International Journal of Education, Vocational and Social Science
https://e-journal.citakonsulindo.or.id/index.php/IJEVSS
E-ISSN : 2963 4954
IJEVSS

Islamic Education And The Transformation Of Digital Technology: A Case Study Of The Deconstruction Of Scientific Sanad Amid The Phenomenon Of Ustadz Google

A Hasyim
Islamic University of Madura
Syamsul Rijal
Islamic University of Madura

Corresponding Author: hasyimahmad772@gmail.com

Abstract

The transformation of digital technology has changed the patterns of production, distribution, and consumption of religious knowledge in Islamic education. The development of search engines, social media, and artificial intelligence has given rise to the "Ustadz Google" phenomenon, a tendency for people to obtain religious answers instantly through digital algorithms without going through the mechanism of the sanad of knowledge that is the foundation of Islamic epistemology. Although various studies have discussed the digitalization of Islamic education and the development of Digital Religion, studies on the deconstruction of the sanad of knowledge due to the transformation of digital technology are still relatively limited. This study aims to analyze the deconstruction of the sanad of knowledge in Islamic education in the digital era and to formulate a conceptual model for sanad reconstruction that can integrate traditional scientific authority with the digital ecosystem. The study used a qualitative approach with a qualitative case study design combined with digital ethnography and qualitative content analysis. Data were obtained through observations of religious learning practices in digital spaces, analysis of da'wah content on YouTube, TikTok, Instagram, and Google, and a review of scientific and classical Islamic literature on sanad, talaqqi, and the etiquette of seeking knowledge. Data analysis was conducted using reflexive thematic analysis while maintaining credibility through source triangulation, theory triangulation, audit trails, and peer debriefing. The results of the study indicate that digital algorithms have shifted the mechanism of knowledge legitimacy from authority by transmission to authority by algorithmic visibility, so that digital popularity

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

increasingly influences public perceptions of religious authority. In response to this change, this study offers a Conceptual Model of the Integration of Sanad and Digital Ecosystems that positions teachers, sanad, knowledge verification, algorithms, digital literacy, and tabayyun as mutually integrated components in building authentic scientific authority that is both adaptive to technological developments. This model provides a theoretical contribution by expanding the study of Digital Religion through the integration of Islamic educational epistemology and provides practical implications for curriculum development, the transformation of teachers' roles, the strengthening of Islamic boarding schools, and the ethical use of artificial intelligence in Islamic education.

Keywords: Islamic Education; Digital Religion; Sanad of Knowledge; Digital Transformation; Religious Authority; Digital Literacy.

INTRODUCTION

Islamic education is essentially a process of transmitting knowledge, values, and character formation that occurs through a pedagogical relationship between teachers and students. In the Islamic scientific tradition, this process is not only oriented towards the transfer of knowledge, but also towards the inheritance of adab, spirituality, and scientific authority, manifested through the systems of talaqqi, musyafahah, and ittiṣāl al-sanad (Hidayatullah, Nasyar, & Rudjikartawi, 2025). The sanad of knowledge serves as an epistemological instrument that guarantees the validity of knowledge while maintaining the continuity of the Islamic intellectual tradition from one generation to the next. Therefore, a teacher's authority in Islamic education is not solely determined by the breadth of their knowledge, but also by the legitimacy of the knowledge obtained through a clear and accountable chain of learning (Akbar, Bela, Paradisa, & Niswah, 2026).

However, the development of digital technology in the last two decades has fundamentally changed the way society acquires religious knowledge. Access to Islamic information, previously dominated by formal educational institutions, Islamic boarding schools (pesantren), and religious study groups (Majelis Taklim), has now shifted to the digital space, offering convenience, speed, and availability of information without the constraints of space or time (Musttasir, 2025).

