

Educational technology in islamic education: a bibliometric analysis of research trends, gaps, and emerging themes

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Abstract

The integration of digital technology into Islamic education has accelerated markedly over the past decade, yet the scholarly literature that documents this transformation remains scattered across disciplines, outlets, and national contexts, making it difficult to see the field as a whole. This study maps the intellectual structure of research on educational technology in Islamic education and identifies the gaps and emerging themes that can guide future scholarship. A bibliometric analysis was conducted on 41 Scopus-indexed documents retrieved with the search string "Islamic education" AND ("educational technology" OR "digital learning" OR "digital education") applied to article titles, abstracts, and keywords. Publication trends, author productivity, citation impact, source distribution, geographic concentration, and keyword co-occurrence were examined, with VOSviewer used to visualise the keyword network, keyword density, temporal overlay, and co-authorship structure. The corpus is small but expanding rapidly: thirty of the forty-one documents appeared between 2024 and 2026. Research is concentrated in Indonesia and Malaysia, dispersed across many outlets, and produced largely by small, weakly connected author groups. Thematically, the field is organised around a dense core of Islamic education, digital learning, digital literacy, and educational technology, with adoption- and acceptance-oriented studies dominating, while values, ethics, immersive technologies, and artificial intelligence sit at the periphery in the newest and least-cited work. These patterns point to an emerging rather than an unpopular niche, and to a persistent gap between technological adoption and its integration with Islamic pedagogy, values, and ethics. The study contributes a focused, evidence-based map of the field and a four-dimensional framework technology, pedagogy, values and ethics, and educational outcomes for organising future research. The findings reflect the 41 documents analysed and should not be read as the totality of global research on the topic.

Keywords: Islamic education, Educational technology, Digital learning, Bibliometric analysis, Research trends

Introduction

Digital technology has reshaped how knowledge is produced, transmitted, and assessed across virtually every level of education, and religious education has not been exempt from this shift. Within Islamic education, the movement from print-based and face-to-face instruction toward digital platforms, learning-management systems, mobile applications, and, more recently, artificially intelligent tools has raised a distinctive set of pedagogical and normative questions. Early work in the field treated technology largely as an instructional aid, examining how media and computer-based tools could support the teaching of integrated Islamic content in schools (Lubis, 2009) and how new classroom technologies were received by teachers and students in reform-oriented school systems (Hamzah et al., 2009). What was once a peripheral concern has become central to debates about the future of madrasahs, Islamic universities, and religious instruction more broadly.

The urgency of these debates increased sharply during the COVID-19 pandemic, which forced Islamic educational institutions to improvise remote and blended arrangements and exposed both the promise and the fragility of digital provision (Nursyahidin et al., 2021). In the years that followed, researchers turned to questions of

acceptance and quality, asking whether digital learning genuinely improves Islamic higher education or merely reproduces existing practice in a new medium (Ansyah, 2022; Susanto et al., 2022). Underlying these empirical questions is a deeper normative one that has accompanied the field from its beginnings: whether educational technology can be reconciled with the epistemological and ethical commitments of Islamic pedagogy, and whether it can serve, rather than displace, the cultivation of character and spirituality that Islamic education prizes (Waghid & Waghid, 2017; Bakar, 2020).

Despite this growing interest, the scholarship remains fragmented. Studies are dispersed across education, information-science, management, and area-studies outlets; they employ heterogeneous frameworks and vocabularies; and they are produced in national contexts that rarely reference one another. A prior systematic review noted the same dispersion and called for more cumulative work (Ni'mah & Rahmawati, 2023), and a recent review-and-bibliometric study of technology for disseminating Islamic values likewise found a young and uneven literature (Trimulyo et al., 2026). This fragmentation makes it difficult for researchers, institutions, and policymakers to see which topics are well developed, which remain marginal, and where the most promising opportunities lie. A structured mapping of the field is therefore needed—not to pronounce the field large or small, but to characterise its shape and trajectory on the basis of evidence.

The present study responds to that need through a bibliometric analysis of a focused corpus of Scopus-indexed documents on educational technology in Islamic education. Bibliometric mapping is well suited to an emerging and dispersed literature because it makes the intellectual and social structure of a field visible: it reveals who is publishing, where, on what, and in relation to whom, and it surfaces thematic concentrations and silences that narrative reviews can miss. Rather than surveying every possible study, the analysis deliberately examines a narrowly defined niche so that its internal structure can be read with precision. The study is guided by two research questions. RQ1 asks how research on educational technology in Islamic education has developed in terms of publication trends, influential publications, productive authors, and dominant research themes. RQ2 asks what research gaps and emerging themes can be identified from the existing scholarly landscape to inform future research. By answering these questions, the article contributes a focused, data-driven map of the field, an evidence-based account of its gaps, and a conceptual framework linking technology, pedagogy, values and ethics, and educational outcomes for future scholarship.

Method

Research design

This study employs bibliometric analysis, a quantitative approach to the study of scholarly literature that uses the metadata of publications authors, years, sources, citations, and keywords to describe and interpret the structure and development of a research field. Bibliometric and systematic review methods have become increasingly common in Islamic education and related fields as tools for consolidating dispersed literatures and identifying research directions (Ni'mah & Rahmawati, 2023; Sabrifha et al., 2023; Herlina et al., 2023; Trimulyo et al., 2026), and the same family of methods has been applied to adjacent domains such as online counselling on global issues (Ifdil et al., 2025). Following these precedents, the analysis combines descriptive performance analysis with science mapping so that both the productivity of the field and the relationships among its themes and contributors can be examined.

