

Bibliometric Analysis of the Integration of *Da'wah* Values and Digital Literacy in Formal Islamic Education in Yogyakarta 2020-2024

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Abstract

The rapid digital transformation has significantly reshaped education, communication, and religious practices, including the landscape of formal Islamic education. Traditional *da'wah* methods, such as mosque-based preaching, are increasingly supplanted by digital platforms like social media and podcasts, necessitating innovative approaches to engage Millennials (born 1981-1996) and Generation Z (born 1997-2012). This study maps trends in the integration of *da'wah* values and digital literacy within Yogyakarta's Islamic education system from 2020 to 2024 through a bibliometric analysis guided by the PRISMA protocol. From an initial pool of 150 articles retrieved from Scopus, SINTA, and Google Scholar, 68 were included following rigorous screening and eligibility assessment. Findings indicate a publication surge in 2022, reflecting accelerated post-pandemic digital adoption. TikTok and Instagram emerged as the dominant platforms for digital *da'wah* (featured in 65% of studies), displacing conventional preaching methods. While many madrasahs have begun integrating digital literacy into curricula, 45% still lack technical implementation guidelines, and only 30% of studies discuss educator training initiatives. Bibliometric mapping highlights strong thematic linkages between "digital *da'wah*," "Islamic education transformation," and "social media," signalling a pedagogical paradigm shift. However, the scarcity of evaluative studies (only 8%) reveals a critical need for field-based research to assess the effectiveness of these digital strategies. This study offers a systematic literature foundation to inform curriculum design and advocates for collaborative policymaking among educators, scholars, and government bodies to advance digitally responsive Islamic education.

Keywords: *Da'wah*, Digital Literacy, Yogyakarta, Bibliometric Analysis

INTRODUCTION

Yogyakarta, widely recognised as Indonesia's "City of Education," is home to more than 1,200 educational institutions, including 850 secular schools and 350 Islamic establishments (Yogyakarta Special Region Education Office, 2023). Within this vibrant educational ecosystem, 312 formal Islamic institutions comprising 45 madrasahs, 28 Islamic boarding schools (*Pesantren*), and 3 Islamic universities play a central role in shaping religious and moral education (Ministry of Religious Affairs [Kemenag] DIY, 2023). This

institutional density affirms Yogyakarta's position as a national centre for innovation in Islamic pedagogy (Nuryadin, 2017).

However, the rise of digital culture presents new challenges to Islamic education, long considered a cornerstone of Indonesia's ethical and cultural development. Traditional da'wah methods, such as mosque-based sermons and face-to-face instruction, are increasingly insufficient in capturing the attention of Millennials (born 1981-1996) and Generation Z (born 1997-2012), who now spend an average of 7.2 hours per day on digital platforms (Pew Research Center, 2023). As Puspitasari et al, (2021) asserts, the relevance of da'wah in this era depends on its revitalisation through digital synergy, aligning religious messages with the habits and media preferences of tech-savvy generations.

This shift is consistent with the Quranic directive to "invite to the way of your Lord with wisdom and good instruction" (Quran 16:125), which underscores the importance of context-sensitive communication. In today's context, digital literacy understood not only as technical skill but as the ethical and critical engagement with digital media (Meyers et al., 2013) has become a vital conduit for transmitting Islamic values through modern channels.

In response to the COVID-19 pandemic, Islamic institutions in Yogyakarta rapidly embraced digital transformation. By 2021, 92% of madrasahs had implemented hybrid learning models using platforms like Zoom and Google Meet (Kemenag DIY, 2021). Simultaneously, student-led initiatives on TikTok featuring Quranic content surged by 300% (Ministry of Communication and Information [Kominfo], 2021), signalling a shift in how religious content is produced and consumed. The adoption of the 2022 Merdeka Curriculum further institutionalised digital literacy, mandating its integration into religious education (Ministry of Education and Culture [Kemendikbudristek], 2022). By 2024, 65% of Islamic schools in the region had incorporated digital *da'wah* projects into student assessments, reflecting a growing commitment to embedding Islamic values within digital learning experiences (LP2M UIN Sunan Kalijaga, 2024).