This digital transformation has shifted the way people interact with authoritative religious sources. The Digital 2025 Global Overview Report shows that global internet users have surpassed 5.5 billion, while Indonesia has an internet penetration rate of over 79%, with average daily

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

internet usage reaching over seven hours (Pratama, Berg, Putri, Rachmawati, & Dwijayanty, 2025). Simultaneously, social media has evolved not only as a means of communication but also as a primary platform for information seeking, including religious knowledge. Platforms such as YouTube, TikTok, Instagram, Facebook, and the Google search engine allow people to find answers to various questions regarding Islamic jurisprudence (fikih), faith (aqidah), and morals through short videos or algorithmic search results. These changes have resulted in the democratization of access to religious knowledge, but have also shifted the scientific verification mechanisms that have long been characteristic of Islamic education. In the digital ecosystem, content popularity, number of followers, level of engagement, and algorithm optimization often determine a preacher's visibility more than academic competence or the scholar's chain of succession. As a result, religious legitimacy has the potential to shift from scholarly authority to algorithm-based authority and digital popularity (Mahud, 2025).

This shift is increasingly evident among the younger generation of Muslims who use the internet as their primary source of religious learning. Several studies have shown that millennials and Generation Z tend to prefer digital media because they are perceived as faster, easier to access, and able to provide instant answers to everyday life problems (Ramadhani & Khoirunisa, 2025). This phenomenon has given rise to the popular term "Ustadz Google," referring to the tendency of people to obtain religious answers through search engines or social media without undergoing a systematic learning process with a scholarly teacher. Based on preliminary observations conducted by researchers at a religious study forum within an Islamic boarding school (pesantren) in Pamekasan Regency, it was discovered that a preacher positioned as a religious reference chose to search for answers to Islamic law directly through Google when receiving questions from the congregation. The answers were then delivered without searching for traditional Islamic texts or seeking clarification from teachers competent in the field. This initial finding indicates a shift in the legitimacy of religious knowledge, from a transmission of knowledge based on sanad (traditional narrators) to a consumption of digital information that relies more on speed of access than on epistemological validity. This phenomenon is not intended to be a generalization for all digital preachers, but rather an empirical indication that technological transformation has influenced the practice of scholarly authority in some Islamic educational spaces.

Various previous studies have examined the relationship between Islamic education and digital technology from various perspectives. Pohagi and Sutrisno's (2025) study explains that digital media has shaped new patterns of religious authority through increasingly intensive virtual

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

interactions. Hakim and Dahri's (2025) study shows that social media algorithms play a significant role in shaping public preferences for religious figures in the digital space. Furthermore, Jamil (2022) emphasizes the importance of integrating technology with Islamic educational values. Other studies have focused more on the effectiveness of online learning, digital literacy, the use of social media as a means of da'wah (Islamic outreach), and the adaptation of Islamic educational institutions to the Industrial Revolution 4.0. Despite making important contributions to the development of technology-based Islamic education, these studies generally focus on pedagogical aspects, learning media, and the transformation of the educational system. Therefore, they have not specifically examined how digitalization deconstructs the concept of sanad (traditional Islamic lineage) as the foundation of scholarly legitimacy in the Islamic educational tradition.

Based on these studies, there is a gap in the literature that has not received adequate attention. To date, studies on digital transformation have primarily viewed technology as a learning instrument, while its implications for changes in the structure of scholarly authority, the sustainability of the sanad (traditional Islamic narrators), and the reconstruction of the epistemology of Islamic education remain relatively limited. In fact, the primary issue facing Islamic education in the digital era is not simply how to utilize technology in the learning process, but rather how to maintain the authenticity of knowledge transmission when sources of knowledge are increasingly dominated by digital algorithms. Therefore, this study offers a new perspective by positioning the sanad not merely as a historical tradition, but as an epistemological mechanism that needs to be reconstructed to remain relevant in the digital learning ecosystem. The novelty of this research lies in the development of a conceptual framework for integrating traditional, sanad-based scholarly authority with the modern digital ecosystem. This allows technological transformation to be understood not as a threat to Islamic education but as a space for reconstructing a system of knowledge transmission that maintains the validity, etiquette, and integrity of scholarship.

