opportunities for new scholars to contribute to its future development.

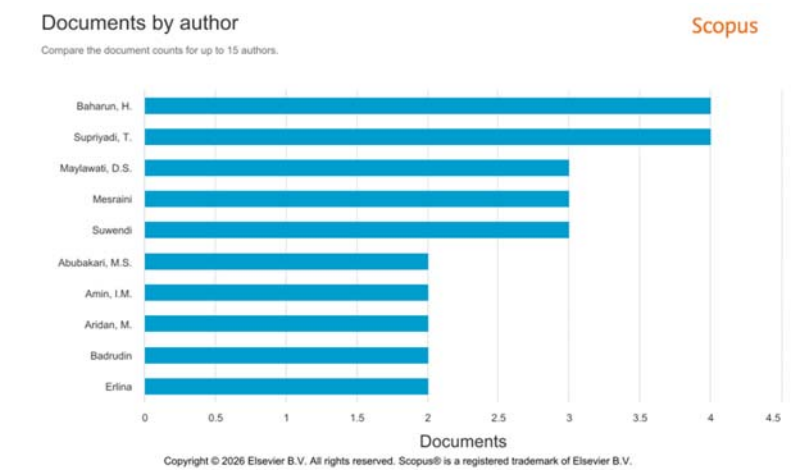


Figure 4. Documents by affiliation

Figure 4 presents the distribution of publications by institutional affiliation in the field of artificial intelligence in Islamic education. The results reveal a strong dominance of Indonesian and Malaysian institutions, with Universitas Pendidikan Indonesia, Universitas Islam Negeri Raden Intan Lampung, Universitas Islam Negeri Syarif Hidayatullah Jakarta, and UIN Sunan Gunung Djati emerging as the most productive affiliations, each contributing a substantial number of documents. Malaysian universities, particularly Universiti Kebangsaan Malaysia, Universiti Teknologi MARA, Universiti Malaya, and the International Islamic University Malaysia, also demonstrate significant research output. This concentration of publications indicates that Islamic higher education institutions in Southeast Asia constitute the primary institutional backbone of AI-related research in Islamic education. The prominence of state Islamic universities (UIN) in Indonesia further suggests that this scholarly development is closely linked to formal Islamic educational systems rather than isolated individual initiatives. Collectively, these findings reinforce the view that Indonesia and Malaysia function as the main institutional epicenters driving the early academic discourse on artificial intelligence within Islamic education, reflecting both the scale of their Muslim populations and the institutional maturity of their Islamic higher education sectors.

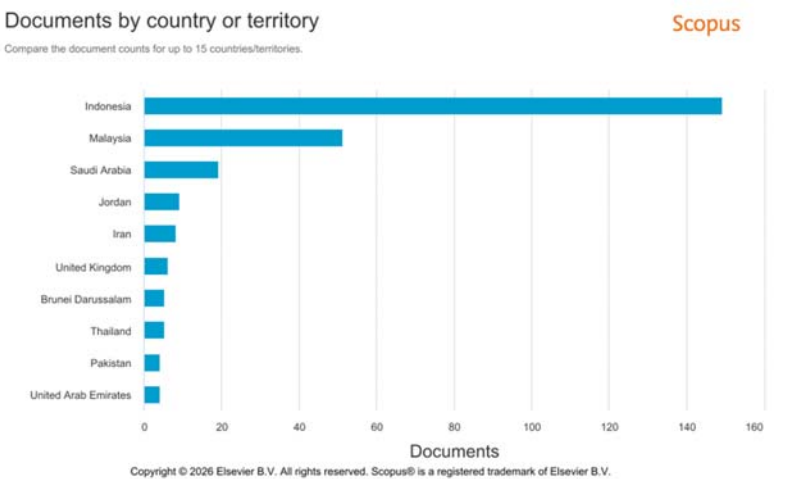


Figure 5. Documents by country or territory

Figure 5 illustrates the geographical distribution of publications on artificial intelligence in Islamic education across countries and territories. The data demonstrate an overwhelming dominance of Indonesia as the leading contributor, followed by Malaysia at a considerable distance. Together, these two countries account for the majority of global publications in this field, confirming Southeast Asia as the principal geographical hub of scholarly activity. In contrast, traditionally influential centers of Islamic scholarship such as Saudi Arabia, Jordan, Iran, and Pakistan exhibit markedly lower publication outputs. The presence of non-Muslim majority countries such as the United Kingdom further indicates the transnational academic interest in this topic, yet their contributions remain marginal compared to those of Indonesia and Malaysia. This pattern strongly suggests that the intellectual leadership in the discourse on artificial intelligence within Islamic education is currently concentrated in Southeast Asian Muslim societies rather than in the Middle Eastern heartland of Islam. Such a shift reflects not only demographic factors but also the proactive integration of educational technology and Islamic pedagogy within the Indonesian and Malaysian higher education systems.

