
AI Literacy among English Teachers in Islamic Education Institutions: A Bibliometric Analysis

Muhammad Nurfazri^{1*}, Dedi Sulaeman², Hapid Ali³

¹KEDJATI Foundation, Bandung, Indonesia

²UIN Sunan Gunung Djati Bandung, Indonesia

³Universitas Negeri Yogyakarta, Indonesia

*Email: muhammadnurfazri@kedjati.com

Abstract

Artificial intelligence (AI) has increasingly influenced English language teaching by supporting instructional design, learning materials, feedback, assessment, and teachers' professional activities. This study examines publication trends, major research themes, thematic clusters, and emerging topics at the intersection of AI literacy, English language teaching, and Islamic education. A bibliometric analysis was conducted using 70 Scopus-indexed open-access journal articles. Scopus was used to analyze publication trends, sources, countries, authors, and citation patterns, while VOSviewer was employed for keyword frequency, co-occurrence analysis, thematic clustering, and overlay visualization. The findings show that artificial intelligence, generative AI, higher education, ChatGPT, AI literacy, and AI ethics are among the most prominent research topics. The keyword co-occurrence analysis identified 62 keywords across four thematic clusters, while the overlay analysis indicated relatively recent attention to TPACK, teacher training, self-efficacy, AI tools, digital ethics, critical thinking, and metacognition. These findings suggest that AI literacy research is increasingly moving beyond technical skills toward teacher competence, pedagogical integration, ethical use, and professional development. However, the relatively limited representation of Islamic education-related topics indicates that the intersection of AI literacy, English language teaching, and Islamic education remains underexplored. The TPACK framework provides a relevant theoretical lens for interpreting these developments by connecting technological, pedagogical, and English language content knowledge. The study maps the development of this emerging field and identifies directions for further research on AI literacy and responsible AI integration in Islamic educational contexts.

Keywords: Artificial intelligence literacy; English language teaching; Generative AI; Islamic education; TPACK

1. INTRODUCTION

Artificial intelligence (AI) has increasingly influenced educational practices by introducing new ways of designing instruction, developing learning materials, providing feedback, conducting assessment, and supporting teachers' professional activities (Papadopoulou et al., 2026; Pishtari et al., 2023; Sarkar & Sen, 2027). Besides, the rapid development of generative artificial intelligence (GenAI), particularly large language models, has further expanded the role of AI in education because teachers can interact with AI systems to generate, revise, evaluate, and adapt educational content (Jia et al., 2026). In addition, UNESCO (2024) argues that the emergence of AI in education requires teachers to develop competencies that extend beyond conventional digital skills, including AI

foundations and applications, AI pedagogy, ethics of AI, human-centred perspectives, and AI for professional learning. In English language teaching (ELT), this development is particularly significant because AI can support writing, feedback, lesson planning, materials development, assessment, and classroom interaction. Recent research has also shown the growing integration of GenAI into language education and the increasing need for teachers to make pedagogical decisions regarding the use, evaluation, and adaptation of AI-generated content (Zhang et al., 2026). Consequently, the increasing use of AI in ELT has shifted research attention from access to AI tools toward teachers' AI literacy and their ability to use these technologies critically, pedagogically, and responsibly.

On the other hand, AI literacy is increasingly viewed as more than the ability to operate AI technologies. Ng et al. (2021) conceptualized AI literacy through four broad dimensions: knowing and understanding AI, using and applying AI, evaluating and creating with AI, and addressing ethical issues. For teachers, these competencies are closely related to their ability to make appropriate pedagogical decisions when integrating AI into teaching. Besides, the Technological Pedagogical Content Knowledge (TPACK) framework provides a relevant theoretical foundation for understanding this relationship because effective technology integration involves the interaction of technological knowledge, pedagogical knowledge, and content knowledge (Mishra & Koehler, 2006). Hence, teachers need to combine knowledge of AI technologies with pedagogical strategies and English language content.