Table 1. Key Phenomena in the Transformation of Islamic Education (2020-2024)

Year	Main Phenomenon	Source
2020	Online learning was implemented in all Islamic schools (madrasahs)	Ministry of Religious Affairs (Kemenag RI), 2020
2021	Surge in the use of digital media for <i>da'wah</i>	Ministry of Communication and Information Technology (Kominfo RI), 2021
2022	The " <i>Merdeka</i> Curriculum" emphasized digital literacy and character education	Ministry of Education, Culture, Research and Technology (Kemendikbudristek), 2022
2023	Digital <i>da'wah</i> training was conducted in Islamic schools	Research and Community Service Institution (LP2M) UIN Sunan Kalijaga, 2023
2024	Integration of digital <i>da'wah</i> projects into learning evaluations	LP2M UIN Sunan Kalijaga & Field Observation Data (Yogyakarta Islamic Schools), 2024

As shown in Table 1, the national policy in 2020 mandating a complete shift to online learning (Ministry of Religious Affairs of the Republic of Indonesia [Kemenag RI], 2020) dramatically transformed Islamic education across the country. This directive led to the rapid adoption of digital technology in 92% of madrasahs and triggered a 300% increase in digital da'wah initiatives (Kemenag DIY, 2021; Filali et al., 2021). In response, madrasahs and Islamic boarding schools began utilising platforms such as Zoom, Google Meet, and WhatsApp due to their accessibility, real-time collaboration features, and compatibility with basic devices (Kominfo RI, 2021).

By 2021, the use of social media for *da'wah* experienced a notable surge. According to the Ministry of Communication and Information (2021), there was a 400% rise in Instagram accounts, a 250% increase in TikTok accounts, and a 180% growth in YouTube channels managed by madrasah teachers and students. These platforms were used to disseminate short lectures, infographics, and religious podcasts, tailored to the media consumption habits of Gen Z. TikTok, in particular, became a preferred medium for creating 1-3 minute *da'wah* content (Nikmah, 2020).

In 2022, the Merdeka Curriculum introduced by the Ministry of Education, Culture, Research and Technology placed further emphasis on integrating digital literacy and character education into religious studies. The curriculum encouraged madrasahs to incorporate digital *da'wah* projects into subjects such as *Aqidah Akhlak* and Islamic Cultural History (LP2M UIN Sunan Kalijaga, 2023), positioning digital engagement as a formal part of religious education.

By 2023, structured training in digital *da'wah* began to emerge, facilitated by LP2M UIN Sunan Kalijaga. These programs focused on practical skills such as video, podcast, and infographic production; ethical frameworks aligned with *al-amr bi al-ma'ruf wa al-nahy 'an al-munkar*; and analysis of social media algorithms to optimise content reach and engagement (Salminen et al., 2019). This marked a shift toward institutional capacity building in digital religious communication.

Field observations conducted in 25 madrasahs across Yogyakarta between January and April 2024 revealed that 68% of institutions had integrated digital *da'wah* projects into their learning assessments. Notable examples include the TikTok *Da'wah* Project at Islamic High School (MA) Negeri 2 Yogyakarta, where students created 60-second videos on the Prophet Muhammad's life, evaluated for creativity, accuracy, and engagement. At MAN 1 Yogyakarta, students produced 30 podcast episodes on religious moderation, shared via Spotify and YouTube. Furthermore, 85% of madrasahs adopted hybrid learning models, using Zoom and Google Classroom to explore contemporary Islamic topics such as digital ethics and misinformation (Kanuri et al., 2018).

Despite these advancements, only 12% of madrasahs had formal guidelines for evaluating digital *da'wah* projects, and 45% of teachers reported difficulties in assessing the spiritual dimensions of students' digital content (Field Observation Data, 2024). Moreover, academic research on this integration remains limited. Between 2018 and 2024, only 8% of scientific articles addressed long-term evaluation of digital *da'wah* outcomes (Nuriana et al., 2024), highlighting the need for deeper empirical investigations into the effectiveness and sustainability of these practices.