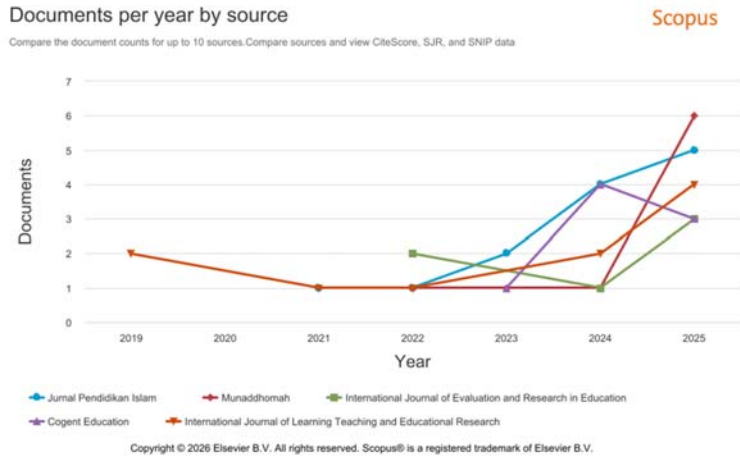


Figure 6. Documents per year by source

Figure 6 illustrates the distribution of publications by source, highlighting the central role of both regionally rooted Islamic journals and internationally indexed education journals in shaping the discourse on artificial intelligence in Islamic education. Jurnal Pendidikan Islam emerges as the most productive outlet with 13 documents, confirming its position as the primary intellectual platform for AI-related discussions within Islamic educational scholarship. This is followed by the International Journal of Learning, Teaching and Educational Research (10 documents) and Munaddhomah (9 documents), indicating a strong hybrid pattern between global educational discourse and contextually grounded Islamic scholarship. The presence of Cogent Education (8 documents) and the International Journal of Evaluation and Research in Education (6 documents) further demonstrates the gradual integration of AI in Islamic education into internationally visible academic arenas. Overall, the pattern suggests that while Southeast Asian Islamic journals remain the epicenter of knowledge production, the field is increasingly gaining legitimacy and visibility within mainstream global education research.