Furthermore, review studies on AI literacy and AI integration in English language education have expanded rapidly. For example, Lo et al. (2024) focused on the use of ChatGPT and GenAI for writing, feedback, teaching support, and language-learning activities. Moreover, Zhang et al. (2026) systematically synthesized research on generative AI literacy in English language education, focusing on how AI literacy has been conceptualized, operationalized, and investigated in empirical studies. Similarly, other recent reviews have examined AI literacy in English language education from broader educational and social-ecological perspectives, while systematic reviews have also investigated the roles of generative AI and AI-supported practices in English as a foreign or second language education (Deng & Jamaludin, 2026; Uygun & Demir, 2026). These reviews demonstrate that AI literacy, teacher competencies, pedagogical integration, and responsible AI use have become important research areas in English language education. However, their contexts are primarily general English language education and do not specifically examine English teachers working within Islamic educational institutions. In parallel, recent reviews have examined the integration of AI in Islamic education, including research trends, implementation, ethical challenges, teacher-related factors, and the alignment of AI use with Islamic educational values (Ikhsan et al., 2026; Noorun@Arbat et al., 2026; Yusoff et al., 2026). Nevertheless, these reviews generally address Islamic education as a broad field and do not specifically investigate AI literacy among English teachers or the intersection between AI literacy and English language teaching in Islamic educational contexts. Thus, although review studies have separately mapped AI literacy in English language education and AI integration in Islamic education, the intersection of these three dimensions remains insufficiently mapped. This gap indicates the need for a bibliometric analysis to examine the development, research contributors, thematic structures, and emerging topics of research concerning AI literacy in English language teaching within Islamic education contexts.

Therefore, this study conducts a bibliometric analysis of research at the intersection of AI literacy, English language teaching, and Islamic education. Specifically, the study addresses two research questions: (RQ1) What are the publication trends of research at the intersection of artificial intelligence literacy, English language teaching, and Islamic education in terms of publication growth, sources, countries, authors, and citation patterns? and (RQ2) What are the major research themes, thematic clusters, and emerging topics in research at the intersection of artificial intelligence literacy, English language teaching, and Islamic education? Using Scopus and VOSviewer, this study maps the development and thematic structure of the field, while the TPACK framework is employed as a theoretical lens to interpret the relationship between AI literacy, teacher knowledge, pedagogy, and English language content. Through this approach, the study contributes to a clearer understanding of the development of AI literacy research in ELT and identifies emerging directions for AI integration within Islamic educational contexts.

2. RESEARCH METHOD

2.1 Research Design

This study employed a bibliometric analysis to examine the development, thematic structure, and emerging research topics at the intersection of AI literacy, ELT, and Islamic education. The study followed a structured data identification and selection procedure guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 framework to transparently report the process of identifying and selecting relevant publications (Page, 2021). PRISMA was used only to document the literature search and selection process, while the main analytical approach of the study was bibliometric analysis.

2.2 Data Source, Search Strategy, and Selection of Documents

The bibliographic data were retrieved from the Scopus database, which was selected because it provides comprehensive bibliographic and citation information required for bibliometric analysis. The search strategy was developed based on three main concepts: AI literacy, English language teaching, and Islamic education. The following search string was applied: ("artificial intelligence literacy" OR "AI literacy" OR "AI competence*" OR "AI skills" OR "AI knowledge") AND ("English language teaching" OR "English language teacher" OR "English teacher" OR ELT OR EFL OR ESL) AND ("Islamic education" OR "Islamic educational institution" OR "Islamic school" OR "Islamic university" OR "Islamic higher education" OR madrasah OR madrasa OR pesantren) AND (LIMIT-TO (DOCTYPE , "ar") AND (LIMIT-TO (LANGUAGE , "English") AND (LIMIT-TO (SRCTYPE , "j") AND (LIMIT-TO (OA , "all"). The search was limited to journal articles published in English and available as open-access documents. These criteria were applied to establish a consistent bibliographic dataset and ensure that the selected publications were accessible for analysis. The initial Scopus search identified 136 records based on the specified search strategy. The retrieved records were subsequently filtered according to the predefined eligibility criteria, including English language, article document type, journal source type, and open-access status. Records that did not meet these criteria were excluded. Following the filtering process, 70 documents remained and were included in the final bibliometric dataset for analysis.

2.3 Data Analysis

The final dataset of 70 documents was analyzed using Scopus analytical tools and VOSviewer. For RQ1, Scopus was used to examine publication growth, publication sources, countries, authors, affiliations, and citation patterns. These indicators were used to describe the development and distribution of research on AI literacy, English language teaching, and Islamic education. For RQ2, VOSviewer was used to conduct keyword frequency, keyword co-occurrence, thematic clustering, and overlay analysis. Keyword co-occurrence analysis was conducted using All Keywords as the unit of analysis, with a minimum occurrence threshold of two occurrences and Full Counting. The analysis resulted in 62 keywords, 534 links, and a total link strength of 702, which were examined to identify the major thematic clusters within the dataset.