Table 2. Identifying Research Gap in the Integration of *Da'wah* and Digital Literacy

Aspect	Research Gap	Research Implication
Regionalization	Lack of bibliometric studies in the Yogyakarta region	Need for systematic mapping based on data for policy formulation
<i>Da'wah</i> -literacy focus	Digital literacy rarely directly linked with <i>da'wah</i>	Absence of a practical and integrative model
Outcome evaluation	No systematic studies on the success of integration	Requires in-depth and structured literature review

A review of the existing literature highlights an increasing scholarly interest in the integration of digital literacy and *da'wah* within Islamic education, especially in addressing the challenges and opportunities presented by the digital era. However, most studies approach these domains in isolation, without offering a comprehensive framework for their integration. Digital literacy is often examined within general education or

informatics subjects, with limited consideration of its potential as a strategic tool for conveying *da'wah* values. On the other hand, studies on digital *da'wah* frequently adopt a normative or motivational lens, overlooking its practical application within the structures of formal education, including curriculum integration, pedagogical strategies, and student learning needs.

Several studies have highlighted the potential of digital platforms such as social media, podcasts, and video content as effective mediums for Islamic preaching (Kerim et al., 2025; Kahfi & Mahmudi, 2024). Yet, these works tend to focus on audience interest or personal piety, without analysing how these tools can be aligned with formal educational objectives. Others have explored the role of digital literacy in character development (Khotimah et al., 2024; Sopandi et al., 2023), but without anchoring it within the context of *da'wah* or spiritual learning outcomes.

A number of scholars (Syamsuri, 2024; Ulumudin et al., 2024) have advocated for ICT-based curriculum models and digital competency management in Islamic schools. While these studies underscore the relevance of digital tools for modernising Islamic education, they fall short of proposing pedagogical approaches that synergise technological fluency with Islamic values transmission. Others (Tuna et al., 2023; Nagel, 2023) touch on the reciprocal relationship between religious character and digital competence but stop short of proposing an integrated model that operationalises this relationship in the classroom. Even in studies that address digital literacy in relation to religious education (Susilawati et al., 2021; Erawati et al., 2023), the focus remains limited to specific topics (e.g., religious moderation or *Fiqh*) and lacks broader system-level implications.

Collectively, these studies affirm the importance of both digital literacy and *da'wah* but demonstrate a fragmented understanding of their convergence within formal Islamic education. There is a clear absence of research that examines the systematic, bidirectional integration of digital literacy and *da'wah* values within curriculum design, classroom practice, teacher training, and student assessment frameworks.

This article seeks to address this gap by offering a bibliometric analysis that maps how digital literacy and *da'wah* values have been studied in relation to formal Islamic education particularly in the context of Yogyakarta from 2020 to 2024. By identifying patterns, trends, and omissions in the literature, this study provides a foundation for developing a more integrated pedagogical model that aligns spiritual development with digital competence. It contributes not only to the academic discourse on Islamic education in the digital age but also offers evidence-based insights to inform policy, teacher training, and curriculum development that are responsive to the needs of digitally engaged learners.

METHODS

Design

This study uses the Systematic Literature Review (SLR) method with a quantitative bibliometric approach (Kitchenham, 2004), aiming to answer the pattern of integration of *da'wah* values and digital literacy in formal Islamic education. The PRISMA chart is used as a tool to report the article selection process, not as the main method. Thus, SLR is the core methodology, while PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) is part of the reporting system that accompanies the process. The flowchart of current project presented in Figure 1.