Data source

Data were retrieved from Scopus, chosen for its broad, quality-controlled coverage of peer-reviewed literature and its structured bibliographic metadata, which supports both performance analysis and science mapping. Reliance on a single database is a deliberate scoping decision whose implications are addressed in the Limitations section.

Search strategy

The following search string was applied to the Article title, Abstract, and Keywords field:

"Islamic education" AND ("educational technology" OR "digital learning" OR "digital education")

This formulation combines the substantive domain of Islamic education with the principal technology-related terms used in the field. The Boolean structure ensures that every retrieved document addresses Islamic education together with at least one of the three technology concepts, keeping the corpus tightly aligned with the research object.

Dataset

The search returned 41 documents, which constitute the final dataset. No date restriction was applied, so the corpus spans the full period of indexed activity, from the earliest relevant records in 2009 to publications dated 2026. The 41 documents comprise 32 journal articles, 5 conference papers, 3 book chapters, and 1 book, indicating that the field is carried primarily, though not exclusively, by the journal literature.

Data processing

The complete metadata set was exported from Scopus in CSV format, including authors, affiliations, titles, source titles, publication years, citation counts, DOIs, and author keywords. The records were then screened for completeness and consistency. Author names and keywords were normalised to consolidate variant spellings and equivalent terms before mapping for example, aligning singular and plural or hyphenated forms of the same concept so that co-occurrence and co-authorship structures would not be artificially inflated by superficial differences. The dataset was checked for duplicate entries, and bibliographic fields were verified against the exported records. No document was excluded, and no data were added beyond what the export contained; where a field such as a DOI was absent in Scopus, it was left absent rather than reconstructed.

Bibliometric techniques

Two complementary sets of techniques were used. Performance analysis described the corpus through annual publication counts, author productivity, citation counts, source distribution, and the geographic distribution of contributing affiliations. Science mapping examined the relational structure of the field through keyword co-occurrence and co-authorship analysis. Interpretation of citation counts was kept cautious: because citations accumulate over time, older documents enjoy a structural advantage, and high citation was therefore treated as evidence of scholarly attention rather than of methodological quality or intrinsic importance.

Data visualisation

VOSviewer was used to generate and visualise the science-mapping results. Four visualisations informed the analysis: a keyword co-occurrence network, in which node size reflects term frequency and links reflect co-occurrence; a keyword density map, which highlights areas of thematic concentration; a keyword overlay map, which colours terms by their average publication year to reveal temporal movement; and a co-authorship map, which displays the collaborative structure among authors. A citation-weighted document map, in which node size reflects citations received and colour reflects publication year,

was used to support the analysis of influential publications. In interpreting the overlay map, temporal claims were verified against the publication years recorded in the dataset rather than inferred from colour alone.

Results and Discussions

The results are organised to answer RQ1 (Sections 3.1–3.6) and to lay the groundwork for RQ2 (Sections 3.6–3.8). Section 3.1 presents publication development; Sections 3.2–3.5 describe authors, influential publications, sources, and geography; and Sections 3.6–3.8 examine the thematic and collaborative structure of the field. Table 1 summarises the bibliographic characteristics of the corpus.

Table 1. Bibliographic characteristics of the dataset

Characteristic	Value
Documents	41
Time span	2009–2026
Journal articles	32
Conference papers	5
Book chapters	3
Books	1
Total citations	135
Average citations per document	3.29
Documents with zero citations	13
Distinct sources	29

Note. Compiled by the authors from the Scopus export.

Publication Development

The corpus shows a long, thin tail of early activity followed by a pronounced recent surge. The earliest records date from 2009, when three documents appeared, including two studies of educational technology and Islamic pedagogy in Brunei and West Africa (Lubis, 2009; Lubis et al., 2009) and an examination of new technology in Malaysian smart schools (Hamzah et al., 2009). Activity then remained sporadic for a decade single or absent years through the 2010s, with isolated contributions such as a multimedia-development study for novice teachers (Rusydiyah et al., 2019), a transformative-learning account in an Islamic education programme (Bakar, 2020), and a pandemic-era study of learning innovation (Nursyahidin et al., 2021). The distribution changes sharply from 2024 onward: six documents in 2024, eleven in 2025, and thirteen in 2026, so that thirty of the forty-one documents (73%) fall within the final three years of the span. This trajectory is more consistent with an emerging and accelerating niche than with a mature or stagnant field, and it means that a large share of the corpus is too recent to have accumulated citations.

Table 2. Annual distribution of publications

Year	Documents	Year	Documents
2009	3	2022	2
2017	1	2023	2
2019	1	2024	6
2020	1	2025	11
2021	1	2026	13

Note. 2026 records include early-access and formally dated forthcoming publications indexed at the time of extraction.