Building on these challenges, this article aims to analyze how digital technological transformation deconstructs the authority of the sanad (traditional Islamic narrators) in Islamic education and to formulate a reconstructive framework that enables the integration of the sanad tradition with the digital learning ecosystem. Through this approach, this research is expected to provide a conceptual contribution to the development of contemporary Islamic educational epistemology as well as become a foundation for Islamic educational institutions in designing learning models that are adaptive to technological developments without ignoring the principles of scientific authenticity, teacher authority, and the sustainability of Islamic intellectual traditions.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

METHOD

This research uses a qualitative approach with a case study design to analyze the deconstruction of the sanad (Islamic chain of transmission) in Islamic education amidst the transformation of digital technology (Kuswara, 2025). This approach was chosen because the research focuses on a deeper understanding of changes in religious authority in the context of the "Ustadz Google" phenomenon, namely the tendency of people to obtain religious references through search engines and social media (Zulfah, Suryana, & Latipah, 2023). To comprehensively understand this phenomenon, this study integrates a digital ethnography approach to observe religious learning practices in the digital space and qualitative content analysis to examine the construction of meaning contained in various data sources (Hadi, 2025).

The research data consists of primary and secondary data. Primary data were obtained through digital observation of da'wah content published on YouTube, TikTok, Instagram, and the Google search engine, as well as field observations of the activities of religious study groups (Majelis Taklim), which demonstrate changing patterns of scholarly authority. Meanwhile, secondary data was obtained from academic literature in the form of journal articles, scientific books, digital statistical reports, and classical texts (kutub al-turats) that discuss the concepts of sanad (transmitted Islamic teachings), talaqqi (religious teachings), etiquette of seeking knowledge, and teacher authority in Islamic educational traditions. Data sources were selected purposively based on their relevance to the research focus, which focused on the relationship between digital transformation and the transmission of Islamic knowledge.

Data analysis was conducted using qualitative content analysis combined with thematic analysis. The analysis process began with data reduction, coding, identification of key themes, interpretation of the relationships between themes, and then a conceptual synthesis regarding changes in scientific authority in the digital era. The analysis focused on three main themes: the transformation of religious learning patterns in the digital space, the shifting legitimacy of religious authority, and its implications for the sustainability of sanad (transmitted Islamic teachings) as the epistemological foundation of Islamic education. The results of the analysis were then interpreted using the perspectives of Digital Religion, Islamic educational epistemology, and the theory of technology-based educational transformation to obtain a comprehensive understanding of the phenomenon under study.

Data validity was maintained through source triangulation and theory triangulation. Source triangulation was conducted by comparing digital observations, field findings, and various scientific literature and classical texts. Theoretical triangulation was conducted by integrating the

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

perspectives of Digital Religion, Islamic epistemology, and contemporary Islamic education. Furthermore, the study employed an audit trail throughout the data collection and analysis process to ensure consistency of interpretation and enhance the credibility and traceability of the research results.

RESULTS AND DISCUSSION

Deconstruction of Scientific Authority from the Perspective of Digital Religion

The transformation of digital technology has fundamentally altered the mechanisms of production, distribution, and legitimacy of religious knowledge. From the perspective of Digital Religion, technology is no longer viewed merely as a communication instrument, but as a social space that shapes religious practices, interaction patterns, and the construction of new religious authority (Izza & Mansyur, 2026). Widjanarko (2025) explains that the development of digital media has created an increasingly fluid relationship between online and offline spaces, so that religious authority is no longer monopolized by formal religious institutions but is instead produced through user interactions, platform algorithms, and digital culture. Thus, the legitimacy of a religious figure in the digital era is not only built through scientific competence acquired through traditional learning processes, but also through media visibility, intensity of interaction, and public recognition in the digital space.

This view is reinforced by Fikri et al. (2026), who introduced the concept of hypermediated religious spaces, namely religious spaces formed through the simultaneous interaction between technology, users, and digital platforms. In this space, social media algorithms play a role, indirectly determining the distribution of religious information through content recommendation mechanisms, information personalization, and algorithmic filtering. Consequently, religious authority is no longer solely determined by the depth of intellectual tradition or institutional legitimacy, but also by a preacher's ability to build digital engagement, measured by the number of followers, views, comments, and user interaction.

Furthermore, Sabariah et al. (2026) explain that the transformation of religious authority in the digital era is a consequence of the development of networked religious authority, a model of authority formed through digital communication networks. In this model, religious authority becomes increasingly decentralized because users have the freedom to independently select, compare, and even negotiate various religious sources. This change shifts the vertical relationship between teacher and student toward a more horizontal one, where scholarly legitimacy is often built on the collective perception of the digital community, rather than solely on academic track

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

records or scholarly chains of transmission.