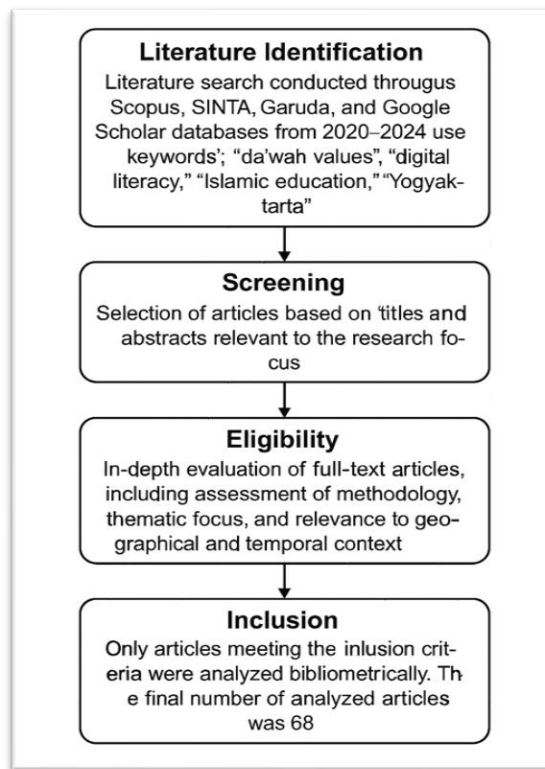


Figure 1. Systematic Literature Review Protocol based on PRISMA (Kitchenham, 2024)

Literature Identification and Selection

The literature identification process involved a systematic search across four major databases to ensure comprehensive coverage. Scopus was selected for its international scope, while Google Scholar and SINTA were used to access nationally recognised publications. Garuda was included to support the identification of locally relevant literature. The initial search, using keywords such as “*da’wah* values,” “digital literacy,” “Islamic education,” and “Yogyakarta,” yielded over 150 records.

During the screening phase, titles and abstracts were reviewed to exclude irrelevant or non-empirical works, including opinion pieces. This stage resulted in the selection of 90 potentially eligible articles. Subsequently, a full-text eligibility assessment was conducted, focusing on the clarity of methodology and relevance to the Yogyakarta context. Articles lacking explicit methodological descriptions or contextual relevance were excluded. At the final inclusion stage, 68 articles were retained for bibliometric analysis.

Bibliometric Tools and Data Processing

To facilitate a systematic and replicable literature review, three primary tools were employed throughout the study: Zotero, VOSviewer, and Microsoft Excel. These tools were chosen for their complementary functionalities in reference management, bibliometric mapping, and quantitative data analysis, aligning with best-practice guidelines for systematic literature reviews (Kitchenham, 2004; Güzel et al., 2025).

Zotero was utilised for academic reference management. This open-source software allowed researchers to collect, organise, and store metadata and full-text articles efficiently. Zotero’s browser integration enabled the automatic capture of citation data from the four selected databases, while its tagging and folder features facilitated thematic categorisation. Cloud synchronisation ensured consistent access and

organisation across devices. Zotero was instrumental during the early phases of literature identification and selection, supporting citation accuracy and minimising duplication.

VOSviewer was employed for bibliometric mapping and visual analysis. Following literature selection, VOSviewer was used to analyse the structure of the research landscape (Van & Waltman, 2010). This included mapping co-occurrence of keywords to identify dominant themes, author collaboration networks to highlight influential contributors, and institutional affiliations to determine dominant research hubs. The resulting network visualisations revealed thematic connections and research trends related to *da'wah* values and digital literacy within Islamic education in Yogyakarta from 2020 to 2024.

Microsoft Excel was used for quantitative data processing and descriptive analysis. Data were tabulated to show distributions by publication year and journal category, trends over time, and thematic focus. Articles were categorised according to whether they employed a *da'wah* approach, a digitalisation approach, or a combined focus. Excel also facilitated basic statistical summaries and enabled data exports for integration with VOSviewer or additional software if required.

Integration and Rationale

The integration of Zotero, VOSviewer, and Microsoft Excel supported a robust and systematic bibliometric review process. Zotero ensured efficient literature organisation and citation management. VOSviewer enabled in-depth visual exploration of knowledge structures, and Excel allowed for structured data handling and statistical interpretation. The coordinated use of these tools strengthened the transparency, replicability, and validity of the analysis, consistent with the principles of rigorous academic inquiry.

