

MAPPING THE RESEARCH LANDSCAPE: THE DEVELOPMENT OF ARTIFICIAL INTELLIGENCE IN RELIGIOUS EDUCATION THROUGH BIBLIOMETRIC ANALYSIS FROM 2013 TO 2025

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ABSTRACT

The purpose of this study is to determine the trends and characteristics of research on AI in religious education from 2013 to 2025. The research method uses journal literature on the development of AI in religious education in the Scopus database for the period 2013 to 2025. This study utilizes VOSviewer and RStudio to produce graphs of trends and characteristics of research on the development of AI in religious education. Research on AI in religious education grew rapidly from 2013 to 2025, with a very high annual growth rate of 17.6%, with 36 documents. There is a gap between developed and developing countries, where developing countries such as India have high publication productivity but low citations. Meanwhile, developed countries such as the United Kingdom have low publication productivity but high citations. This study identifies trends in the development of AI in religious education to provide valuable information for researchers to improve their understanding of developments in this field.

Keywords: Artificial Intelligence, Religious Education, Bibliometric

BACKGROUND

The development of artificial intelligence has significantly changed the landscape of education. The global transformation of education that prioritizes technology is certainly a necessity in keeping up with the times. AI facilitates learning experiences tailored to students' needs, where AI systems are capable of analyzing large amounts of data to understand students' learning preferences (Shete et al., 2024; Yunusaliyev et al., 2024). This can certainly increase student engagement, active learning, and enjoyment (Kok et al., 2024). AI that is capable of adjusting to students' learning preferences can also provide real-time feedback so that students can learn according to their own abilities (Fombona et al., 2025). Thus, AI facilitates adaptive learning and offers more sophisticated and responsive learning (Fombona et al., 2025).

The development of AI over the past ten years has always been linked to the world of education, with a significant increase in scientific publications and research (Bandara & Senanayaka, 2024; Guo et al., 2024). The development of AI in education is marked by the application and implications of AI in the learning process. The application of AI in education, which used to be limited to administrative systems, has now shifted and is being utilized in technology-based learning processes. Integrating AI and education certainly has benefits for the advancement of education, both in administrative systems and learning processes, but these benefits cannot be separated from the challenges faced. The challenges in integrating AI and education are ethics in the use of AI, algorithmic bias in learning content recommendations, and the use of AI for classroom tasks that are sometimes not original from the students' thinking (Papakostas, 2025).

Artificial intelligence, which is transforming global education, is also changing the world of religious education. The wave of AI technology is disrupting religious education that focuses on humanistic,

spiritual, and traditional values. The use of AI in religious education has become a facility for improving learning, such as AI chatbots or virtual learning that can increase knowledge, especially in reading scriptures and practicing worship (Nirwana AN et al., 2025; Papakostas, 2025). This responsive AI design encourages students to improve the fulfillment of their emotional and spiritual needs and fosters deeper engagement in the moral field. However, the rapid development of AI has the potential to reinforce prejudices and influence students' understanding of religious teachings without the guidance of an educator, which could lead to moral problems in the future because AI lacks emotional intelligence (Nirwana AN et al., 2025; Papakostas, 2025).

Discussions about the involvement of AI in religious education are currently attracting the attention of the academic community, given how rapidly advancing AI technology is linked to religions that focus on humanistic, spiritual, and traditional values. For example, one study highlights the transformative role of generative AI in shaping religious cognition and its implications for religious education, emphasizing both its benefits and risks (Zhang et al., 2025). Another study investigates the integration of AI in religious education, analyzing its historical development, current applications, and ethical challenges (Papakostas, 2025). Research on AI and religious education highlights the need for ethical guidelines and oversight to ensure the optimal and effective use of AI in religious education (Papakostas, 2025; Zhang et al., 2025).

The relationship between AI and religious education is a rapidly growing field of interest, with the relationship between AI and religious education being linked to institutional and cultural factors. For example, religious leaders are concerned about AI in education and emphasize the ethical use of AI (Ocampo & Gozum, 2025). Furthermore, cultural values for addressing the use of AI emphasize empathy and solidarity (Song & Geraci, 2025). Thus, the topic of the relationship between AI and religious education is important in its focus on ethics and pedagogy. This also shows that this field is not stagnant but is developing and evolving in line with the times.

Mapping and analyzing the development of artificial intelligence in religious education requires a comprehensive approach and analysis from many aspects. Bibliometric analysis is used to map research broadly, identify trends, contributors, and thematic clusters (Doğan & Şahin, 2024; Easouh et al., 2024). Using this bibliometric analysis can certainly help identify the volume of research, publication trends, and influential authors and institutions related to the development of AI in religious education. In addition, this bibliometric analysis can provide deep insights into the practical application, research, and challenges of artificial intelligence in the world of education. Therefore, it is very important to map the development of artificial intelligence to identify challenges and opportunities, as well as to direct future research to ensure the ethical and effective integration of AI in religious education.