Most Productive Authors

Author productivity is low and dispersed, which is characteristic of an early-stage field. Only one author, M. R. F. Islamy, contributed to three documents, appearing in a structural-equation study of higher-order thinking skills and flipped-classroom readiness (Supriadi et al., 2026) and in a case study of online preschool provision (Nurhayati et al., 2024). A small set of authors contributed to two documents each. M. A. Lubis authored both 2009 studies noted above (Lubis, 2009; Lubis et al., 2009), while M. Huda, M. H. Musolin, and R. O. H. Serour form a recurring collaborative nucleus visible in a highly cited study of digital record management (Huda et al., 2024) and a subsequent review of digital archive systems (Serour et al., 2026). M. S. Abubakari likewise appears twice, once as a sole author in a pilot study of digital-technology adoption (Abubakari, 2025) and once within a small team studying digital competence (Abubakari et al., 2026). The remaining authors each contributed a single document. The pattern indicates a field sustained by many one-time contributors and a few small, persistent groups rather than by established, high-output research programmes.

Table 3. Most productive authors

Rank	Author	Documents	Representative work (citations)
1	M. R. F. Islamy	3	Nurhayati et al., 2024 (10)
2	M. A. Lubis	2	Lubis, 2009 (5)
2	M. Huda	2	Huda et al., 2024 (25)
2	M. H. Musolin	2	Huda et al., 2024 (25)
2	R. O. H. Serour	2	Huda et al., 2024 (25)
2	M. S. Abubakari	2	Abubakari, 2025 (14)

Note. Counts reflect authorship across the 41-document corpus; ranks below the top are shared.

Most Influential Publications

Citation impact is concentrated in a handful of documents, most of them recent. The most cited work in the corpus, with 25 citations, examines digital record management in Islamic educational institutions and its effect on process and effectiveness (Huda et al., 2024). It is followed by an analysis of students' perceptions of educational technology in Islamic higher education (Susanto et al., 2022, 17 citations) and a pilot study of digital-

technology adoption for lifelong learning (Abubakari, 2025, 14 citations). Two 2024 studies share the next rank with ten citations each: a case study of online preschool provision (Nurhayati et al., 2024) and an evidence-based account of madrasah management strategies under a national reform programme (Haddade et al., 2024). A further cluster of five-citation studies spans the digital age from different angles an early teaching-aid study in Brunei (Lubis, 2009), a VARK-based account of student learning styles in Education 4.0 (Siregar et al., 2025), a model of digital transformation in the AI era (Wedi et al., 2025), and an analysis of continuance intention toward digital education (Hamdanah et al., 2024) together with acceptance- and practice-oriented work on digital learning and mobile-assisted Arabic instruction (Ansyah, 2022; Idhan et al., 2026). The prominence of management, adoption, and perception studies suggests that the field's most visible contributions to date have addressed the organisational and attitudinal conditions of technology use rather than its deeper pedagogical or normative transformation. Figure 1 displays the citation-weighted document map, in which node size reflects citations and colour reflects publication year.

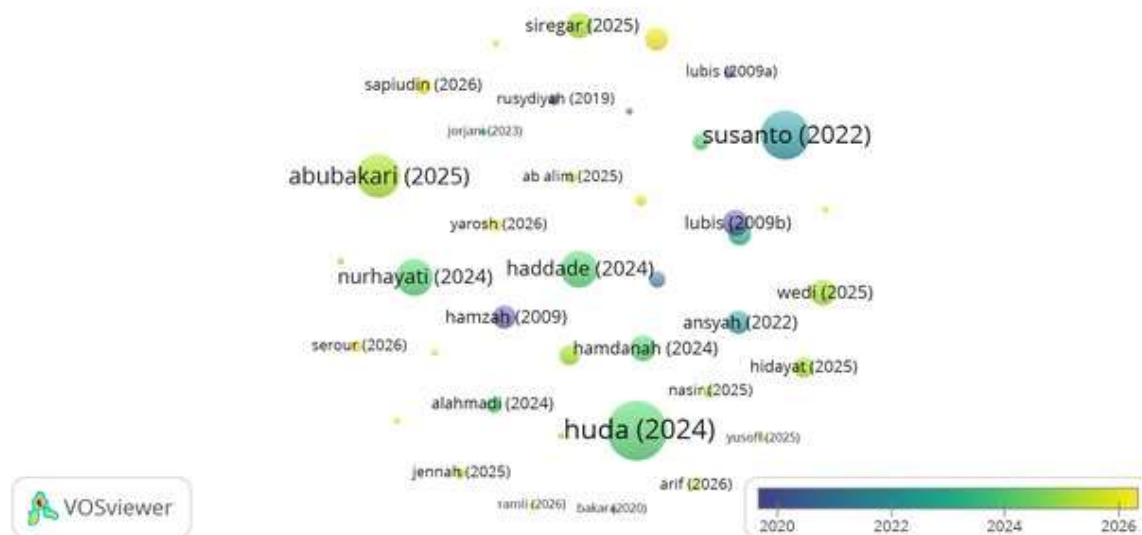


Figure 1. Citation-weighted document map (node size = citations received; colour = publication year).