3.RESULT AND DISCUSSION

3.1 Result

a. Publication Trends and Research Development

This section presents an overview of the bibliometric dataset used in the study. The dataset consists of publications retrieved from Scopus using the predefined search strategy concerning artificial intelligence literacy, English language teaching, and Islamic education. The characteristics of the dataset are described in terms of the number of documents, publication period, sources, authors, countries, affiliations, subject areas, and citation information. These characteristics provide the basis for understanding the scope and composition of the research field before examining its publication trends and thematic development.

A.1 Annual Publication Growth

The annual distribution of publications shows the development of research activity across the analyzed publication period. The dataset contains 70 documents indexed between 2023 and 2027, with the number of documents increasing from 2 in 2023 to 5 in 2024 and 22 in 2025. The highest number of documents was recorded in 2026, with 40 documents, while one document is associated with 2027. Figure 1 illustrates the annual distribution of documents and the development of research output across the analyzed period.

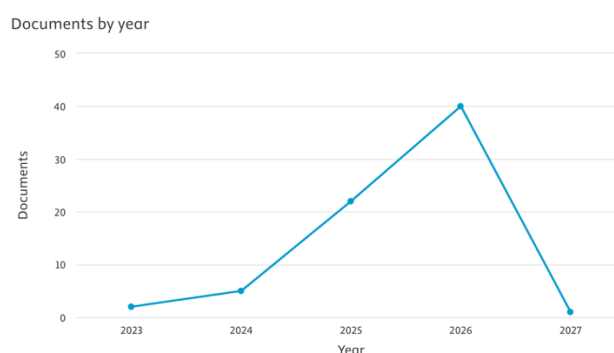


Figure 2. Annual Publication Growth of Research on AI Literacy, English Language Teaching, and Islamic Education

A.2 Publication Sources

The distribution of publications across sources provides an overview of the scholarly outlets contributing to research on AI literacy at the intersection of ELT and Islamic education. The analysis of the 70-document dataset identified multiple publication sources, with the ten most represented sources accounting for 31 documents, or 44.3% of the total dataset. Table 1 presents the ten publication sources with the highest number of documents.

Tabel 1. Top 10 Publication Sources in the Bibliometric Dataset

Rank	Publication Source	Documents	Percentage
1	International Journal of Learning Teaching and Educational Research	7	10.0%
2	Frontiers in Education	6	8.6%
3	Cogent Education	5	7.1%
4	Acta Psychologica	3	4.3%
5	Education Sciences	2	2.9%
6	International Journal on Informatics Visualization	2	2.9%
7	Online Learning in Educational Research	2	2.9%
8	Advanced Electromagnetics	1	1.4%
9	Applied Computational Intelligence and Soft Computing	1	1.4%
10	Behavioral Sciences	1	1.4%
Total Top 10		31	44.3%

According to table 1, the International Journal of Learning Teaching and Educational Research was the most frequently represented source, with 7 documents (10.0%), followed by Frontiers in Education with 6 documents (8.6%) and Cogent Education with 5 documents (7.1%). Acta Psychologica contributed 3 documents (4.3%), while Education Sciences, International Journal on Informatics Visualization, and Online Learning in Educational Research each contributed 2 documents (2.9%). The remaining three sources in the top ten, namely Advanced Electromagnetics, Applied Computational Intelligence and Soft Computing, and Behavioral Sciences, each contributed one document (1.4%). Overall, the distribution shows that publications were dispersed across multiple scholarly sources rather than concentrated in a single outlet. The ten most represented sources accounted for 44.3% of the dataset, while the remaining 39 documents were distributed across other publication sources. This distribution indicates a relatively broad range of publication venues represented in the retrieved literature.

A.3 Country Distribution

The geographical distribution of publications shows that research on AI literacy at the intersection of ELT and Islamic education is represented across several countries. Indonesia has the highest number of publications, with 31 documents, followed by Saudi Arabia with 13 and Malaysia with 11. India and China contribute 7 and 6 documents, respectively, while Türkiye, the United Arab Emirates, and the United Kingdom each contribute 3 documents. Ecuador and Iraq are also represented with 2 documents each. Overall, the distribution indicates that the research is particularly represented in Southeast Asian and Middle Eastern contexts, while contributions also extend to South Asia, East Asia, Europe, and other regions. Figure 2 presents the distribution of publications across the ten most represented countries or territories.