RESEARCH METHOD

Method

The research method used to map trends, publications, and thematic clusters uses a bibliometric approach. Bibliometric analysis is a systematic study that uses statistical and mathematical techniques to measure productivity, relationships, and the influence of scientific works in a field of science (Donthu et al., 2021; Kurdi & Kurdi, 2021). The main objectives of bibliometric analysis are to understand research developments, collaborations, and trends, as well as to identify the most influential authors, institutions, or topics (Donthu et al., 2021; Kurdi & Kurdi, 2021). In this bibliometric analysis, researchers collect data from scientific databases, filter data according to the research objectives, analyze using techniques such as citation analysis, co-citation, co-authorship, and keyword analysis, visualize the results, and interpret and report the findings (Kurdi & Kurdi, 2021; Passas, 2024). The data processing tools used in this bibliometric analysis are Bibliometrik RStudio and VOSviewer.

RStudio Bibliometrics offers a variety of quantitative research techniques. RStudio Bibliometrics includes effective and efficient statistical algorithms, high-quality numerical procedures, and integrated data visualization capabilities (Xu & Wang, 2025). The open-source package in RStudio Bibliometrics provides various bibliometric analysis methods, such as citation analysis, co-citation, co-authorship,

keyword analysis, and data visualization (network, thematic map, trend topics) (Kemeç & Altınay, 2023).

VOSviewer is software that facilitates effective mapping and visualization of scientific knowledge networks and is very useful for identifying trends, collaborations, and research gaps in various fields (Al Husaeni & Nandiyanto, 2021; Wang & Kim, 2023). This software provides visualization tools to display bibliometric maps in detail (Xu & Wang, 2025). VOSviewer also focuses on the graphical representation of bibliometric maps (Xu & Wang, 2025). Therefore, using Bibliometrik R and VOSviewer can strengthen the mapping of AI developments in religious education.

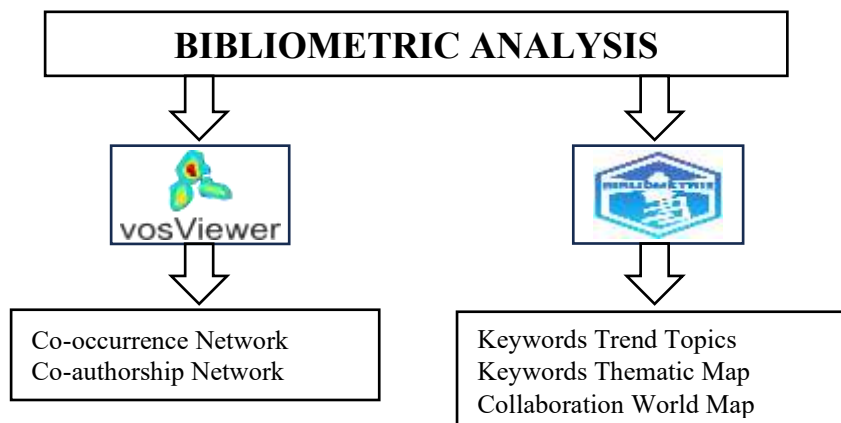
Data Collection and Processing

The data used in this study were obtained from the Scopus database. The Scopus database covers various fields of science, with particular strength in the social sciences (Li et al., 2010). Scopus is widely used for large-scale analysis in research assessment, scientific policy evaluation, and research credibility (Baas et al., 2020). Therefore, given the strength of the Scopus database in the social sciences and the credibility of the database widely used in research, the researchers used articles from the Scopus database.

The data collection process through the Scopus database involved the use of keywords to match the research objectives regarding the development of AI in religious education. The keywords used in the search were (“artificial intelligence” OR “AI” OR “machine learning” OR “deep learning”) AND (“religious education” OR “religion” OR “spiritual education” OR “theology”) AND (“teaching” OR “learning” OR ‘pedagogy’ OR “curriculum”). In this search, the researcher also took articles from 2013 to 2025 to find out the latest research developments on AI and religious education.

In the data collection process, the researcher obtained 53 documents. The researcher then screened the documents based on English language, research article suitability, and publication stage. From the screening results, the researcher obtained 36 documents. After obtaining the search and screening results, the researcher exported Scopus articles that displayed citation information (author, document title, year, EID, source title, volume, issues, pages, citation count, source & document type, publication stage, DOI, and open access), bibliographical information (affiliations Serial, identifiers (e.g. ISSN), PubMed ID, publisher, editor, language of original document, correspondence address, and abbreviated source title), as well as abstract & keywords (abstract, author keywords, and indexed keywords).

After conducting the search, screening, and exporting the data in Bib format, the researchers entered the data obtained for processing into two software programs: Bibliometrik RStudio and VOSviewer. The VOSviewer software can create Co-occurrence and Co-authorship Networks. The Bibliometrix software can generate Trend Topics, Thematic Maps, and Collaboration World Maps based on keywords.