Table 4. Most cited publications

Rank	Author(s)	Year	Focus	Citations
1	Huda et al.	2024	Digital record management	25
2	Susanto et al.	2022	EdTech; student perceptions	17
3	Abubakari	2025	Digital-technology adoption	14
4	Nurhayati et al.	2024	Online preschool programmes	10
4	Haddade et al.	2024	Madrasah management reform	10
6	Lubis	2009	EdTech as teaching aid	5
6	Siregar et al.	2025	VARK model; Education 4.0	5
6	Wedi et al.	2025	Digital transformation, AI era	5

Rank	Author(s)	Year	Focus	Citations
6	Hamdanah et al.	2024	Continuance intention	5

Leading Journals and Sources

Publication is spread thinly across a large number of outlets: the 41 documents appeared in 29 distinct sources, and no venue dominates. The most productive source is the Jurnal Pendidikan Agama Islam, with four documents ranging from pandemic-era innovation to digital-literacy and video-media studies (Nursyahidin et al., 2021; Reksiana et al., 2024; Jennah et al., 2025; Supriadi et al., 2026). It is followed by the International Journal of Learning, Teaching and Educational Research, with three documents on perceptions, augmented reality, and digital transformation (Susanto et al., 2022; Mustafa et al., 2025; Wedi et al., 2025). Several outlets carried two documents each, including WSEAS Transactions on Information Science and Applications (Lubis, 2009; Lubis et al., 2009), Munaddhomah (Cahyadi et al., 2025; Ramli et al., 2026), Cogent Education (Nurhayati et al., 2024; Abubakari et al., 2026), Lecture Notes in Networks and Systems (Huda et al., 2024; Serour et al., 2026), Quranica (Nasir et al., 2025; Ab Alim et al., 2025), and Online Learning in Educational Research (Arif et al., 2026; Alfurqan et al., 2026). The remaining twenty-two documents appeared in outlets that each carried a single item, spanning education, information science, management, and area studies. The dispersion indicates that the field does not yet have a settled disciplinary home and is instead distributed across the outlets of several adjacent communities.

Table 5. Leading sources (two or more documents)

Source	Documents
Jurnal Pendidikan Agama Islam	4
International Journal of Learning, Teaching and Educational Research	3
WSEAS Transactions on Information Science and Applications	2
Munaddhomah	2
Cogent Education	2
Lecture Notes in Networks and Systems	2
Quranica	2
Online Learning in Educational Research	2
Other sources (one document each)	22

Country and Institutional Distribution

Affiliation data were available for 40 of the 41 documents and reveal a strong geographic concentration. Indonesian institutions appear in roughly three-fifths of the corpus, and Malaysian institutions in about a quarter, so that the two countries together account for the great majority of contributing affiliations. Malaysian and Bruneian work is prominent in the study of Quran-memorisation technologies and integrated Islamic schooling (Hamzah et al., 2009; Lubis, 2009; Nasir et al., 2025; Ab Alim et al., 2025; Yusoff et al., 2025), while Indonesian institutions carry the bulk of studies on madrasah reform, digital literacy, and digital transformation. Beyond this Southeast Asian core, single documents originate from the United Arab Emirates (Mustafa et al., 2025), Saudi Arabia (Alahmadi et al., 2024), Iran (Jorjani et al., 2023), Uzbekistan (Botirova &

Omonova, 2026), the CIS region (Yarosh, 2026), South Africa (Waghid & Waghid, 2017), and Morocco (Arif et al., 2026). Because affiliation strings were parsed at the country level and one record lacked usable affiliation data, these figures should be read as indicative of concentration rather than as precise institutional counts. The picture is nonetheless clear: the field is presently an Indonesian–Malaysian enterprise with only limited participation from other parts of the Muslim world and the wider international community.

Keyword Structure and Dominant Themes

Keyword co-occurrence analysis exposes a clear core periphery structure. The most frequent author keyword is "Islamic education" (13 occurrences), followed by "educational technology" (7) and "digital learning" (5); a middle band includes "digital literacy," "Islamic values," "Islamic pedagogy," "artificial intelligence," "learning technology," "Quran memorization," and "Islamic religious education" (two to three occurrences each). The network and density maps (Figures 2 and 3) show these high-frequency terms forming a dense, tightly linked core around Islamic education, digital learning, digital literacy, educational development, students, and augmented reality, with digital education adjoining the core. Studies contributing to this core address digital-learning acceptance (Ansyah, 2022), digital literacy among teachers and pre-service teachers (Reksiana et al., 2024; Alfurqan et al., 2026), and augmented and virtual reality for religious content (Mustafa et al., 2025; Alahmadi et al., 2024).

Surrounding this core is a scattered set of peripheral terms that are weakly linked to it: "cyber-ethics," "deontological approach," "madrasah management," "ethnoreligious value integrity," "al-qur'an hadith," "classroom management innovation," "education technology," "CIS," "capabilities," and "CFA." Each of these corresponds to a small number of documents that address a specialised concern ethical and values-based pedagogy (Yusuf et al., 2026; Botirova & Omonova, 2026; Cahyadi et al., 2025), madrasah governance (Haddade et al., 2024), value integrity in higher-order thinking (Supriadi et al., 2026), digital media for Qur'an Hadith learning (Jennah et al., 2025), AI-supported classroom management (Tumiran et al., 2026), regional platform studies (Yarosh, 2026), and methodological or competence constructs from adjacent fields (Jorjani et al., 2023; Abubakari et al., 2026). Their peripheral position, distant from the dense core and weakly connected to it, indicates that these themes have not yet been integrated into the mainstream of the field. Table 6 contrasts the dominant core themes with the peripheral and emerging ones.