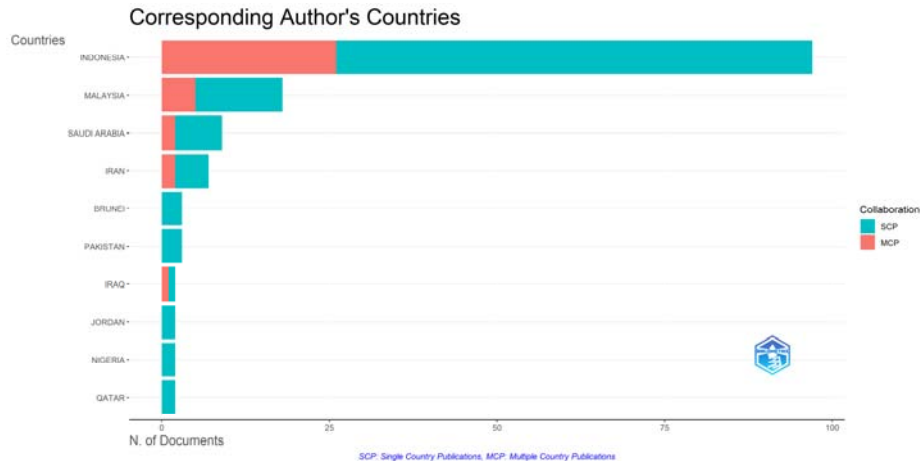


Figure 7. Corresponding author's Countries

Figure 7 illustrates the geographical distribution of corresponding authors and patterns of collaboration in research on artificial intelligence in Islamic education. The results show a clear concentration of scholarly output in a limited number of countries. Indonesia emerges as the most dominant contributor, producing a substantially higher number of publications than other countries. Most of these publications are categorized as single-country publications, although a visible proportion involves multiple-country collaborations, indicating that research activities are primarily driven by domestic academic communities while gradually engaging in international cooperation. Malaysia ranks second with a considerably smaller volume of publications and exhibits a similar pattern, where single-country publications remain dominant alongside a limited number of internationally co-authored works. Contributions from other countries, including Saudi Arabia, Iran, Brunei, Pakistan, Iraq, Jordan, Nigeria, and Qatar, remain relatively modest and are generally characterized by low publication output and minimal cross-national collaboration. Taken together, these findings indicate that research on artificial intelligence in Islamic education remains geographically concentrated and context-driven, with Southeast Asia particularly Indonesia, emerging as a central hub of scholarly production, while international collaboration is present but has not yet evolved into a fully global and evenly distributed research network.

Table 2. Most Globally Cited Documents

Paper	Total Citations	TC per Year
(Maseleno et al., 2017)	93	9,30
(Alqahtani & Mohammad, 2015)	82	6,83
(Djeki et al., 2022)	68	13,60
(Ajouz et al., 2023)	44	11,00
(Raja-Yusof et al., 2016)	42	3,82
(Hanafi et al., 2020)	40	5,71
(Jaoua et al., 2022)	36	7,20
(Muflih, 2023)	35	8,75
(Alemi et al., 2020)	31	4,43
(Taufik, 2020)	29	4,14

The analysis of the most globally cited documents highlights the foundational works that have shaped scholarly discourse on artificial intelligence and technology-related issues within the broader context of education and Islamic studies. The most cited publication in the dataset is Maseleno et al. (2017), published in the *Journal of Artificial Intelligence*, which has accumulated the highest total number of citations, indicating its strong influence and early contribution to the field. This is followed by Alqahtani (2015) in the *Turkish Online Journal of Educational Technology*, whose work also demonstrates substantial citation impact, reflecting early scholarly interest in educational technology within Islamic or religious educational contexts. More recent publications, such as Djeki (2022) in the *Journal of Computer Education* and Ajouz (2023) in *Cuadernos de Economía*, exhibit higher citations per year, suggesting a growing and accelerating academic attention to AI-related themes in education over the last few years. Overall, the citation patterns reveal a combination of seminal early studies and rapidly emerging recent works, indicating both the historical grounding and the dynamic development of research on artificial intelligence in Islamic education. Taken together, these highly cited documents illustrate that the field is increasingly shaped by interdisciplinary contributions and that scholarly influence is shifting toward more recent studies, reflecting the expanding relevance and maturation of AI-related research within Islamic educational discourse.

Table 3. Most Locally Cited Documents

Paper	Local Citations	Global Citations	LC/GC Ratio (%)
(Adiyono et al., 2025)	1	12	8,33
(Andri Nirwana et al., 2025)	1	6	16,67
(Achruh et al., 2024)	1	15	6,67
(Kosasih et al., 2024)	1	3	33,33
(Asmendri et al., 2024)	1	10	10,00

The most locally cited documents reveals publications that exert the strongest influence within the internal scholarly network of research on artificial intelligence in Islamic education. Unlike global citations, which reflect broader interdisciplinary recognition, local citations indicate how frequently a document is referenced by other studies within the same research corpus. The results show that a limited number of documents serve as key internal references, forming the intellectual backbone of this research domain. Several highly locally cited works focus on the application of digital technologies, AI-supported learning systems, and educational innovation within Islamic or religious education contexts,

suggesting that subsequent studies frequently rely on these publications to frame their theoretical perspectives and methodological approaches. Notably, some documents with moderate global citations demonstrate high local citation counts, indicating that their influence is particularly strong within the specialized discourse of Islamic education rather than across wider educational or technological fields. Taken together, these patterns suggest that the development of research on artificial intelligence in Islamic education is guided by a relatively concentrated set of core studies that function as internal reference points, shaping the continuity, coherence, and cumulative knowledge structure of the field.