The findings of this study indicate that this phenomenon also occurs in the context of Islamic education in Indonesia. Based on digital observations of various Islamic preaching content on YouTube, TikTok, and Instagram, as well as Google search results using keywords such as Islamic studies, religious teachers, fatwas, and religious Q&As, it was found that the platform's algorithms dominate the search mechanism for religious information. Most users obtain religious answers through recommended content based on search history and popularity, rather than based on academic authority or the clarity of scientific chains of evidence. This situation suggests that algorithms function as new gatekeepers in determining the religious information consumed by the public.

Field observations further support these findings. At one of the religious study groups where the research was conducted, researchers observed a preacher responding to congregants' questions about Islamic law by directly accessing Google search before providing an answer. This phenomenon is not intended to be a general representation of all preachers, but rather an empirical illustration of the changing practices of scholarly authority in some Islamic educational spaces. In this context, Google no longer functions solely as a tool for information retrieval but has begun to assume a position as a primary reference source in the religious decision-making process. This shift indicates a shift in the mechanism of knowledge validation, from the talaqqi process that emphasized the teacher-student relationship to an information-seeking process mediated by algorithms.

This finding expands the discussion on Digital Religion, which has focused primarily on explaining changes in religious practices in the digital space. Arbiah, Sari, and Mukmin (2025) emphasize that technology has shaped new patterns of communication and religious authority, but they have not specifically discussed the implications of these changes for the system of knowledge transmission in the Islamic tradition, which is based on the sanad (chain of transmission). Thus, the results of this study demonstrate that digital algorithms are not only changing the way society accesses religious knowledge but are also shifting the epistemological mechanisms that have for centuries served as the foundation for the legitimacy of Islamic scholarship. This shift demonstrates that digital authority is not merely a communication phenomenon but has evolved into a problem in the epistemology of Islamic education.

Dialogue with recent research also reveals a similar trend. Various studies on digital Islamic education in the 2021–2026 period generally conclude that technology has successfully increased learning accessibility, expanded student participation, and accelerated the dissemination of

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

religious knowledge. However, most of this research focuses on the effectiveness of learning media, digital literacy, or pedagogical innovation, thus failing to examine how algorithms influence the structure of teacher legitimacy and the sustainability of scientific chains of transmission. Therefore, this study offers a different perspective by positioning algorithms as factors that have the potential to deconstruct the mechanisms of knowledge authorization in Islamic education, rather than simply as learning technology tools.

Critically, the results of this study indicate that the primary issue with Islamic education in the digital era is not the existence of technology itself, but rather the changing logic of knowledge production and legitimacy shaped by algorithms. When digital popularity becomes the primary measure of a preacher's credibility, while the verification process through chains of transmission is increasingly marginalized, a shift occurs from authority by transmission to authority by algorithmic visibility, as illustrated in the following figure:

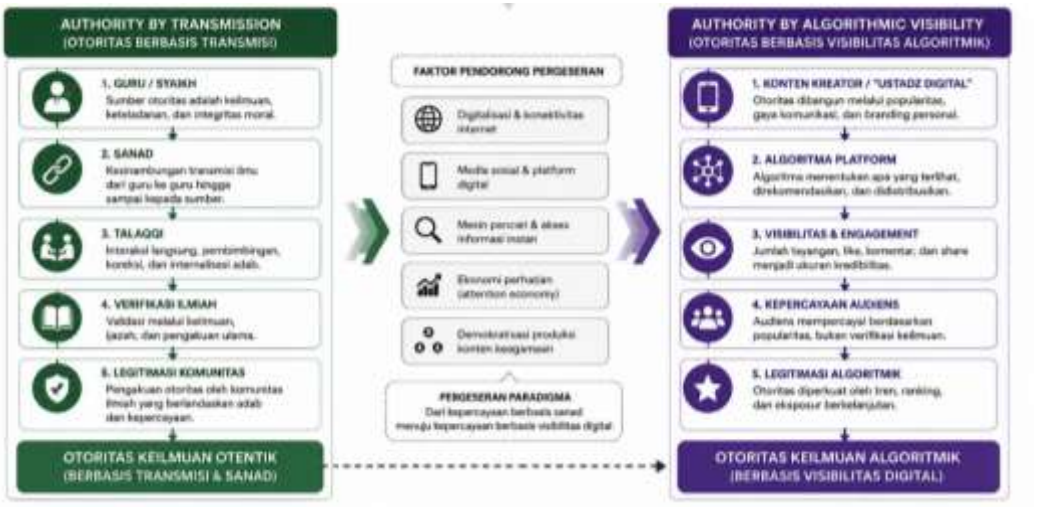


Figure 01, Shifting Scientific Authority in Islamic Education

This shift demonstrates that algorithms indirectly act as an epistemological selection mechanism that determines who is deemed authorized to speak on behalf of religion. Therefore, the challenges of Islamic education in the digital era cannot be addressed simply by increasing technological literacy, but rather requires a reconstruction of the paradigm of scientific authority that integrates technological advances with the principles of Islamic epistemology.

This discussion demonstrates that digital transformation has shifted the mechanism for

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

establishing religious authority from a system based on sanad transmission to one increasingly influenced by algorithmic visibility. Digital Religion Theory successfully explains the changing structure of communication and authority in the digital space, but it fails to fully explain its implications for the Islamic epistemological system, which relies on the sanad of knowledge. Therefore, further discussion is needed on how the concept of sanad, as the epistemological foundation of Islamic education, can be reconstructed to respond to these changes. The next subsection will outline the reconstruction of sanad epistemology in Islamic education as an effort to maintain the authenticity of scientific authority amidst the dominance of the digital ecosystem.

Reconstruction of the Epistemology of Sanad in Islamic Education

Changes in religious authority influenced by digital technology require a reconstruction of the epistemology of Islamic education, particularly regarding the concept of sanad as the foundation of scholarly legitimacy (Sholihin & Solichin, 2026). In Islamic tradition, sanad is not understood merely as a chain of transmission of hadith narrations, but as an epistemological mechanism that ensures the authenticity of knowledge through the continuity of the relationship between teacher and student. The sanad encompasses intellectual, moral, and spiritual dimensions, ensuring that knowledge is not merely transmitted as a collection of information, but also as a process of developing scholarly etiquette, integrity, and responsibility (Altsaury & Rahmawati, 2025). Therefore, the reconstruction of sanad in the digital era is not intended to rigidly maintain its traditional form, but rather to maintain the underlying epistemological principles so that it remains relevant in the modern learning ecosystem.

This perspective can be positioned as a complement to the theory of Digital Religion. Susilawati and Faisal (2026) explain that digital media has transformed the way individuals construct religious authority and identity through platform-based communication networks. However, this theory focuses more on the dynamics of communication, technological mediation, and changing social relations, thus failing to adequately address the mechanisms of knowledge validation within the Islamic scientific tradition. In other words, Digital Religion successfully explains how religious authority is formed in the digital space, but it fails to fully address why knowledge deserves legitimacy as authoritative knowledge. In this context, the concept of sanad offers an epistemological dimension that complements this theory.

The epistemological foundation of sanad has long been emphasized by classical scholars. Ibn Sirin stated that knowledge is part of religion, so every Muslim must pay attention to who obtains it from (Maulana, Aulia, & Irawan, 2025). This statement demonstrates that the legitimacy

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

of knowledge is determined not only by the content of the information, but also by the credibility of the source transmitting it. Similarly, Abdullah bin al-Mubarak emphasized that sanad is an integral part of religion; without sanad, anyone can convey anything in the name of religion without a clear verification mechanism. Both views place sanad as an epistemological verification system that maintains the continuity of knowledge while preventing the emergence of authorities that do not have a scientific basis that can be accounted for.

This concept finds relevance in the thoughts of KH. Hasyim Asy'ari on the etiquette of seeking knowledge. In "Ādāb al-'Ālim wa al-Muta'allim," he emphasized that the success of the learning process depends not only on the breadth of the teacher's knowledge, but also on the pedagogical relationship built through respect, exemplary behavior, and character building (Qolbiyah, Ghazal, & Khambali, 2025). This perspective demonstrates that the process of talaqqi (religious guidance) is not simply a transfer of knowledge, but rather a process of internalizing values that involves simultaneous intellectual, ethical, and spiritual interactions. Thus, the sanad (chain of transmission) in Islamic education serves a broader function than simply ensuring the authenticity of teaching materials, namely, shaping the character of scholars who are responsible for the knowledge imparted.