Source(s): Authors' own creation

Picture 1. Flowchart for literature analysis and visualization

RESEARCH FINDINGS

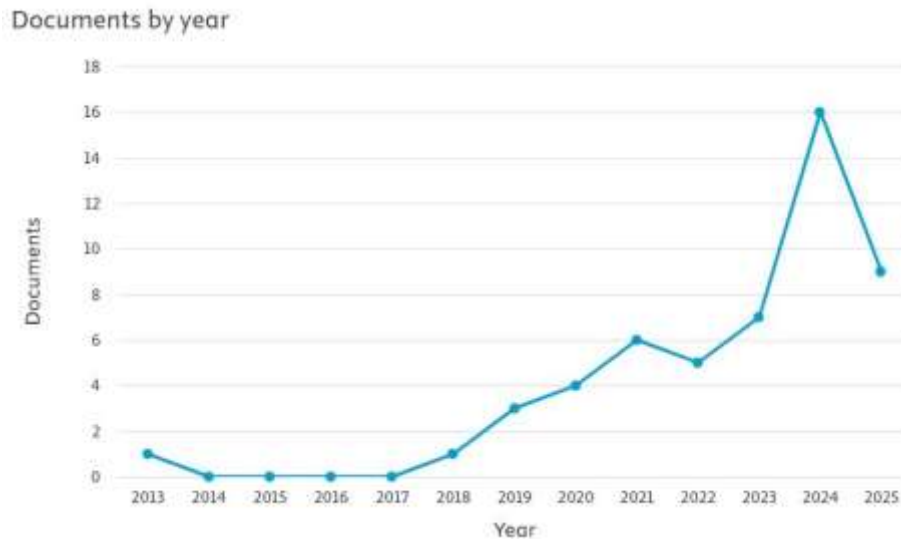
Annual Scientific Research Results

The rate of scientific article production continues to accelerate, making it crucial to analyze annual research results in order to map the current landscape of developments in a particular discipline. The number of scientific publications can serve as an indicator of the history and direction of a field of research and facilitate the assessment of that discipline (Xu & Wang, 2025) This annual publication data can be used to observe trends and shifts in scientific production over time, as well as to identify emerging research patterns and fields (Ferreira et al., 2022; Pramono & Nurhakim, 2025).

Table 1. Main information of the literature

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2013:2025
Sources (Journals, Books, etc)	34
Documents	36
Annual Growth Rate %	17,6
Document Average Age	2,25
Average citations per doc	59,5
References	0
DOCUMENT CONTENTS	
Keywords Plus (ID)	276
Author's Keywords (DE)	130
AUTHORS	
Authors	123
Authors of single-authored docs	5
AUTHORS COLLABORATION	
Single-authored docs	5
Co-Authors per Doc	3,44
International co-authorships %	36,11
DOCUMENT TYPES	
article	19
book chapter	1
conference paper	16
Source(s): Authors' own creation	

Based on the results of bibliometric data analysis, there has been a very active and rapidly growing publication dynamic from 2013 to 2025. During these 12 years, this field has produced 36 documents published in 34 different sources, with a very high annual growth rate of 17.6%, indicating that academic interest in this topic continues to experience significant development. The existing documents are relatively new, with an average age of only 2.25 years, and have received an average of 59.5 citations per document. Of course, this not only reflects the strong relevance of the topic in current discourse but also its significant impact and influence in the scientific community and the fields of AI and religious education. Research collaboration is also a hallmark of this field, as evidenced by an average of 3.44 authors per document and a high level of international collaboration reaching 36.11%, indicating that the issue of AI in religious education is seen as a global challenge that requires diverse and integrated perspectives. In terms of publication types, there are 19 journal articles and 16 conference papers. Then, in terms of keywords, the documents obtained produced 276 Keywords Plus and 130 Author's Keywords.



Source(s): Authors' own creation

Picture 2. Annual research production from 2013 to 2025

In Picture 2. Annual research production from 2013 to 2025 shows that there has been an increase in the number of publications. From 2013 to 2018, the graph shows that productivity in terms of publications has remained stagnant. However, from 2018 to 2025, productivity in publications on AI in religious education continues to grow. Research conducted by Batubara et al. (2024), states that AI research in the field of education shows significant improvement and indicates a strong interest in this field of research. This indicates that AI research in religious education will continue to develop and may become a research trend, as well as enable collaboration with other fields of science. Thus, research development and findings will be more optimal and can create new findings that can be used as educational policies in the future.

Keywords

Keywords are nouns that serve as summaries and abstracts and describe the substance or important information in a research article (Xu & Wang, 2025). The selection and use of keywords in scientific articles must be appropriate to the content of the article because the right selection and use can help writers, readers, and the academic community at large (Corrin et al., 2022; Khan et al., 2022).