co-occurrence analysis

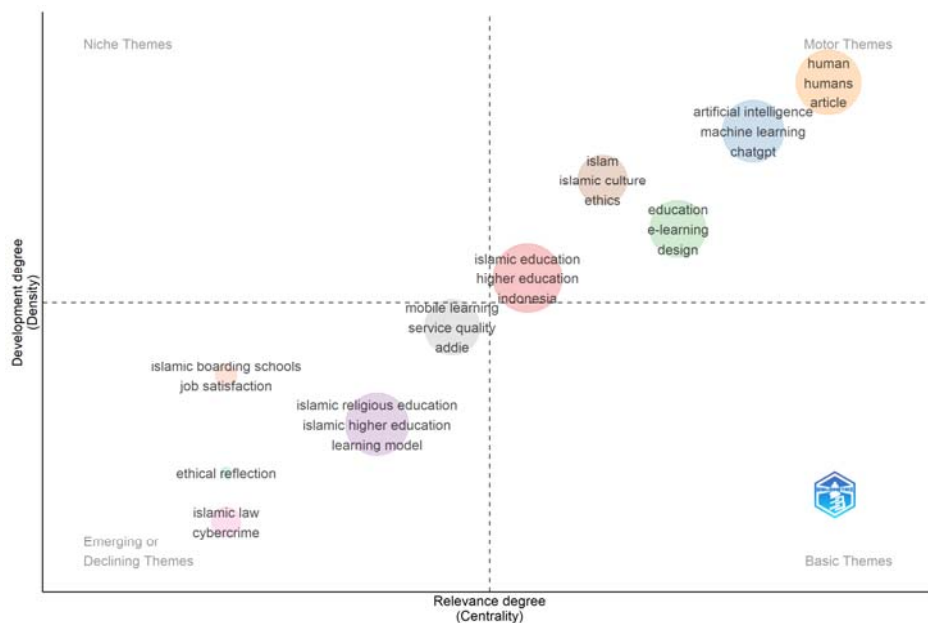


Figure 8. Thematic Map

The thematic structure of research on artificial intelligence in Islamic education by classifying themes into four quadrants based on their centrality and density: motor themes, basic themes, niche themes, and emerging or declining themes. The motor themes, located in the upper-right quadrant, represent well-developed and highly central topics that drive the field. In this quadrant, keywords such as artificial intelligence, machine learning, ChatGPT, human, and article dominate, indicating that the core momentum of the literature is shaped primarily by general AI technologies and human-centered computational approaches rather than by Islamic educational concepts. The prominence of these themes suggests that technological discourse currently leads the research agenda.

The basic themes, positioned in the lower-right quadrant, include keywords such as education, e-learning, and design, which exhibit high centrality but relatively low density. These themes function as foundational elements that connect various studies but remain underdeveloped theoretically, serving more as common methodological or contextual references than as deeply explored research areas. Their presence highlights the instrumental role of educational technology frameworks in structuring AI-related research in Islamic education.

The niche themes, located in the upper-left quadrant, are characterized by high density but low centrality, indicating specialized yet peripheral areas of inquiry. In this study, themes related to Islam, Islamic culture, and ethics fall within this quadrant, suggesting that while ethical and cultural dimensions of AI in Islamic contexts are conceptually developed, they remain weakly connected to the main technological discourse. This positioning reflects a separation between ethical-religious discussions and core AI-driven educational research.

Finally, the emerging or declining themes, found in the lower-left quadrant, include keywords such as Islamic boarding schools, Islamic religious education, Islamic higher education, learning model, ethical reflection, Islamic law, and cybercrime. These themes show low centrality and low density, indicating either newly emerging research directions that have not yet gained traction or declining topics that lack sustained scholarly attention. Their position suggests fragmentation and the absence of a coherent research trajectory within these institutional and normative domains.

Taken together, the thematic map reveals a structural imbalance in the field, where technological and generic educational themes dominate the research core, while Islamic educational, ethical, and institutional dimensions remain peripheral, fragmented, or insufficiently integrated—highlighting a critical gap in how artificial intelligence is conceptualized within Islamic education as a coherent and reconfigurative field of study.

Moderately dense areas include keywords such as technology, e-learning, machine learning, digital literacy, ethics, and curriculum. These themes demonstrate sustained but secondary scholarly interest, suggesting that while technological frameworks and ethical considerations are increasingly integrated into discussions of AI in Islamic education, they have not yet achieved the same level of conceptual centrality as the core themes. The presence of regional identifiers such as Indonesia and Malaysia within these moderately dense zones reflects the geographical concentration of research activity in Southeast Asia, reinforcing the role of this region as a major contributor to the field.