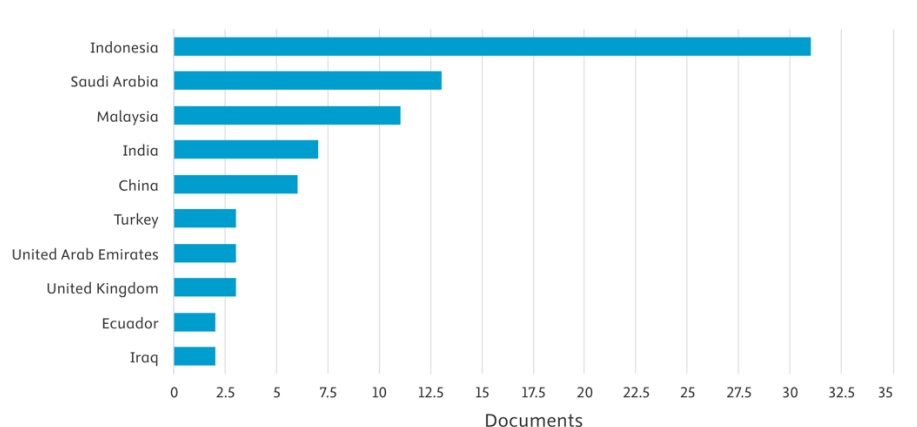


Figure 3. Distribution of Publications by Country/Territory

A.4 Author Productivity

The distribution of publications by author shows that most authors contributed a limited number of documents to the dataset. Adiyono, A. and Mohamed, A.M. were the most productive authors, with two documents each, while the other authors shown in the top 10 contributed one document each. This distribution indicates that research in this area involves a relatively broad group of contributors, without a single author dominating the publication output. Figure 3 presents the ten authors with the highest number of publications in the bibliometric dataset.

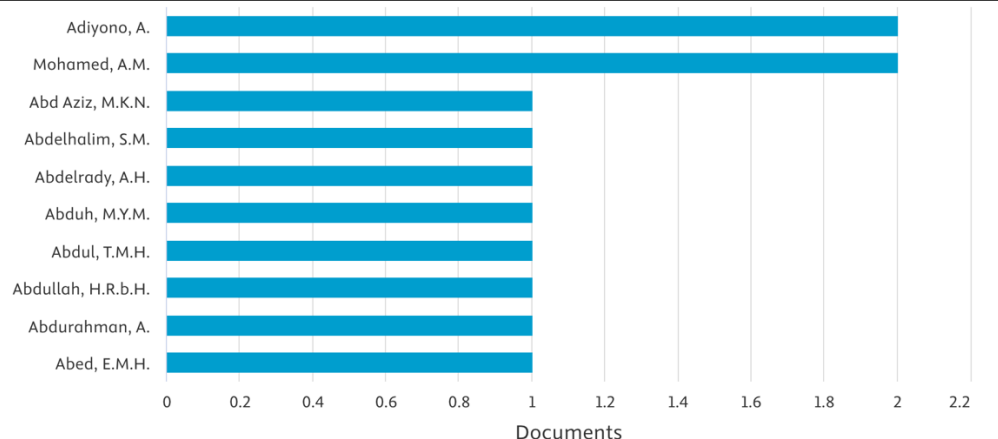


Figure 4. Author Productivity in the Bibliometric Dataset

A.5 Affiliation Distribution

The distribution of publications by affiliation shows the institutional contributions represented in the 70-document dataset. Imam Mohammad Ibn Saud Islamic University has the highest number of publications, with 8 documents, followed by Universitas Sebelas Maret with 4 documents. Universitas Negeri Yogyakarta, Universitas Negeri Semarang, and Universitas Negeri Padang each contribute 3 documents, while the remaining institutions in the top ten contribute 2 documents each. The distribution reflects contributions from institutions in both Islamic higher education and broader university settings, particularly from Indonesia and the Middle East. Figure 4 presents the ten affiliations with the highest number of publications in the dataset.