Table 1. Keywords with the strongest links

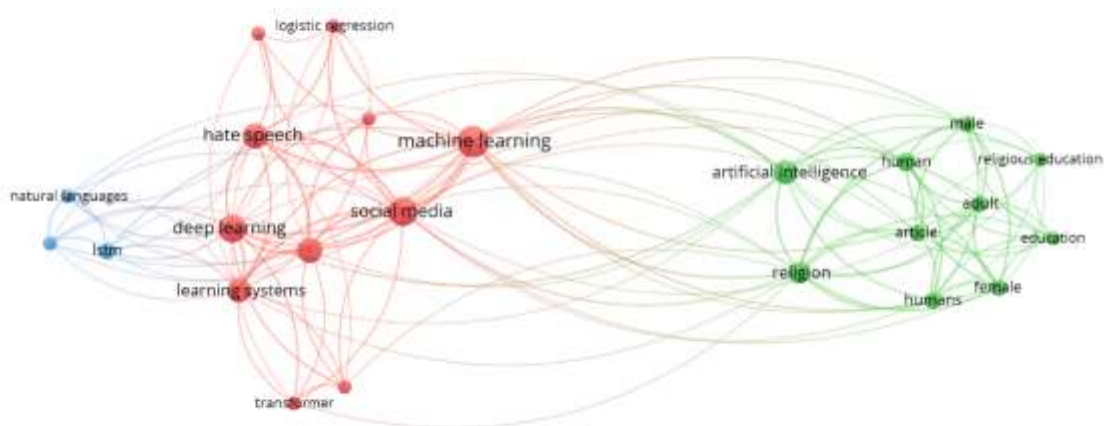
Ranks	Clusters	Keywords	TLS	Occurrences	APY
1	1	Social media	103	12	2022
2	1	Machine learning	96	14	2021
3	1	Hate speech	87	9	2022
4	1	Speech recognition	87	9	2022
5	1	Deep learning	84	11	2023
6	1	Learning systems	62	8	2022
7	2	Religion	47	7	2021
8	2	Artificial intelligence	34	8	2022
9	2	Human	34	5	2021
10	2	Adult	31	4	2020

Note(s): TLS* -Total Link Strenght, APY* -Average Publication Years

Source(s): Authors' own creation

The data results in Table 1 show that research on artificial intelligence in the context of religious education is concentrated in two thematic clusters, namely the first and second clusters. Keywords with the strongest total links are dominated by the first cluster, with the strongest keyword link being social media, with a total link strength of 103. The first cluster contains many keywords related to

computational and technical learning topics, such as “machine learning” with a total link strength of 96, “deep learning” with a total link strength of 84, “speech recognition” with a total link strength of 87, and “learning systems” with a total link strength of 62. The keywords in the first cluster were published on average in 2022. The second cluster focuses more on conceptual and humanistic aspects, with core keywords such as “religion” with a total link strength of 47, “artificial intelligence” with a total link strength of 34, and “human” with a total link strength of 34, with publications appearing on average in 2021 to 2022. This pattern indicates that this field of research has evolved from conceptual discussions about the relationship between humans, AI, and religion to more specific and technical implementations, with a primary focus on addressing hate speech as a modern challenge in the digital space.