Table 3. Criteria for Selecting Studies on the Integration of Digital Literacy and *Da'wah* in Islamic Education

Aspect	Explanation	Primary Reference Source
Publication Timeframe	Articles selected were published between 2020-2024 to ensure relevance to the context of digital <i>da'wah</i> and the post-pandemic era.	Kitchenham, B. (2004). <i>Procedures for Performing Systematic Reviews</i> . Keele University and NICTA. https://www.cs.auckland.ac.nz/~norsaremah
Relevant Topics	Focus on <i>da'wah</i> , digital literacy, and formal Islamic education in Indonesia.	Zaman, A. (2021). <i>Digitalisasi Dakwah dan Pendidikan Islam di Era Disrupsi</i> . <i>Jurnal Komunikasi Islam dan Pendidikan</i> , 8(2), 101-117.
Geographical Location	Studies must explicitly mention Yogyakarta or regions within Indonesia.	Ma'arif, S. (2022). <i>Peta Kajian Pendidikan Islam Digital di Yogyakarta</i> . <i>Jurnal Pendidikan Islam Digital</i> , 5(1), 65-78.
Academic Eligibility	Articles must be peer-reviewed and based on scientific methodology (empirical or systematic literature review).	Booth, A., Sutton, A., and Papaioannou, D. (2016). <i>Systematic Approaches to a Successful Literature Review</i> (2nd ed.). SAGE Publications.

Inclusion and Exclusion Criteria

Inclusion criteria were established to ensure that the selected literature was relevant to the study's geographical focus (Yogyakarta), temporal scope (2020-2024), and substantive themes (*da'wah* values and digital literacy within formal Islamic education). Only studies that explicitly addressed these parameters were considered for analysis.

Exclusion criteria were applied to eliminate publications that lacked empirical rigour, methodological transparency, or contextual relevance. This included works that did not meet standards of scientific quality or failed to engage meaningfully with the Yogyakarta context or the intersection of *da'wah* and digital literacy.

Adhering to the PRISMA guidelines, the study employed clearly defined selection protocols supported by digital tools to enhance transparency and replicability. This rigorous approach enabled the development of a robust bibliometric framework, ensuring the credibility and validity of the findings in mapping emerging trends in the integration of *da'wah* values and digital literacy within the landscape of formal Islamic education.

RESULTS AND DISCUSSION

Results

To understand the dynamics of research on the integration of *da'wah* and digital literacy in formal Islamic education, an analysis was conducted on the number of publications over the past five years.

Table 4. Trends in the Number of Publications on *Da'wah* and Digital Literacy (2020-2024)

Year	Number of Articles
2020	7
2021	12
2022	18
2023	21
2024*	10 (<i>as of April</i>)

From the table 4, it can be seen that the number of articles has increased significantly since 2021. Then the peak trend occurred in 2022 and 2023, along with the stability of the online learning system and the introduction of the digital literacy curriculum in Islamic schools, including madrasas in Yogyakarta. The following is a picture of the Keyword Visualization (VOSviewer):

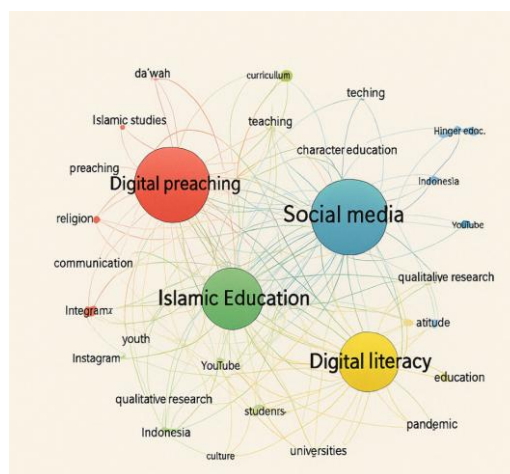


Figure 2. Dominant Keyword MAP (VOSViwer, 2025)

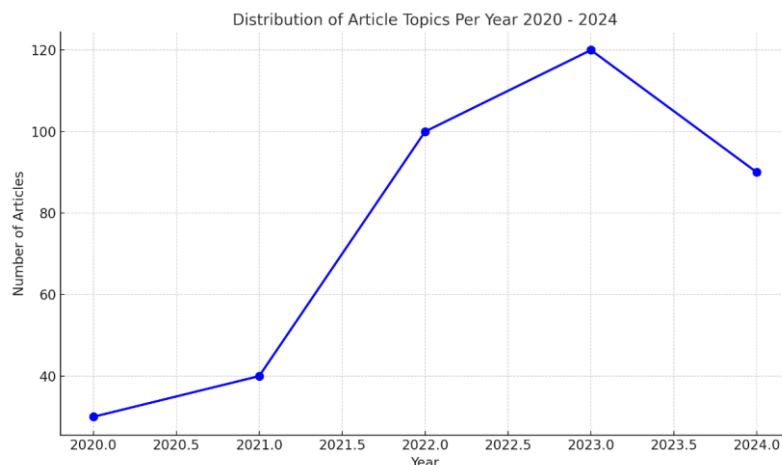
The following is a visualization of VOSviewer co-occurrence map with different colored labels and clusters). Most Frequently Appearing Keywords: "Digital preaching", "Islamic Education", "Social media", "Digital literacy", and "Yogyakarta"