Research observations indicate that this epistemological dimension is beginning to shift in digital-based religious learning practices. Analysis of various da'wah content on YouTube, TikTok, and Instagram shows that users tend to evaluate the credibility of material based on popularity indicators, such as the number of views, followers, and interaction intensity, rather than examining the scholarly background of the presenter. A similar phenomenon was also observed in religious study groups, where answers to fiqh questions were spontaneously obtained through search engines without any prior research into primary sources or consultation with teachers competent in the field. This finding indicates a shift in the mechanism of knowledge verification, from epistemic trust built through sanad (traditional source) to algorithmic trust built through recommendations from digital platforms.

This finding aligns with the growing international literature on digital authority from 2021–2026, which shows that social media algorithms have influenced how individuals select information sources, build trust, and form knowledge communities. However, most research still focuses on changes in user behavior, digital literacy, and online communication patterns. These studies have not yet linked these changes to the concept of sanad as a mechanism for legitimizing knowledge in Islamic education. Therefore, this study expands the existing discourse by demonstrating that the primary challenge for Islamic education in the digital era is not simply

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

increased access to religious information, but rather the shift in the paradigm of knowledge validation, from previously relying on teacher-student relationships to relying on algorithmic selection mechanisms.

Further analysis shows that reconstructing the sanad does not mean rejecting digital technology or returning the entire learning process to conventional models. Instead, reconstructing the epistemology of the sanad needs to be directed at integrating traditional principles with the digital ecosystem. In this context, the function of the sanad can be re-actualized by strengthening a culture of source verification, transparency of educators' scientific backgrounds, providing clear references in all digital materials, and developing epistemological literacy that equips students to distinguish between popular information and scientifically legitimate knowledge. Thus, technology is positioned as a medium for transmitting knowledge, while the sanad continues to function as a mechanism for validating and accounting for knowledge.

Based on this analysis, this study proposes that the epistemology of Islamic education in the algorithmic era needs to be built around three main pillars: sanad as a mechanism for legitimizing knowledge, talaqqi as the process of forming meaningful pedagogical relationships, and adab as the ethical foundation for the use of digital technology. These three pillars do not conflict with digital transformation but serve as a normative framework that guides the use of technology to maintain alignment with the goals of Islamic education. With this approach, the reconstruction of the sanad is not understood as a conservative attempt to maintain tradition, but rather as a process of epistemological adaptation that allows the fundamental values of Islamic education to be maintained in an increasingly digitalized learning environment.

This discussion demonstrates that the concept of sanad serves a function beyond the transmission of knowledge, namely as a mechanism of epistemological legitimacy that shapes intellectual, ethical, and spiritual integrity in Islamic education. Unlike the theory of Digital Religion, which focuses on the transformation of communication and authority in the digital space, this study asserts that the reconstruction of Islamic education requires the integration of digital technology and the epistemological principles of sanad. This synthesis forms the basis for developing a conceptual model for the integration of sanad and the digital ecosystem, which will be discussed in the next subchapter as a key contribution of this study.

Conceptual Model of Sanad Integration and Digital Ecosystem

The discussion in the previous two subchapters shows that the transformation of digital

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

technology has not only transformed learning media but also shifted the mechanisms for establishing scientific authority in Islamic education. Digital Religion theory explains that digital media has created a new religious space that allows authority to be established through user interactions, communication networks, and platform algorithms (Zaman, 2024). Meanwhile, the epistemology of Islamic education positions the sanad (traditional narrator) as the primary mechanism for ensuring the authenticity, legitimacy, and sustainability of knowledge transmission. The synthesis of these two perspectives indicates that the primary challenge for Islamic education in the digital era is not choosing between maintaining tradition or embracing technology, but rather building an integrative framework capable of connecting the principles of sanad (traditional narrator) with the characteristics of the digital ecosystem.