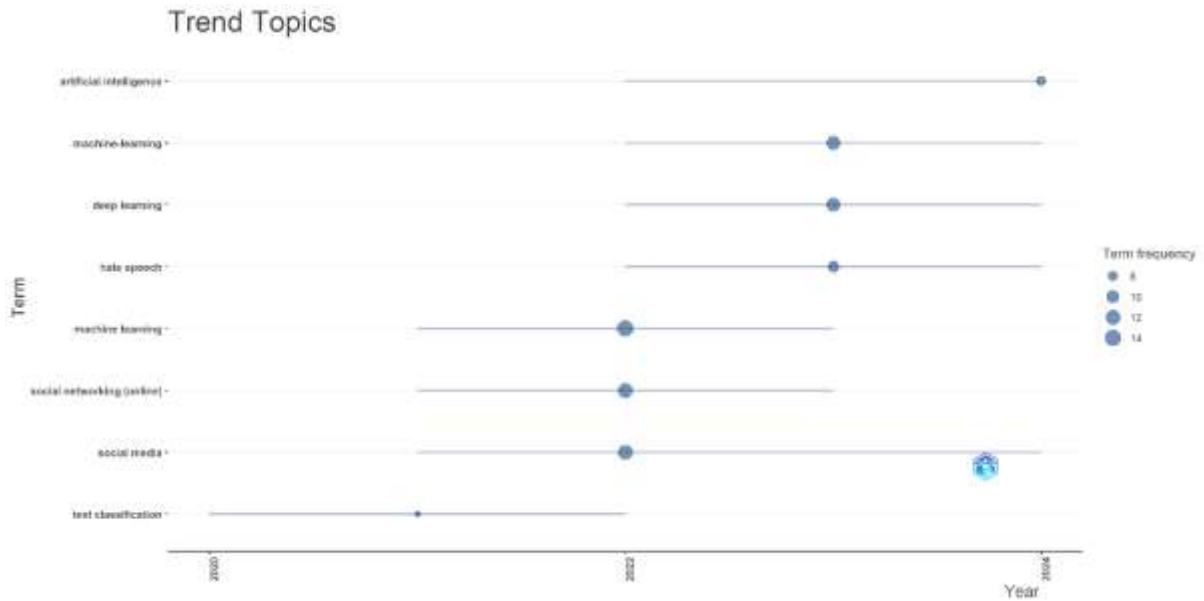


Source(s): Authors’ own creation

Picture 3. Keyword co-occurrence network map

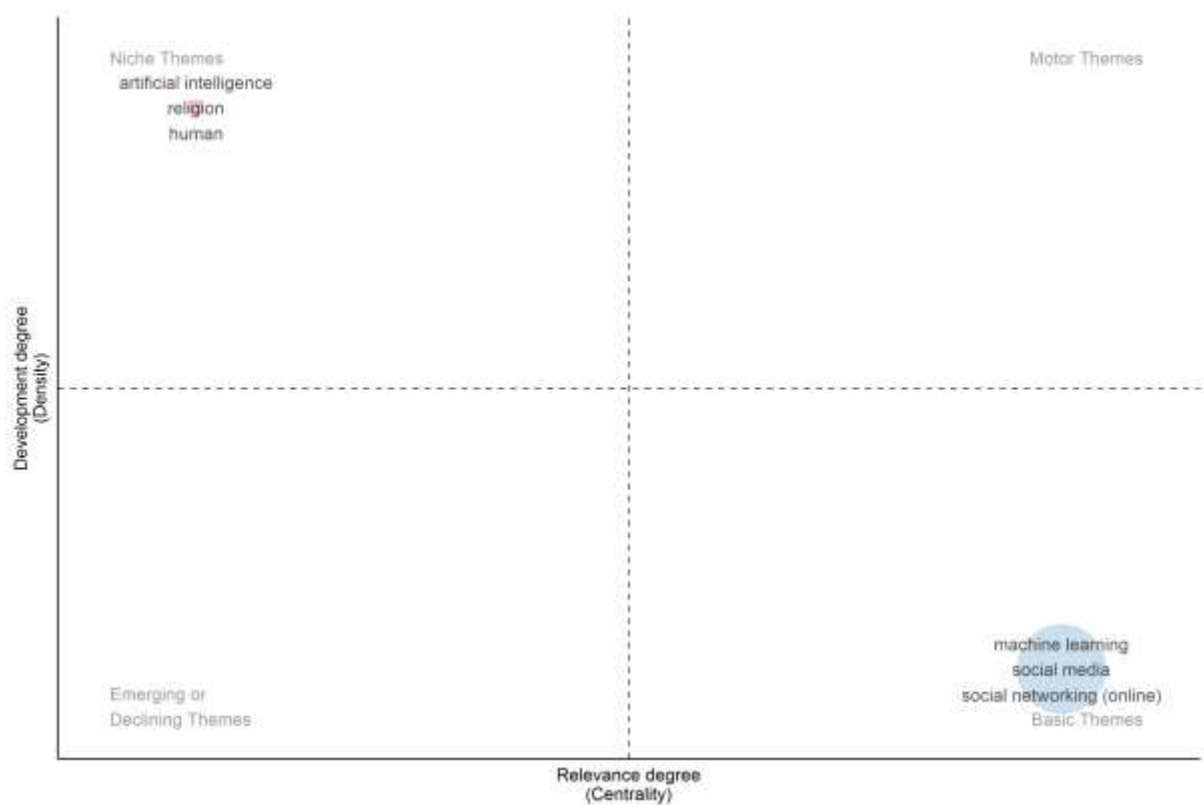
The keyword co-occurrence network serves to identify research trends, as seen from the frequency and simultaneous occurrence of keywords over time (Ozek et al., 2023). This network of keywords that appear can also be a novelty in research to connect keywords for broader research development. Each keyword is depicted as a colored node, as shown in Figure 3, where the width of the connecting line indicates the frequency of occurrence, and the same colored lines that are connected indicate the closeness of the keywords. It can be seen that the visualization of the network of keywords in green certainly has a strong connection with each other in research development so far, but of course, connecting the network with other colored keywords can develop research and become the latest research trend in the future.

In Figure 3, there are three color networks: green, red, and blue. These color differences are also referred to as clusters, where each keyword is assigned to its own cluster. The interconnection between different clusters, indicated by lines connecting different colored networks, reveals multidisciplinary fields of research where keywords such as deep learning in red are applied in the context of religious education in green, creating complex and complementary scientific relationships. Thus, this network map not only maps topics within a single field of knowledge but also builds multidisciplinary knowledge from the field of AI research in religious education.