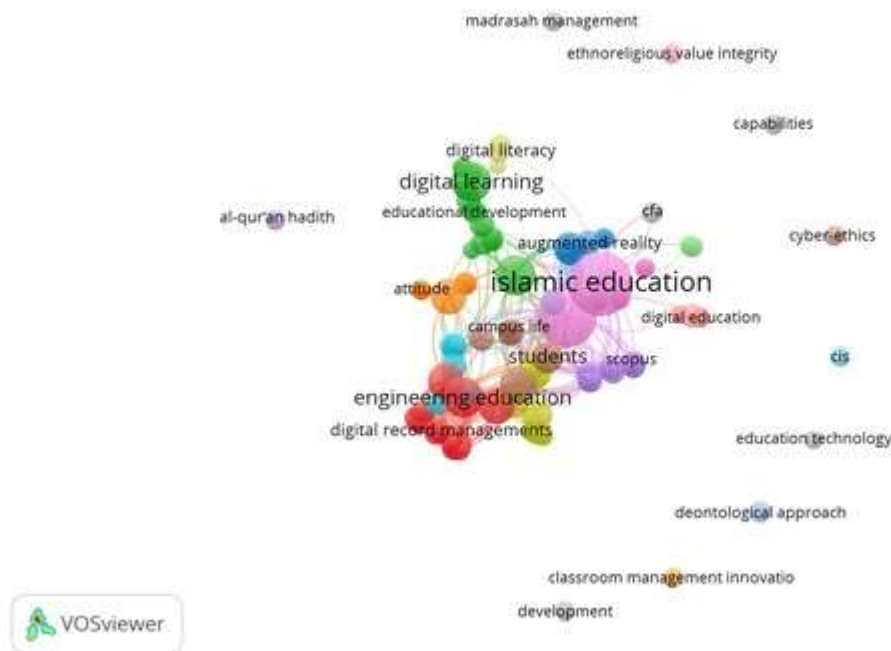


Figure 2. Keyword co-occurrence network (node size = frequency; colours = clusters).

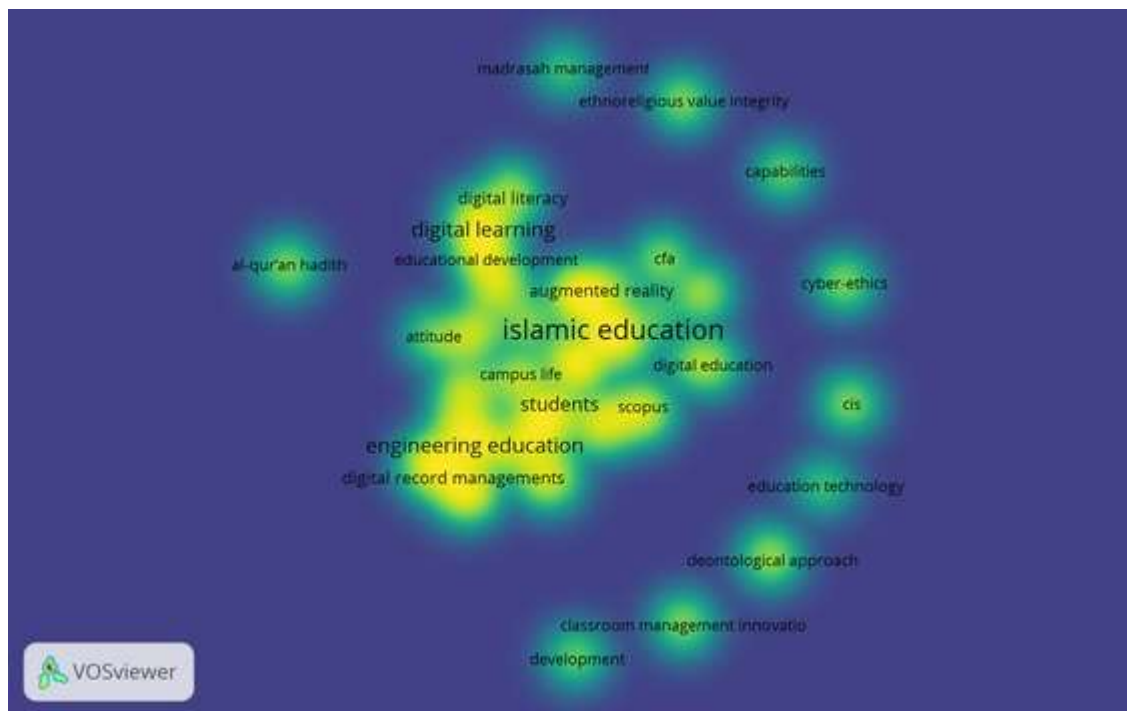


Figure 3. Keyword density visualisation (brighter areas = higher concentration).

Table 6. Dominant, peripheral, and emerging themes

Position	Representative keywords	Interpretation
Core (dominant)	Islamic education; digital learning; educational technology; digital literacy; students; educational development	Well-developed, tightly linked; focused on adoption, access, and learning support
Peripheral	madrasah management; al-qur'an hadith; capabilities; education technology; CIS	Specialised, weakly connected concerns addressed by few documents
Emerging	artificial intelligence; augmented reality; cyber-ethics; deontological approach; classroom management innovation	Recent, low-frequency terms appearing mainly in 2025–2026 documents