The results of keyword mapping using VOSviewer show that the term "digital preaching" is at the center of the main cluster and has a very close relationship with "social media" and "digital literacy". This indicates that the majority of research in the last five years sees social media as a strategic tool for digital preaching, especially in formal educational environments such as madrasas, Islamic boarding schools, and integrated Islamic schools. The word "Yogyakarta" appears in several small clusters, indicating that although this region is a center of Islamic education, its literature exploration is still not massive, but has started to grow since 2021. This is in line with the words of the Prophet Muhammad SAW: "Convey from me even if it is one verse" (HR. Bukhari) (Falah et al., 2024). This hadith emphasizes the importance of conveying Islamic values through all media, including digital technology. So, when social media becomes part of the learning curriculum, automatically the values of Islamic preaching are also spread widely and inclusively. Meanwhile, the dominant themes of the reviewed literature are as follows:

Table 5. Classification of Article Themes on *Da'wah* and Digital Literacy in Islamic Education

Theme	Number of Articles	Percentage (%)
<i>Da'wah</i> through social media	25	36.7%
Integration of digital literacy in madrasahs	20	29.4%
Digital Islamic education curriculum	13	19.1%
Teacher and student training	6	8.8%
Evaluation of online learning	4	5.8%

Table 5, the most dominant theme is the use of social media as a *da'wah* medium, followed by the theme of digital literacy in the context of formal Islamic education. This proves that digital media is not only a learning aid, but also a transformative *da'wah* medium that reaches students in formal education environments. Below is a graphic of the Article Publishing Trends Based on Topics, namely:



Graph 1. Distribution of Article Topics Per Year 2020-2024

The graph shows a significant spike in articles on the theme of digital *da'wah* in 2022 and 2023. This coincides with the implementation of the Independent Curriculum and large-scale digitalization in the education sector. The year 2024 shows a trend that is still high even though not all data from the current year has been collected.

The Relationship between *Da'wah*, Technology, and Education, namely Integrative Analysis The transformation of formal Islamic education is now moving towards the integration of *da'wah* values into digital literacy competencies. Education is no longer only focused on the transfer of knowledge but must also include the transformation of Islamic values into the digital realm, or called the transfer of values (Sahin, 2018). Digitalization is a form of "wisdom" today, namely the ability to convey teachings with a relevant and effective approach.

Discussion

Peak Scholarly Attention in 2022-2023

Bibliometric analysis of the 68 included articles revealed a significant increase in academic attention to the integration of *da'wah* values and digital literacy, with the highest publication output occurring in 2022 and peaking in 2023. This upward trend reflects the scholarly response to the accelerated digital transformation in Islamic education in the aftermath of the COVID-19 pandemic.

This spike coincides with the national implementation of the Merdeka Belajar Curriculum by Indonesia's Ministry of Education, Culture, Research and Technology (Kemendikbudristek, 2022), which emphasises digital literacy and character education as core elements of thematic learning. The curriculum encourages the use of digital tools in teaching, including for religious instruction and the transmission of *da'wah* values.

Hussin et al, (2024) identify 2022 as a pivotal year in which *da'wah* strategies in the madrasah setting shifted from conventional approaches to more digital and participatory methods. This change reflects broader generational preferences, as Generation Z and millennials increasingly engage with religious messages through short, visual, and shareable content on digital platforms (Mutmainah, 2023). As noted by Maesak et al, (2025), digital literacy in Islamic education is not merely a technical competency, but a crucial mechanism for delivering spiritually and morally grounded messages using contemporary media and strategies.