In contrast, several keywords appear in sparsely populated areas of the density map, indicating clear research gaps. Topics such as ChatGPT, deep learning, augmented reality, Islamic law, hadith, fintech, Islamic banks, service quality, and instructional design models (e.g., ADDIE) remain weakly represented in the literature. The limited density of these themes suggests that advanced AI technologies and their deeper integration with Islamic normative frameworks and pedagogical design have not yet been systematically explored. Overall, the density analysis reveals an uneven research landscape in which mainstream pedagogical and technological discussions dominate, while more specialized, interdisciplinary, and normatively grounded investigations present significant opportunities for future research in the reconfiguration of Islamic education in the age of artificial intelligence.

Table 4. Distribution of Keyword

Keyword	Occurrences	Cluster
Technology	6	1
Higher Education	11	
Education	17	
Human	9	
Learning	6	
Islamic Higher Education	11	2
Islamic Religious Education	14	
Digital Literacy	3	
E-Learning	5	
Fintech	3	

The table presents the distribution of keyword occurrences across two clusters, which together represent the principal thematic structures of research on artificial intelligence in Islamic education. Each cluster reflects a distinct but interrelated research orientation, as indicated by the frequency and conceptual grouping of keywords.

Cluster 1 represents the general educational and human-centered learning theme. This cluster is dominated by keywords such as Education (17 occurrences), Higher Education (11), Human (9), Technology (6), and Learning (6). The prominence of these terms indicates that a substantial portion of the literature approaches artificial intelligence from a broad educational perspective, emphasizing learning processes, human involvement, and institutional contexts—particularly within higher education. The inclusion of Technology within this cluster suggests that AI is frequently discussed as an enabling tool embedded within general educational systems rather than as a standalone technological paradigm.

Cluster 2 reflects a more context-specific and Islamic education-oriented theme. This cluster is characterized by keywords such as Islamic Religious Education (14), Islamic Higher Education (11), E-learning (5), Digital Literacy (3), and Fintech (3). The presence of these terms indicates a research focus on the application of AI and digital technologies within explicitly Islamic educational environments, highlighting institutional identity, religious instruction, and digital learning readiness. The inclusion of Fintech suggests emerging interest in extending AI-related discussions beyond pedagogy toward broader digital ecosystems relevant to Islamic institutions.

Overall, the clustering results reveal a thematic bifurcation in the literature: Cluster 1 emphasizes universal educational and human-learning dimensions, while Cluster 2 concentrates on the institutional, religious, and digital specificities of Islamic education. This structure suggests that current research predominantly integrates artificial intelligence into established educational frameworks, with comparatively limited exploration of how AI might fundamentally reshape the epistemological, ethical, and socio-technical foundations of Islamic education—pointing to important directions for future research.

Discussion

This finding directly addresses the identified research gap by demonstrating that existing studies prioritize technological expansion without equivalent theoretical, ethical, or epistemological integration within Islamic education.

The rapid growth of publications thus reflects quantitative acceleration rather than qualitative consolidation. This study's novelty lies in repositioning artificial intelligence not merely as an educational tool, but as a reconfigurative force that exposes structural imbalances in how Islamic education is conceptualized within AI-driven research. Unlike prior studies that map trends descriptively, this research interprets bibliometric patterns to reveal how Islamic education is systematically marginalized at the conceptual core of the field.

The sharp growth in publications reflects heightened global enthusiasm toward AI, especially following the rise of generative technologies such as large language models. However, this study goes beyond reporting growth trends by critically interpreting low citation impact and dispersed authorship as indicators of a fragmented and immature knowledge structure, thereby filling a gap left by earlier bibliometric works that stopped at publication counts and keyword frequencies. In contrast to previous bibliometric studies that employed expansive and heterogeneous keyword strategies—such as combining “Islamic Education,” “PAI,” “pesantren,” “madrasah,” and “digital learning”—this study deliberately adopts a restrictive and conceptually focused keyword construction. This methodological choice distinguishes the present research from the two closest prior articles by ensuring that the analyzed corpus explicitly positions artificial intelligence within the discourse of Islamic education, rather than merely describing technological applications in religious settings.