Source(s): Authors' own creation

Picture 4. Keyword trend topics



Source(s): Authors' own creation

Picture 5. Keyword thematic map

The results of the trend topic analysis can be seen in Picture 4, which shows that artificial intelligence (AI), machine learning, deep learning, and hate speech in the context of religious education have experienced significant trend topic developments from 2022 to 2024. In the early period, the research focus was still concentrated on basic concepts such as machine learning as the foundation of technology. However, the trend then moved rapidly towards a more complex and specific approach, marked by the increasing popularity of deep learning and AI topics. A sharp surge occurred in topics related to the

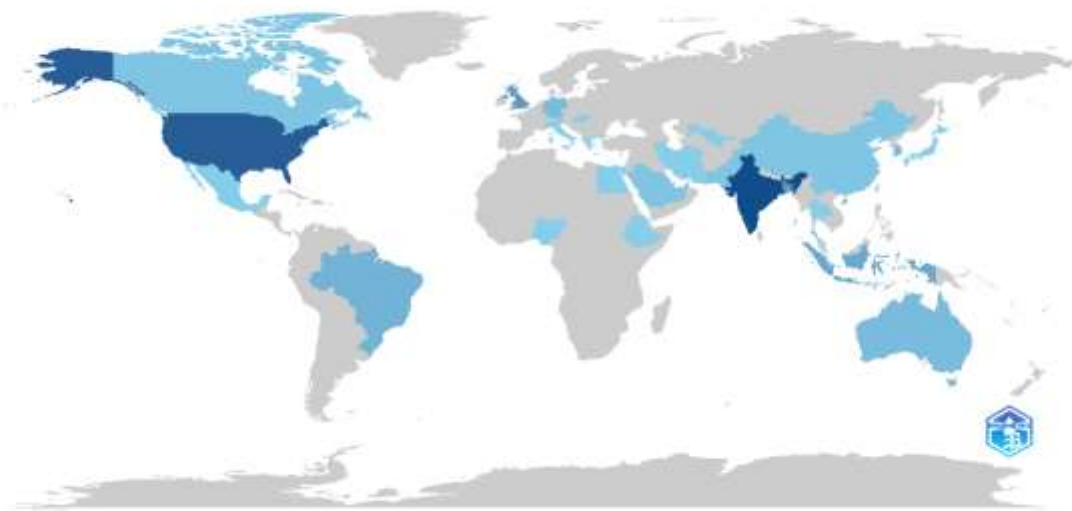
analysis of religious digital content, especially hate speech, which is closely related to social media and social networking (online) platforms.

In Picture 5, regarding the thematic map of keywords, the keywords artificial intelligence, religion, and human fall into the niche themes area. This niche theme area provides opportunities for research into specific sub-fields. With the same keywords in this niche theme area, artificial intelligence, religion, and humans can be researched specifically. The basic theme area contains the keywords machine learning, social media, and social networking (online). In this area, the keywords are basic concepts or the initial foundation for research on themes related to AI and religious education.

Countries/regions

Publication productivity can provide insight into a country's scientific work and science development. By analyzing publication productivity, researchers can identify emerging research trends in a country and identify scientific developments in a field of science between countries.

Country Scientific Production



Source(s): Authors' own creation

Picture 6. Scientific production world map

Table 2. Most influential countries

Ranks	Country	Article	TC	AAC	Freq.
1	India	49	10	2,50	16
2	USA	37	31	7,80	14
3	United Kingdom	33	1949	974,50	7
4	Bangladesh	13	1	0,30	7
5	Indonesia	8	0	0	5

Note(s): TC* -Total Citations, AAC* -Average Article Citations, Freq.* -Frequency

Source(s): Authors' own creation

In the scientific production map and data in Table 2, it can be seen that countries in the Asian region dominate research on AI in religious education. This dominance can be seen from India's contribution, which ranks first in the number of articles with 49 publications, followed by the United States with 37 publications, the United Kingdom with 33 publications, Bangladesh with 13 publications, and Indonesia with eight publications. The dominance of India and the United States shows the high level of interest and development of research in both countries in exploring the integration of AI with the context of religious education. Meanwhile, countries with significant Muslim populations, such as Bangladesh and Indonesia, have also begun to contribute actively. However, their publication volume is not as high as that of India and the United States.

Table 2 shows the total citations for each country, with the United Kingdom showing a very dominant performance with a total citation (TC) of 1949 and an average citation per article (AAC) of 974.5, indicating that the quality and influence of the works produced by researchers from the United Kingdom on AI in religious education are highly recognized internationally. Conversely, although India dominates in the number of articles published, its average citation is still relatively low at 2.50, reflecting that the impact and influence of its research is not yet proportional to its production volume. The United States ranks second with a total of 31 citations and an average citation of 7.80, indicating that research from this country has an impact and influence, although not as great as the United Kingdom. This data reveals that although countries such as India and Indonesia are actively producing research on AI in religious education, the impact and influence of their research are not yet significant in international academic forums. Western countries such as the United Kingdom still play an essential role in producing high-impact research and are the primary reference in this field.

Most influential journals

Journals impact the scientific ecosystem, influencing publication and the allocation of article resources. The existence of journals can help researchers choose the right place to submit their scientific work, thereby increasing access to scientific work and the impact of research. In analyzing data on AI in religious education, researchers found 10 journals with the highest publication productivity, as shown in Table 3. This will make it easier for future researchers to publish their scientific works discussing AI and education.