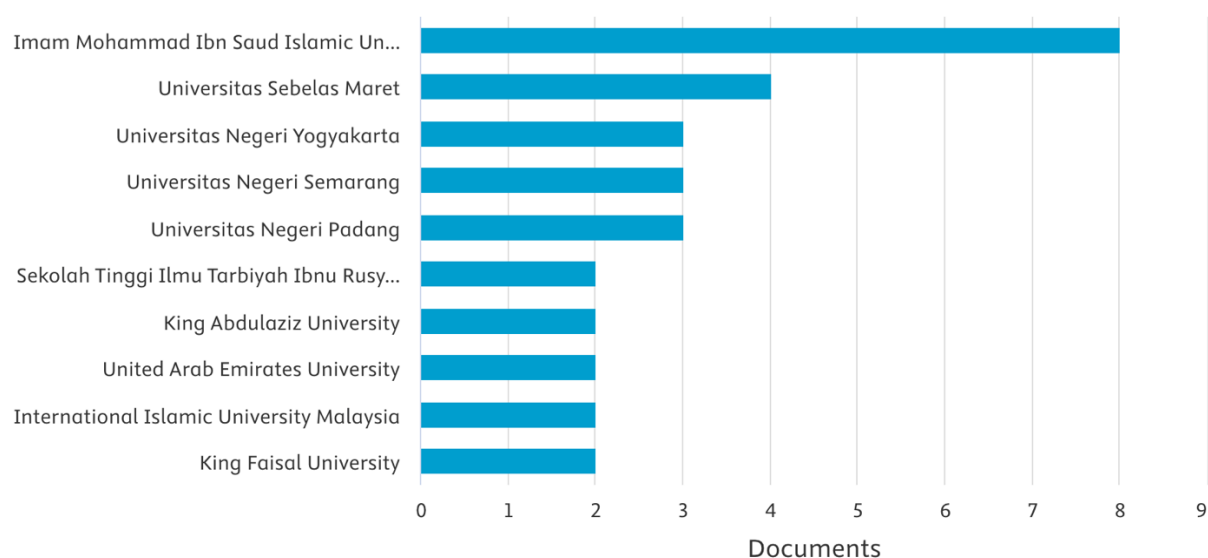


Figure 5. Top 10 Affiliations

A.6 Subject Area Distribution

The distribution of publications across subject areas shows the multidisciplinary nature of research on AI literacy at the intersection of ELT and Islamic education. Social Sciences represents the largest subject area, with 51 documents (40.8%), followed by Computer Science with 28 documents (22.4%). Arts and Humanities and Psychology each account for 10 documents (8.0%), while Decision Sciences and Engineering each contribute 6 documents (4.8%). Other subject areas include Business, Management and Accounting, Multidisciplinary, Health Professions, and additional fields. Hence, the distribution indicates that the research is primarily situated within the Social Sciences while also involving substantial contributions from technological and interdisciplinary fields.