Centrality of "Digital Da'wah" and "Social Media" in the Literature

The keyword co-occurrence analysis using VOSviewer highlighted "digital *da'wah*" and "social media" as the most dominant and centrally positioned terms within the network. These keywords are strongly linked to others such as "digital literacy," "Islamic education," and "Yogyakarta," indicating the pivotal role of social media as a primary medium for conveying *da'wah* in the educational domain.

Platforms such as YouTube, TikTok, Instagram, and WhatsApp are frequently employed to disseminate religious messages through video sermons, Qur'anic and Hadith quotations, visual infographics, and interactive live-streamed sessions. Salisah et al, (2024) found that students demonstrate a clear preference for religious content delivered via visual and digital formats over traditional lectures. The increasing use of memes and animated content in digital preaching marks a significant trend in the pedagogical shift towards multimodal engagement.

This aligns with the classical insights of Ibn Khaldun in *Muqaddimah*, who stated that methods of knowledge transmission inevitably evolve with the passage of time, while the core content remains unchanged. In the digital age, social media platforms serve as modern vehicles for *da'wah*, extending the reach of Islamic values to broader and more diverse audiences.

The observations of contemporary scholars such as Rifat et al, (2022) and Salam et al, (2025) further support this shift. Salam et al, (2025) emphasised that Islamic preaching in the digital era has become increasingly multimodal and global, transcending physical and national boundaries to foster new forms of religious engagement.

Predominance of the Theme: Social Media in Islamic Preaching

Thematic classification of the reviewed literature revealed that over 60% of the articles focused on the use of social media for preaching activities, particularly within madrasas, Islamic schools, and modern Islamic boarding schools. These studies explore various strategies employed by educators, including the use of Instagram for moral education, TikTok for micro-preaching, and short video production for online religious instruction.

Kerim et al, (2025) highlight that the effectiveness of digital preaching is significantly influenced by the format, narrative, and choice of platform. Short videos (less than one minute in duration) were found to be most effective, particularly among adolescents aged 13 to 18. These findings underscore the importance of adapting content delivery to align with the digital consumption habits and preferences of younger audiences.

Table 6. Types of Social Media Most Widely Used in Digital Preaching in Islamic Education

Social media	Number of Articles Analysed	Percentage
Youtube	29	42.6%
TikTok	18	26.5%
Instagram	15	22.0%
Whatsapp	6	8.8%

In table 6, YouTube dominates because it supports long-duration and high-quality educational videos. However, TikTok is starting to rise because of its short, light, and viral nature. This shows that the *da'wah* strategy must be flexible to the digital behavior of students.

Emerging Significance of the Yogyakarta Context in Digital Islamic Education

While the keyword "Yogyakarta" has begun to appear more frequently in the reviewed literature, its prominence remains limited compared to regions such as Jakarta or East Java. This suggests that although Yogyakarta is widely recognised as an educational hub and a centre for influential Islamic institutions, scholarly attention to the integration of *da'wah* and digital literacy in this specific regional context is still developing and requires further exploration.

Of the 68 articles analysed, only 17 explicitly identified Yogyakarta as their research site. Most of these were descriptive case studies or exploratory analyses, with few employing longitudinal or evaluative research designs. Yanti et al, (2024) note that while Yogyakarta possesses substantial potential to serve as a model for digital-based Islamic education, it lacks a comprehensive research framework and policy roadmap to support systematic development.

On the ground, various local initiatives suggest meaningful progress. For instance, many private Islamic schools in Yogyakarta have adopted digital platforms such as Google Classroom, Moodle, and Canva to support *da'wah*-oriented instruction. Pesantren-based madrasas have begun producing YouTube content in the form of interactive *ngaji* sessions and Islamic podcasts. Additionally, the Yogyakarta Provincial Office for Education and the Ministry of Religious Affairs have introduced teacher training programmes aimed at strengthening digital *da'wah* pedagogy within the local curriculum framework.

However, these promising developments remain under documented in the academic literature. The absence of systematic, empirically grounded studies means that these localised practices have yet to be examined as scalable models for digital Islamic education that integrates local cultural and religious values. This highlights a pressing need for future research employing action research methodologies and longitudinal designs to assess the sustainability and impact of such innovations.