Table 3. Most influential Source

Ranks	Source	Article	Cum. Freq	Zone
1	EUROPEAN JOURNAL FOR PHILOSOPHY OF RELIGION	1	10	1
2	INTERNATIONAL RESEARCH JOURNAL OF MULTIDISCIPLINARY SCOPE	1	16	2
3	JOURNAL OF BELIEFS AND VALUES	1	17	2
4	JOURNAL OF EXPERIMENTAL PSYCHOLOGY: GENERAL	1	19	2
5	JOURNAL OF ISLAMIC AND MUSLIM STUDIES	1	20	2
6	POSTDIGITAL SCIENCE AND EDUCATION (NETHERLANDS)	1	25	2
7	RELIGION	1	32	3
8	RELIGIONS	1	33	3
9	SYSTEMS AND SOFT COMPUTING	1	35	3
10	THEOLOGY AND SCIENCE	1	36	3

Note(s): Cum. Freq.* -Cumulative Frequency

Source(s): Authors' own creation

Table 3 shows that journal publication production is evenly distributed, with all journals producing one article. These data also indicate that the literature on this topic is still widely scattered across various publications without a core journal serving as the main center of literature. Research on AI in religious education has been published in journals from different disciplines, such as philosophy of religion (European Journal for Philosophy of Religion), Islamic studies (Journal of Islamic and Muslim Studies), psychology (Journal of Experimental Psychology: General), and computing (Systems and Soft Computing). This study also applied Bradford's Law to group journals based on their productivity. The results show that only one journal, the European Journal for Philosophy of Religion, is included in the Core Zone (Zone 1). Meanwhile, most other journals are distributed in Zone 2 and Zone 3.

Most Affiliations' Production

The productivity of scientific publications at each institution objectively identifies the most active centers of knowledge production regarding AI in religious education.

Table 4. Most Affiliations' Production

Ranks	Source	Article	Years
1	MANGALORE UNIVERSITY	11	2020-2025
2	STATE UNIVERSITY OF SOUTHWESTERN OF BAHIA	10	2021-2025
3	BINA NUSANTARA UNIVERSITY	6	2024-2025
4	INDEPENDENT UNIVERSITY BANGLADESH	6	2024-2025
5	THE ISLAMIA UNIVERSITY OF BAHAWALPUR	6	2023-2025
6	NORTHWESTERN UNIVERSITY	5	2023-2025
7	NOAKHALI SCIENCE AND TECHNOLOGY UNIVERSITY	4	2024-2025
8	UNITED ARAB EMIRATES UNIVERSITY	4	2024-2025
9	KONGU ENGINEERING COLLEGE	2	2025
10	AFE BABALOLA UNIVERSITY	1	2025

Source(s): Authors' own creation

Based on Table 4 regarding institutional affiliation productivity, there are 10 institutions with the highest production of articles on artificial intelligence (AI) in religious education. The institutions with the highest production are Mangalore University and Southwest Bahia State University, which produced 11 and 10 articles, respectively. The dominance of these two institutions demonstrates the critical role of universities from developing countries in developing this niche but strategic field of research. Interestingly, most of the institutions in the top 10 list come from countries with significant Muslim populations or strong religious backgrounds, such as Bina Nusantara University (Indonesia, six articles), Independent University Bangladesh (Bangladesh, six articles), Islamia University Bahawalpur (Pakistan, six articles), and United Arab Emirates University (UAE, four articles). The motivation for research may be driven by local needs to integrate AI technology with specific religious contexts.

In terms of time period, all institutions on the list show very recent and current research activity, with publications concentrated in the 2020-2025 range, and most focusing on 2024-2025. This pattern reinforces previous findings that this research field is experiencing rapid and dynamic growth. Affiliations such as Kongu Engineering College (India) and Afe Babalola University (Nigeria), which only appeared in 2025, indicate that interest in this topic continues to expand to various new institutions and geographical areas. Thus, AI research in religious education is not only dominated by certain institutions but is also undergoing rapid global expansion, driven by its high relevance in addressing educational and spiritual challenges in the digital age.

DISCUSSION

Artificial Intelligence (AI) in religious education shows unique and dynamic characteristics. The significant growth trend in publications, with an annual growth rate of 17.6% and a very young document age with an average of 2.25 years, indicates that this field is still a very new area of research and is experiencing tremendous acceleration. The development of AI in education enables it to act as an intelligent tutor and learning companion, resulting in rapid growth in AI research (Chen et al., 2022). The surge in publications, particularly in the period 2021-2025, cannot be separated from the context of global AI technology transformation and the education sector's response to the challenges and opportunities this technology brings. These findings are in line with the literature that states that the integration of AI and education has triggered a wave of transformative pedagogical innovation, including in the domain of religious education, which was previously considered traditional (Arriola-Mendoza & Valerio-Ureña, 2024; Nirwana AN et al., 2025).