Temporal Evolution of Research Themes

The overlay map (Figure 4), which colours terms by their average publication year, indicates a discernible movement in the field's thematic centre of gravity. The earliest activity centred on introducing technology as a teaching aid and gauging its reception in schools (Lubis, 2009; Lubis et al., 2009; Hamzah et al., 2009), followed by multimedia development and, during the pandemic, emergency innovation (Rusydiyah et al., 2019; Nursyahidin et al., 2021). A subsequent wave, verifiable in the 2022–2025 records, applied acceptance and behavioural-intention models to digital learning, management information systems, and mobile applications (Ansyah, 2022; Hidayat et al., 2025; Idhan et al., 2026; Hamdanah et al., 2024). The newest terms in the map appearing predominantly in 2025 and 2026 documents cluster around artificial intelligence, immersive technologies, ethics, and management: AI for Quran memorisation and personalised learning (Nasir et al., 2025; Ab Alim et al., 2025; Shehab et al., 2025), AI in Islamic religious education more broadly (Arif et al., 2026; Wedi et al., 2025; Tumiran et al., 2026), augmented and virtual reality for religious content (Mustafa et al., 2025; Alahmadi et al., 2024), and digital archive and record systems (Serour et al., 2026; Huda et al., 2024), alongside instructional resources such as a comprehensive Islamic-studies teaching module (Yusoff et al., 2025). The trajectory suggests a shift from establishing and legitimising technology use toward experimenting with more advanced and specialised applications, though the recency of these themes means they remain thinly developed.

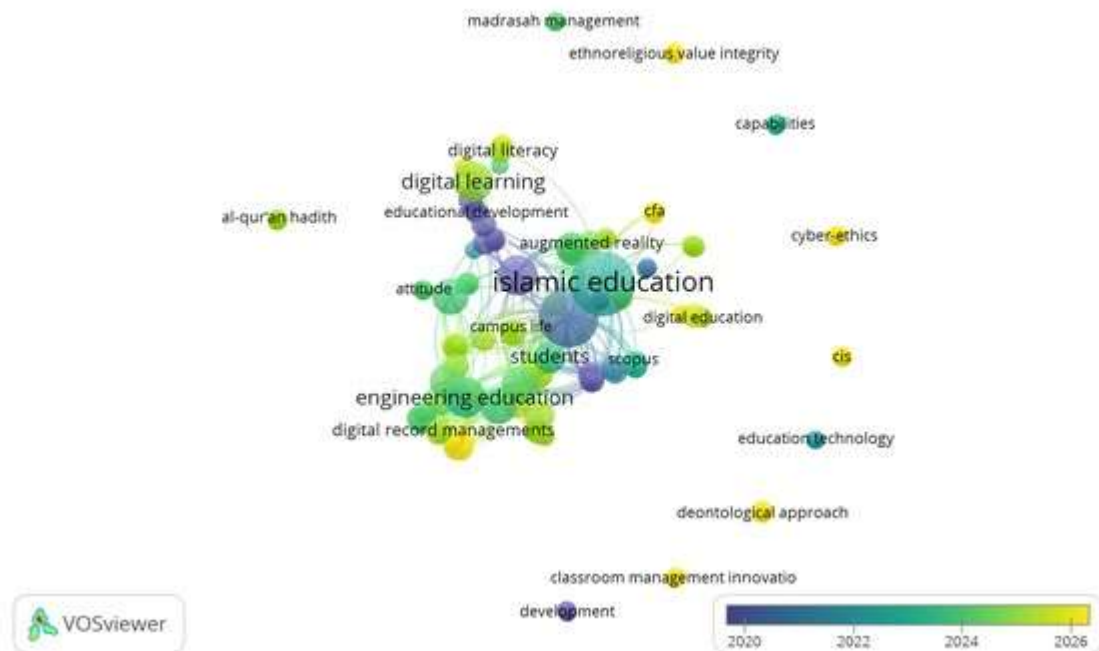


Figure 4. Keyword overlay visualisation (colour = average publication year of the term).

Co-authorship Structure

The co-authorship map (Figure 5) displays a highly fragmented collaborative landscape composed of many small, internally cohesive clusters with few links between them. Rather than a single connected research community, the field consists of dispersed teams that tend to co-publish within themselves and only rarely across group boundaries. The clearest example of a persistent group is the Huda–Musolin–Serour nucleus already noted, which co-authored consecutive studies of digital records and archives (Huda et al., 2024; Serour et al., 2026); a further thread runs through the recurring contributions of Islamy across separate teams (Supriadi et al., 2026; Nurhayati et al., 2024). Several sizeable author clusters visible in the map correspond to the larger writing teams behind individual multi-author studies rather than to sustained cross-institutional collaboration. Because the map reflects only the 41 documents in the corpus, the structure it shows should be read as suggestive of limited and localised collaboration rather than as a definitive account of all cooperation among researchers in the area.