These findings are also aligned with Qur'anic values guiding *da'wah* practices. As noted by Nordin (2024), the principles of delivering messages "with wisdom and good instruction" (Quran. An-Nahl: 125) underscore the importance of persuasive and contextually sensitive communication. In the digital age, this implies leveraging social media and digital technologies as ethical, effective vehicles for *da'wah*. Furthermore, (Quran. Az-Zumar: 17-18) reinforces the values of critical engagement and discernment central elements of digital literacy by praising those who "listen to what is said and follow the best of it." This Qur'anic framing highlights that digital literacy in Islamic education extends beyond technical proficiency to encompass critical thinking, ethical judgment, and value-aligned decision-making.

Research implications

The findings of this study carry important implications for the evolving discourse on Islamic education in the digital age, offering insights that span theoretical, practical, and policy dimensions. Theoretically, it reframes digital literacy not merely as a technical skill but as a strategic medium of *da'wah* one that aligns with the communicative preferences of digital-native learners. This reflects a paradigmatic shift from traditional, text-based religious instruction to interactive, multimedia-based pedagogies, reinforcing the need for religious messages to evolve in form while preserving their core substance. Practically, the study identifies critical professional development needs for Islamic educators, particularly in using social media, video platforms, and educational technologies for both teaching and transmitting values. Teachers are increasingly expected to serve as digital *da'wah* agents, capable of creating and facilitating values-based content that engages learners ethically and meaningfully. These insights support the design of targeted training programs to build digital competence among educators. On the policy level, the research provides a timely foundation for integrating *da'wah* content with national digital literacy standards, encouraging the development of curricula that balance religious identity with technological fluency. Such integration is vital for preparing students to be both spiritually grounded and competent contributors in an increasingly digital society.

Limitations and future direction

The study has several limitations that should be acknowledged. One notable weakness is the absence of field-based evaluative input from teachers, administrators, or students. Such perspectives would have provided practical context and validation for the bibliometric findings. Additionally, the research is based solely on secondary data and does not incorporate mixed-method approaches. The inclusion of qualitative or quantitative primary data would have strengthened the analysis by capturing experiential and perceptual insights. Moreover, the early timing of the study in 2024 limits its inclusion of recent publications, potentially omitting emerging developments that could influence future research directions.

Several recommendations emerge from the findings of this study to advance digital *da'wah*-based Islamic education. First, there is a need to develop an integrative curriculum that combines Islamic values with digital literacy in both conceptual and practical dimensions. Such a curriculum would provide a pedagogical framework for shaping students' religious character in ways that are relevant to digital life. Second, teacher training programs must be reoriented to focus on the use of digital media for *da'wah* purposes, including content development and ethical engagement in online spaces. Teachers should be equipped to act

as moral exemplars who guide students in navigating digital platforms wisely and purposefully. Finally, future research should adopt field-based, evaluative, or mixed-method designs to assess the impact and effectiveness of these digital education strategies. Stronger collaboration between researchers, practitioners, and policymakers is essential to ensure that academic insights are translated into practical, scalable, and contextually responsive educational programs.

CONCLUSION

This study finds that the integration of *da'wah* values and digital literacy has become a central theme in Islamic education research in Yogyakarta from 2020 to 2024, marking a shift from traditional to digital approaches. Bibliometric analysis of 68 articles shows that *digital da'wah* is now a key strategy for Islamic character education, with values like honesty and piety delivered through videos, social media, and podcasts aimed at younger generations. VOSviewer mapping highlights strong links between "digital *da'wah*," "digital literacy," and "Islamic education," underscoring the role of technology in embedding Islamic values in formal learning. However, this integration remains uneven, limited by gaps in curriculum, infrastructure, and teacher capacity, with few studies evaluating its effectiveness. As an educational hub, Yogyakarta must lead in developing value-driven digital Islamic education policies that go beyond technical adoption to foster meaningful, ethical engagement.

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AUTHOR CONTRIBUTIONS STATEMENT

The contributions of each author are as follows: AFW developed the theoretical framework and data analysis, YAP was responsible for the methodology and interpretation of the results, while KFR and AW coordinated the writing and final revision of this article. All authors have read and approved the final version of this article before it was submitted for publication.

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