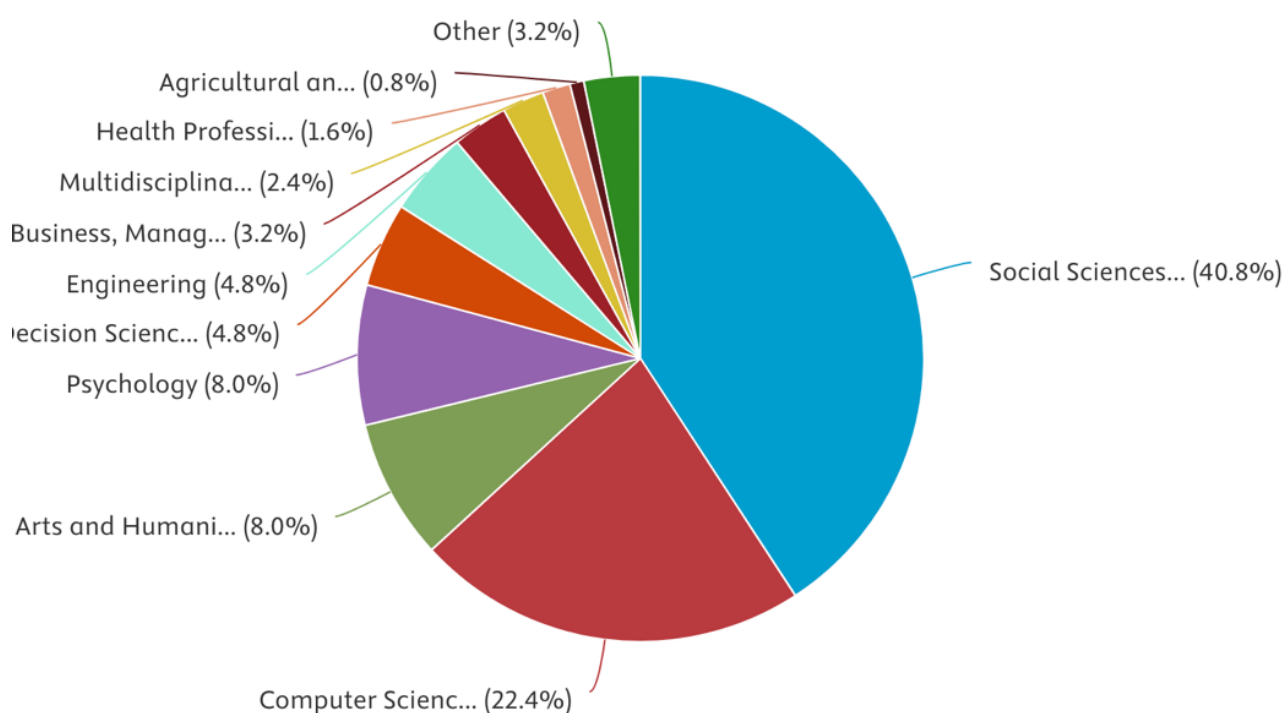


Figure 6. Distribution of Publications by Subject Area

b. Research Themes and Emerging Topics

This section analyzes the research themes emerging across the 70 bibliometric documents. The analysis focuses on keyword frequency, relationships among keywords, thematic clusters, and the temporal development of research topics. These analyses are used to identify the major themes addressed in the literature and the topics that have emerged more prominently in recent years.

b.1 Keyword Co-occurrence and Thematic Clusters

The keyword analysis was conducted using VOSviewer based on the 70 bibliographic records, with a minimum occurrence threshold of two. A total of 62 keywords met the threshold and were included in the co-occurrence analysis. The most frequent keywords were artificial intelligence (20 occurrences), generative AI (9), higher education (9), and ChatGPT (7), followed

From Figure 7, the keyword co-occurrence analysis identified four thematic clusters that represent different but interconnected dimensions of research on artificial intelligence and education. The first cluster centers on artificial intelligence and is associated with AI literacy, AI ethics, educational technology, technology integration, metacognition, and TPACK, indicating research that connects AI use with technological knowledge, ethical considerations, and pedagogical integration. The second cluster focuses on teachers and educational practice, with keywords such as teacher, self-efficacy, attitude, blended learning, psychology, and curriculum, reflecting research on teachers' perceptions, confidence, attitudes, and engagement with educational technologies. The third cluster emphasizes learning and students, including learning, student, university, cognition, questionnaire, quantitative analysis, learning environment, and autoregulation, representing research that examines AI and educational technology from learner and learning perspectives, often through empirical approaches. The fourth cluster is associated with generative AI and AI-assisted teaching, with prominent terms including generative AI, ChatGPT, AI tools, AI-assisted writing, academic writing, chatbots, higher education, teaching, and integration, reflecting research on the practical application of recent generative AI technologies in educational settings. Consequently, the network indicates that research in the 70-document dataset extends beyond the technical development of AI and encompasses teacher knowledge, self-efficacy, learning, ethics, educational technology, writing, and pedagogical integration. The strong connection of artificial intelligence with AI literacy, AI ethics, and TPACK is particularly relevant to the present study because it indicates an emerging conceptual relationship between AI literacy and teachers' technological and pedagogical knowledge. However, keywords directly representing English language teaching and Islamic education are less prominent in the network, suggesting that the retrieved literature also includes broader research on AI and education. This finding is relevant for interpreting the bibliometric corpus and supports the need for further screening of the retrieved studies in the systematic literature review.

b.2 Emerging Research Topics

The analysis of keyword recency identified several relatively recent research topics based on the average publication year of keyword occurrences. As presented in Table 3, TPACK emerged as the most recent keyword, followed by teacher training, digital ethics, metacognition, AI tools, learning environment, and self-efficacy. These keywords indicate increasing research attention to the pedagogical, professional, ethical, and cognitive dimensions of AI integration in education. The emergence of TPACK is particularly relevant to the present study because it reflects growing attention to the relationship between artificial intelligence and teachers' technological-pedagogical knowledge. Similarly, the presence of teacher training indicates increasing interest in developing teachers' capacity to integrate AI into educational practice, while digital ethics highlights concerns about responsible and ethical AI use. Keywords such as AI tools, metacognition, and learning environment further suggest that recent research is moving beyond general discussions of artificial intelligence toward its practical and pedagogical implications for teaching and learning. In contrast, keywords such as artificial intelligence, student, teacher, learning, and human have appeared across a broader period of the dataset, indicating more established areas of research. Overall, the recency analysis suggests a research trend from broad

discussions of AI and educational technology toward more specific concerns related to teacher development, technological-pedagogical knowledge, ethical AI use, and the integration of AI into teaching and learning.