The geographical concentration of research in Indonesia and Malaysia further strengthens this distinction. Where earlier studies treated geographical dominance as a descriptive outcome, this study interprets regional concentration as evidence of context-driven knowledge production that remains weakly connected to global Islamic intellectual traditions. This interpretation marks a clear departure from prior research that did not problematize the implications of regional imbalance.

The thematic map provides the strongest empirical support for both the research gap and the novelty of this study. The dominance of AI-related motor themes, coupled with the peripheral positioning of Islamic ethics, institutions, and epistemology, empirically confirms the core gap: Islamic education functions largely as a contextual label rather than as a conceptual driver in AI research. This finding substantiates the study's claim that AI integration in Islamic education remains instrumental rather than transformative.

This thematic imbalance is precisely what differentiates the present study from earlier bibliometric analyses, which identified dominant themes but did not interrogate their epistemological consequences. By interpreting thematic centrality and density through the lens of reconfiguration, this research advances the literature from descriptive mapping to critical conceptual diagnosis. The co-occurrence network further answers the main research objective of mapping the intellectual structure and thematic relationships within AI-related Islamic education research. The separation between AI-driven clusters and Islamic normative clusters demonstrates that artificial intelligence is integrated functionally but not philosophically. This directly fulfills the study's objective of uncovering how AI operates within the intellectual landscape of Islamic education rather than merely where it appears.

Temporal overlay analysis also directly responds to the research objective of identifying research development and future directions. While emerging technologies such as ChatGPT and deep learning signal new momentum, their weak linkage to Islamic legal, ethical, and curricular themes highlights unresolved conceptual gaps. This finding reinforces the study's novelty by framing future research not in terms of more advanced tools, but in terms of deeper epistemological integration.

By synthesizing publication trends, thematic structures, intellectual networks, and temporal evolution, this study fully achieves its stated research objectives. More importantly, it distinguishes itself from earlier bibliometric studies by explicitly framing artificial intelligence as a catalyst for rethinking the foundations of Islamic education, rather than as a neutral or value-free technological enhancement. In doing so, this research fills the identified gap, delivers a clear conceptual novelty, and provides a strategic map for future research aimed at reconfiguring Islamic education in the age of artificial intelligence.

This study is subject to several limitations. First, the analysis relies solely on Scopus-indexed, English-language journal articles, which may exclude relevant studies published in other languages or local academic outlets. Second, the use of a focused keyword strategy may result in the omission of studies employing alternative terminology related to Islamic education or artificial intelligence. Third, as a bibliometric study, this research examines macro-level publication patterns and thematic structures rather than conducting in-depth content analysis of individual articles. Finally, the interpretive conclusions are conceptually grounded in bibliometric indicators and are not triangulated with empirical field data. Despite these limitations, the study provides a systematic and theoretically informed overview of the intellectual landscape of AI research in Islamic education.

Conclusion

This study demonstrates that despite the rapid growth of research on artificial intelligence in Islamic education, the field remains conceptually underdeveloped. Bibliometric evidence shows that current scholarship is dominated by technological and instrumental concerns, while the epistemological, ethical, and philosophical foundations of Islamic education occupy a marginal position within the core research structure. As a result, artificial intelligence is predominantly framed as a functional enhancement rather than as a phenomenon that reshapes the aims and meaning of Islamic education.

By employing a focused keyword strategy and advanced bibliometric analysis, this research moves beyond descriptive trend mapping and reveals a structural disjunction between technological innovation and Islamic educational thought. Islamic education frequently appears as a contextual label rather than as a guiding conceptual framework, indicating that the integration of AI has not yet translated into a coherent reconfiguration of educational values, knowledge structures, and pedagogical authority.

This study contributes by repositioning artificial intelligence as a socio-technical force that demands critical engagement at the level of educational philosophy. Without such epistemological and ethical reorientation, the adoption of artificial intelligence risks becoming technologically progressive yet educationally superficial, reinforcing efficiency-driven models while marginalizing the normative foundations that define Islamic education. Therefore, future research must move decisively beyond instrumental adoption toward integrative frameworks that align AI development with the intellectual, moral, and spiritual objectives of Islamic education in the digital age.

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