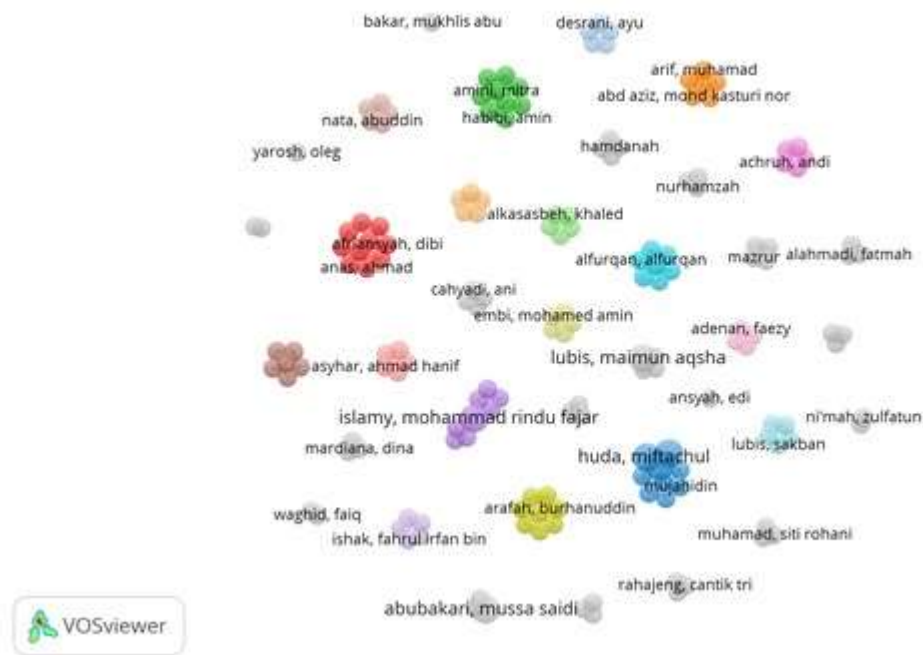


Figure 5. Co-authorship network of authors in the corpus.

Development of the field

Read together, the performance and mapping results describe a field that is emerging and accelerating rather than mature or dormant. The steep rise in output after 2023, concentrated in journal articles but reaching into conference proceedings and edited volumes, signals rising scholarly attention; at the same time, the low average citation count, the large share of uncited recent work, and the dispersion across many outlets mark a literature that has not yet consolidated. The corpus is small, but its size is better understood as a feature of a specialised and recently activated niche than as evidence that the topic is unimportant. This interpretation is reinforced by the temporal overlay, which shows the newest and most experimental themes entering the field precisely in the period of most rapid growth.

Dominant research orientation

The thematic core reveals what the field has chosen to study first. Adoption, acceptance, perception, and access recur throughout the most visible work: whether digital learning is accepted (Ansyah, 2022), how students perceive educational technology (Susanto et al., 2022; Siregar et al., 2025), whether management information systems and mobile applications are taken up (Hidayat et al., 2025; Idhan et al., 2026), and whether users intend to continue using digital provision (Hamdanah et al., 2024). This orientation is understandable in a field establishing itself, but it implies that research has so far concentrated on the conditions and antecedents of technology use rather than on how technology reshapes Islamic pedagogy itself. Studies that push toward deeper pedagogical or epistemological transformation such as work integrating higher-order thinking with ethno-religious value integrity (Supriadi et al., 2026) or reworking Fiqh instruction through a cyber-scientific approach (Sapiudin et al., 2026) remain comparatively rare. The dominant orientation, in short, is toward getting technology adopted rather than toward rethinking teaching and learning through it.

Fragmentation of the research community

The co-authorship structure helps explain why the literature remains uneven. A field carried by many one-time contributors and a few small, self-contained teams accumulates knowledge slowly, because findings are not systematically taken up and extended across groups. The weak inter-group linkage visible in the map, combined with the heavy concentration of activity in Indonesia and Malaysia, suggests that the field's development depends on a relatively narrow set of actors and contexts. Strengthening cross-institutional and international collaboration would likely accelerate consolidation and broaden the range of settings in which claims are tested.

Research gaps

Several gaps follow directly from the mapping. First, the ethical and values dimension of educational technology arguably the distinctive concern of Islamic education sits at the periphery of the network rather than at its centre; cyber-ethics, deontological pedagogy, and value integration appear only in isolated, recent studies (Yusuf et al., 2026; Botirova & Omonova, 2026; Cahyadi et al., 2025). Second, immersive technologies are present but thin: augmented and virtual reality appear in only a small number of documents (Mustafa et al., 2025; Alahmadi et al., 2024), leaving their pedagogical value for religious learning largely unexplored. Third, artificial intelligence, though clearly the field's fastest-rising theme, is represented almost entirely by very recent and lightly cited work (Nasir et al., 2025; Ab Alim et al., 2025; Shehab et al., 2025; Arif et al., 2026; Tumiran et al., 2026) and has not yet been integrated with established pedagogical or ethical frameworks. Fourth, digital literacy especially the capacity to evaluate religious information online remains underdeveloped relative to its importance, appearing in only a handful of teacher-focused studies (Reksiana et al., 2024; Alfurqan et al., 2026). Fifth, infrastructural and management topics such as records, archives, and information systems (Huda et al., 2024; Serour et al., 2026; Hidayat et al., 2025; Haddade et al., 2024) are developing in relative isolation from the pedagogical mainstream. Finally, the geographic concentration of the corpus leaves large parts of the Muslim world underrepresented, and several locally grounded studies (Jennah et al., 2025; Idhan et al., 2026; Ramli et al., 2026; Yarosh 2026) have not yet been connected into comparative or cumulative lines of inquiry. The presence of boundary cases from adjacent fields (Jorjani et al., 2023) further underscores how loosely some retrieved themes attach to the core.