Tabel 3. Emerging Research Topics Based on Overlay Visualization

Rank	Keyword	Occurrences	Relative Recency	Emerging Research Area
1	TPACK	2	Very recent	AI and teachers' technological-pedagogical knowledge
2	Teacher training	2	Recent	AI-related teacher professional development
3	Digital ethics	2	Recent	Ethical and responsible AI use
4	Metacognition	2	Recent	Cognitive and metacognitive dimensions of AI-supported learning
5	AI tools	2	Recent	Practical integration of AI tools in education
6	Learning environment	2	Recent	AI-supported learning environments
7	Self efficacy	2	Recent	Teacher confidence and capability in technology/AI use
8	Critical thinking	2	Relatively recent	Higher-order thinking in AI-supported education
9	ChatGPT	7	Recent	Generative AI and chatbot-based educational practices
10	AI literacy	4	Recent	Development of AI-related knowledge and competencies

3.2 Discussion

The bibliometric findings indicate that research at the intersection of artificial intelligence (AI) literacy, English language teaching, and Islamic education is an emerging area. The 70 documents analyzed show strong attention to artificial intelligence, generative AI, higher education, ChatGPT, AI literacy, and AI ethics. This pattern reflects the recent shift from general discussions of educational technology toward teachers' AI competencies and the pedagogical use of generative AI. Similar developments have been reported in English language education, where ChatGPT research has increasingly focused on teaching, language learning, writing, and teacher perspectives (Lo et al.,

2024). From the TPACK perspective, this development suggests that AI literacy should involve more than technical skills because effective technology integration requires the interaction of technological, pedagogical, and content knowledge (Mishra & Koehler, 2006).

The keyword co-occurrence analysis further demonstrates the multidimensional structure of the field. The network contains 62 keywords organized into four clusters, with artificial intelligence positioned as one of the most prominent terms and connected with AI literacy, AI ethics, educational technology, teaching, ChatGPT, generative AI, and technology integration. These connections indicate that current research increasingly examines how AI can be integrated into teaching rather than simply examining the technology itself. This finding is consistent with Celik (2023), who emphasized the importance of technological and pedagogical knowledge for the ethical integration of AI-based tools. Thus, within the TPACK framework, AI literacy can be understood as teachers' ability to connect AI technologies with appropriate pedagogical strategies and specific subject content.

The overlay analysis also indicates growing research attention to TPACK, teacher training, self-efficacy, AI tools, digital ethics, critical thinking, and metacognition. These relatively recent topics suggest a movement toward teacher competency and professional development in AI integration. This direction is consistent with UNESCO's (2024) AI Competency Framework for Teachers, which emphasizes AI pedagogy, AI ethics, AI foundations and applications, and professional development. In English language teaching, this development is particularly relevant because teachers need to evaluate whether AI-generated content, feedback, and activities are appropriate for specific language-learning objectives. Therefore, the emerging connection between AI literacy and TPACK provides a useful framework for understanding the competencies required for meaningful AI integration.

Furthermore, the relatively limited occurrence of Islamic education-related terms, particularly Islamic higher education, indicates that the specific intersection of AI literacy, English language teaching, and Islamic education remains less prominent in the current dataset. This finding should be understood as a characteristic of the retrieved Scopus corpus rather than evidence that AI research is absent from Islamic educational institutions. Nevertheless, it highlights the importance of examining AI integration within context-specific educational environments. Consistent with TPACK, teachers' technological knowledge needs to be considered together with pedagogical practices, English language content, and the characteristics of the educational context (Mishra & Koehler, 2006). Thus, the findings suggest that the field is moving from general AI adoption toward AI literacy, teacher competence, ethical use, professional development, and pedagogical integration, while the Islamic education context remains an area that warrants further research.

4. CONCLUSION

This study examined research at the intersection of AI literacy, English language teaching, and Islamic education through bibliometric analysis of 70 Scopus-indexed documents. The findings show that the field is developing rapidly, with artificial intelligence, generative AI, ChatGPT, AI literacy, and AI ethics emerging as prominent research topics. The thematic analysis also identified increasing

attention to teacher training, self-efficacy, digital ethics, critical thinking, and TPACK, indicating a shift from general AI adoption toward teachers' competencies and pedagogical integration. The findings further demonstrate the relevance of the TPACK framework for understanding AI literacy in English language teaching. AI literacy should not be limited to teachers' ability to operate AI tools but should involve the integration of technological, pedagogical, and content knowledge. At the same time, the relatively limited representation of Islamic education in the dataset suggests that the specific intersection of AI literacy, English language teaching, and Islamic education remains insufficiently explored. Future research can therefore investigate how English teachers in Islamic educational contexts develop AI-related competencies and integrate AI ethically and pedagogically into their teaching practices.