The use of AI in learning certainly creates a computational learning approach, as seen in the main research clusters, such as the power of keywords, machine learning, deep learning, and speech

recognition, closely related to detecting hate speech on social media. This reveals that the initial focus of the research was primarily directed at aspects of content moderation and digital security in religious discussions. These findings reinforce the research argument (Papakostas, 2025; Zhang et al., 2025), highlighting the urgency of addressing the misuse of digital space while utilizing the capabilities of AI to create a healthy discussion environment. However, this computational approach also leaves a gap, namely the limited exploration of pedagogical-humanistic aspects such as curriculum development, adaptive learning models, or AI ethics specific to the context of religious education (Nirwana AN et al., 2025; Papakostas, 2025).

The map of collaboration and research productivity reveals disparities between countries. On the one hand, developing countries such as India, Indonesia, and Bangladesh are very productive in producing publications, reflecting the local need to integrate AI with religious values. On the other hand, the impact and influence of research is still dominated by institutions from developed countries such as the United Kingdom and the USA, whose works can achieve very high citations. This pattern shows a gap between the quantity of scientific work produced and the quality of scientific work in international academic forums. Of course, this gap requires better and more optimal efforts to improve the quality of research, strengthen international collaboration, and publish works in reputable journals so that research from developing countries with high scientific productivity can also be of higher quality, thereby gaining more visibility and influence in international academic forums.

Publications on the relationship between AI and religious education can be found in many journals from various disciplines, but there is no single dominant core journal. This situation reflects the multidisciplinary nature of this field of research, which bridges computer science, education, theology, and social studies. The diversity of these fields enriches perspectives and specializations, thereby increasing access to research findings and producing innovative, solution-oriented approaches that combine various fields of science. On the other hand, however, this can lead to inefficient dissemination of articles because too many fields of science are used, and no core journal covers this field of research. Therefore, future efforts are needed to develop AI research in religious education by focusing on one field of study and one core journal, such as special journal issues or special conferences that can bring together various perspectives to build a solid scientific foundation.

Research on AI in religious education has been dominated by the very recent period of 2020-2025. Institutions from developing countries dominate it, thus providing optimism for the future of this field. This data shows that AI in religious education is not a passing trend. However, the field is growing significantly and has excellent potential to contribute to more relevant religious education practices in the digital age. Involving theologians, educators, and AI experts in the development and application of AI can help balance technological advances with ethical, moral, and religious considerations (Papakostas, 2025). AI research needs not only to deepen technical aspects but also expand exploration into ethical, pedagogical, policy, and optimal implementation aspects, so that AI integration can truly empower religious education without eroding the human and spiritual values that are its essence.

Artificial intelligence (AI) research on sustainability in religious education highly depends on long-term funding commitments. The rapid growth trend and the relatively new nature of the field require consistent funding to explore more advanced AI applications and research critical aspects such as ethical implications, pedagogical frameworks, and evaluation models aligned with religious values. Such funding should not only focus on short-term results, but also on developing the capacity of researchers in developing countries, so that they can contribute more significantly to international academic forums. This can also help advance a country's science and technology, and even lead to the creation of new policies or curricula related to AI in religious education.

Relevant parties such as the government, educational institutions, and the industrial sector must recognize the strategic potential of integrating artificial intelligence (AI) into religious education and increase research funding. The current significant trend in AI usage requires clear guidelines and assistance from the government to be optimal. An inclusive and collaboration-oriented funding scheme that is responsive to local and global needs will serve as a bridge to ensure that this field of research not

only continues to grow in quantity but also in quality, inclusivity, and ethics, so that it can truly empower religious education in the digital age. This is also a form of integrity from various sectors to improve science and technology in their countries for sustainable knowledge development.

CONCLUSION

Research on AI in religious education is still very new and is experiencing tremendous acceleration. The development of AI in education allows it to act as an intelligent tutor and learning companion, which is why research on AI is growing so rapidly. Bibliometric data analysis shows active and rapidly growing publication dynamics from 2013 to 2025. During these 12 years, this field has produced 36 documents published in 34 different sources, with a high annual growth rate of 17.6%. The keywords with the highest total link strength are “social media” with a total link strength of 103, “machine learning” with a total link strength of 96, and “hate speech” with a total link strength of 87.

There is an interesting gap where developing countries such as India, Indonesia, and Bangladesh have productivity in terms of the number of publications. However, the impact and influence of research is still dominated by institutions from developed countries such as the United Kingdom and the USA, with high citations. The fragmentation of publications in various multidisciplinary journals without a core journal results in inefficient dissemination of articles because too many fields of science are used, and no core journal serves as the center for these fields of research. Nevertheless, research dominated by institutions in developing countries in the most recent period, namely 2020 to 2025, provides optimism that this field is not just a passing trend but has excellent potential to contribute to relevant religious education in the digital age, as long as it is balanced with the exploration of ethical, pedagogical, and implementation aspects.

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