Emerging research directions

The same peripheral and recent themes that constitute gaps also mark the field's most promising openings. Artificial intelligence in Islamic education generative tools for learning, AI-assisted pedagogy, AI literacy among students, and the ethics of AI use can be pursued as an emerging opportunity rather than treated as an already-dominant theme, precisely because the current evidence base is so new (Shehab et al., 2025; Arif et al., 2026; Nasir et al., 2025). Augmented and immersive learning invites focused study of Qur'an and Islamic-history instruction, virtual learning environments, and their effects on engagement and outcomes (Mustafa et al., 2025; Alahmadi et al., 2024). An Islamic digital pedagogy that integrates contemporary technologies with character, moral, and spiritual formation building on transformative-learning and democratic-engagement perspectives (Bakar, 2020; Waghid & Waghid, 2017) remains largely to be articulated. And the intersection of technology, education, and Islamic ethics, currently peripheral, is well positioned to move toward the centre as cyber-ethics and values-based models mature (Yusuf et al., 2026; Botirova & Omonova, 2026; Sapiudin et al., 2026). These directions emerge from the bibliometric evidence rather than being imposed on it.

Theoretical contribution

By mapping a focused corpus, the study offers a structured account of the intellectual development of educational technology in Islamic education—showing how the field moved from treating technology as an aid, through a phase preoccupied with adoption and acceptance, toward a frontier of AI, immersive media, and ethics. This account provides a shared reference point that a fragmented literature has lacked, and it clarifies the relationship between what the field studies most (adoption and access) and what its distinctive mission would suggest it should study more (values, ethics, and pedagogical transformation).

Practical contribution

For institutions and policymakers, the findings indicate that investment has so far concentrated on introducing and legitimising technology, and that the next priority is integrating it with Islamic pedagogy and values. For teachers and curriculum developers, the underdevelopment of digital literacy and cyber-ethics points to concrete curricular needs, particularly the capacity to evaluate religious information and to use technology responsibly. For educational-technology developers, the emerging interest in AI and immersive tools for Qur'an learning and language instruction (Nasir et al., 2025; Alahmadi et al., 2024; Idhan et al., 2026) signals where design effort aligned with Islamic educational values could be most valuable.

These directions can be organised into a four-dimensional framework in which technology serves pedagogy, both are governed by Islamic values and ethics, and all are directed toward educational outcomes. In the first dimension, technology, sit AI, augmented and immersive media, and digital platforms (Shehab et al., 2025; Mustafa et al., 2025; Alahmadi et al., 2024). These feed the second dimension, pedagogy, understood as an Islamic digital pedagogy oriented to engagement and learning (Siregar et al., 2025; Sapiudin et al., 2026). The third dimension, values and ethics, encompasses Islamic ethics, cyber-ethics, and responsible technology use (Yusuf et al., 2026; Botirova & Omonova, 2026). The fourth dimension, educational outcomes, includes digital literacy, character and spiritual development, and critical thinking (Reksiana et al., 2024; Bakar, 2020). Framing future work in these terms keeps technology in the service of the ends that Islamic education exists to pursue, and it locates the field's current gaps values, ethics, and genuine pedagogical transformation at the centre rather than the margin.

Conclusions

This bibliometric analysis of 41 Scopus-indexed documents set out to map the field of educational technology in Islamic education and to identify its gaps and emerging themes. In answer to RQ1, the field has developed from sporadic early studies in 2009 into a rapidly expanding niche, with nearly three-quarters of its output appearing in 2024–2026; it is concentrated in Indonesia and Malaysia, dispersed across many outlets, produced by small and weakly connected author groups, and thematically organised around a dense core of Islamic education, digital learning, digital literacy, and educational technology in which adoption- and acceptance-oriented studies predominate. Its most influential publications to date address digital record management, student perceptions, technology adoption, and madrasah reform. In answer to RQ2, the analysis identifies clear gaps the peripheral status of ethics and values, the thinness of immersive-technology research, the recency and low integration of artificial-intelligence work, the underdevelopment of digital literacy, and the isolation of infrastructural topics from the pedagogical mainstream and correspondingly

promising directions in AI, immersive learning, Islamic digital pedagogy, and the integration of technology with Islamic values and ethics. The study's central interpretive point is that the small and fragmented corpus reflects an emerging and specialised niche rather than an unimportant one, and that the field's most distinctive opportunity lies in moving values, ethics, and pedagogical transformation from the margin to the centre. Its contribution is a focused, evidence-based map of the field and a four-dimensional framework linking technology, pedagogy, values and ethics, and educational outcomes to guide future scholarship in Islamic education.

Several limitations bound these findings. The analysis draws on a single database, Scopus, whose coverage, while extensive and quality-controlled, is not exhaustive and underrepresents regionally indexed and non-English work that is significant for Islamic education; studies indexed elsewhere therefore fall outside the corpus. The search string, though carefully constructed, is specific, and alternative terminology would retrieve a partly different set of documents. The final dataset of 41 documents is deliberately focused rather than comprehensive; it should not be read as the totality of global research on the topic, and its size is a scoping consequence rather than a methodological failure the narrow corpus permits close examination of a specialised niche but limits broad generalisation. Bibliometric indicators depend on database coverage and keyword formulation, and citation counts structurally favour older publications, so the many recent documents in this corpus are necessarily under-cited and their eventual impact cannot yet be assessed. Country-level attribution was derived by parsing affiliation strings and one record lacked usable affiliation data, so geographic figures are indicative rather than exact. Finally, bibliometric mapping describes the structure of a literature but does not evaluate the quality of individual studies or establish causal relationships; the patterns reported here are associational and interpretive, and the language of the analysis has been kept correspondingly cautious.

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