REFERENCE

- Celik, I. (2023). Towards intelligent-TPACK: An empirical study on teachers' professional knowledge to ethically integrate artificial intelligence (AI)-based tools into education. *Computers in Human Behavior*, 138, 107468. <https://doi.org/10.1016/j.chb.2022.107468>
- Deng, L., & Jamaludin, K. A. (2026). Roles of generative artificial intelligence (GenAI) in English as a foreign language (EFL) instruction: A systematic literature review. *SAGE Open*. <https://doi.org/10.1177/21582440261418315>
- Ikhsan, I., Mudayat, M., Ichwan, I., & Niku, E. (2026). Research trends on the use of artificial intelligence in Islamic Religious Education: A systematic review from 2021 to 2025. *GHAITSA: Islamic Education Journal*, 7(1). <https://doi.org/10.62159/ghaitsa.v7i1.2214>
- Jia, Y., Li, C., Chan, A., & Li, Q. (2026). Human-AI collaboration in the STEM classroom: A systematic literature review of GenAI as a complement in higher education. In S. K. S. Cheung, X. Liu, G. Xu, & L. F. Kwok (Eds.), *Technology in education: Smart and innovative learning. ICTE 2025* (Vol. 2752, pp. 389–401). Springer. https://doi.org/10.1007/978-981-95-4499-8_32
- Lo, C. K., Yu, P. L. H., Xu, S., Ng, D. T. K., & Jong, M. S. Y. (2024). Exploring the application of ChatGPT in ESL/EFL education and related research issues: A systematic review of empirical studies. *Smart Learning Environments*, 11, 50. <https://doi.org/10.1186/s40561-024-00342-5>
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017–1054. <https://doi.org/10.1111/j.1467-9620.2006.00684.x>
- Ng, D. T. K., Leung, J. K. L., Chu, S. K. W., & Qiao, M. S. (2021). Conceptualizing AI literacy: An exploratory review. *Computers and Education: Artificial Intelligence*, 2, 100041. <https://doi.org/10.1016/j.caeai.2021.100041>
- Noorun@Arbat, S. A. B., Hamzah, M. I. B., & Abd Rahman, M. J. (2026). Factors and challenges driving the use of artificial intelligence (AI) in the teaching and learning of Islamic Education: A systematic literature review. *International Journal of Research and Innovation in Social Science*, 10(7), 1364–1379. <https://doi.org/10.47772/IJRISS.2026.100700097>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., McGuinness, L. A., Stewart, L. A., Thomas, J., Tricco, A. C., Welch, V. A., Whiting, P., & Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, n71. <https://doi.org/10.1136/bmj.n71>

- Papadopoulou, A., Bouras, A., Protopapadakis, E. D., Anastasopoulos, D., Tserkou, A., Makraki, E., Chalkiadaki, A., & Tzortzou, A. (2026). Utilizing artificial intelligence in the development of assessment resources. In T. Barkatsa (Ed.), *Exploring cognitive, affective, design thinking, artificial intelligence, cybernetics and e-learning dimensions in contemporary education* (pp. 128–151). Brill.
- Pishtari, G., Sarmiento-Márquez, E. M., Rodríguez-Triana, M. J., Wagner, M., & Ley, T. (2023). Evaluating the impact and usability of an AI-driven feedback system for learning design. In O. Viberg, I. Jivet, P. Muñoz-Merino, M. Perifanou, & T. Papathoma (Eds.), *Responsive and sustainable educational futures: EC-TEL 2023* (Vol. 14200). Springer. https://doi.org/10.1007/978-3-031-42682-7_22
- Sarkar, S. K., & Sen, A. (2027). *Educator empowerment: Leveraging AI for classroom management and teaching support*. In *AI for classroom management, teaching, and learning* (pp. 127–154).
- UNESCO. (2024). *AI competency framework for teachers*. UNESCO. <https://www.unesco.org/en/articles/ai-competency-framework-teachers>
- Uygun, E., & Demir, B. (2026). A PRISMA-based systematic review of artificial intelligence in English as a foreign and second language education (2023–2025). *Discover Education*, 5, 478. <https://doi.org/10.1007/s44217-026-01504-y>
- Yusoff, S. M., Marzaini, A. F. M., Zynuddin, S. N., Mat Jusoh, A. M., Basal, M. H., Alias, N. R., et al. (2026). Ethical integration of generative artificial intelligence in Islamic religious education involves human mediation and source verification. *Discover Artificial Intelligence*, 6, 1162. <https://doi.org/10.1007/s44163-026-02251-7>
- Zhang, Y., Qiu, X., & Wang, J. (2026). A systematic research synthesis of generative AI literacy in English language education. *Discover Artificial Intelligence*, 6, 1074. <https://doi.org/10.1007/s44163-026-02178-z>