Research observations show that the use of search engines and social media has become an integral part of people's religious learning practices. Most users utilize Google, YouTube, TikTok, and Instagram as their first point of entry for answers to religious questions. This situation indicates that algorithms have taken on the function of both filters and curators of religious information. However, the same observation also shows that this search process is generally not accompanied by a verification mechanism for the source's scholarly background, the continuity of the chain of transmission, or the validity of the references used. As a result, the process of religious learning can potentially end in rapid information consumption, without the process of deepening, clarifying, and developing character, as occurs in the talaqqi tradition.

These findings suggest that the primary problem in Islamic education is not the existence of algorithms as technological products, but rather the absence of an epistemological mechanism linking ease of digital access with the system of knowledge validation that has developed within the Islamic tradition. From Campbell's perspective, the digital space opens up vast opportunities for the democratization of religious knowledge. Evolvi adds that the digital religious space is the result of the dynamically evolving interaction between users, platforms, and technology (Farhah & Sauri, 2024). Meanwhile, studies on networked religious authority indicate that religious legitimacy is increasingly influenced by digital networks and public participation. However, these three perspectives have not explicitly explained how knowledge verification mechanisms should be established when religious authority is no longer in a direct relationship between teacher and student. Thus, this study views that the concept of sanad can function as an epistemological dimension that complements the theory of Digital Religion.

Based on a synthesis of theory and research observations, this article proposes a Conceptual Model of the Integration of Sanad and Digital Ecosystems as a framework for

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

reconstructing Islamic education in the algorithmic era. This model does not position technology as a substitute for teachers, but as a medium that expands access to knowledge, while the sanad continues to function as a mechanism for legitimacy and scientific accountability. In this model, the teacher acts as an academic authority who guides the learning process, the sanad serves as the basis for validating sources of knowledge, and verification is carried out through tracing the educator's competence and the scientific references used. While the algorithm is positioned as an instrument for information distribution that must be controlled through digital literacy and the principle of tabayyun. This integration produces a new form of religious authority that continues to utilize digital technology without abandoning the principles of Islamic epistemology. Conceptually, the resulting model can be described as follows:



Figure 02, Conceptual Model of the Integration of Sanad Epistemology and Digital Ecosystem in Islamic Education

This model demonstrates that algorithms are not positioned as a source of scientific legitimacy, but rather as a medium for disseminating knowledge that must be subject to epistemological verification mechanisms. Thus, digital literacy is not understood solely as the technical ability to use technology, but as an epistemological competency that enables students to evaluate knowledge sources, distinguish popular information from scientifically legitimate knowledge, and reconnect digital information with scientific traditions based on the sanad (traditional chain of transmission).

A dialogue with current literature from 2021–2026 reinforces this argument. Various

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

studies on the transformation of digital education emphasize the importance of developing digital competencies, technology-based learning, and increasing access to learning resources. However, these studies generally view technology as a pedagogical instrument and have not addressed how knowledge validation systems need to be reconstructed when learning takes place in the digital space. In contrast, studies of Islamic epistemology have largely maintained the concept of sanad within the context of face-to-face relationships without developing an adaptive framework for changes in the digital ecosystem. Therefore, the conceptual model offered in this study attempts to bridge these two scientific traditions by positioning the sanad as a legitimizing mechanism, algorithms as a distribution medium, and digital literacy and tabayyun as controlling instruments connecting the two.

This analysis also shows that the reconstruction of sanad in the digital era is not synonymous with exclusively maintaining traditional educational practices. Rather, such reconstruction represents a process of epistemological transformation that allows the fundamental values of Islamic education to remain alive in an increasingly digitalized learning environment. Teachers do not lose their role due to the advent of artificial intelligence or search engines, but instead acquire new functions as knowledge curators, guides in the verification process, and developers of students' epistemological literacy. Thus, the model offered in this study expands the theory of Digital Religion by adding a dimension of Islamic epistemology that has not been widely discussed in the international literature.

The Conceptual Model of the Integration of the Sanad and the Digital Ecosystem is a key contribution of this study, explaining that technological transformation should not be understood as a threat to Islamic education, but rather as an opportunity to reconstruct the mechanisms of knowledge transmission and legitimacy more adaptively. The integration of teachers, sanad (Islamic chain of transmission), verification, algorithms, digital literacy, and tabayyun (religious texts) produces a conceptual framework that maintains a balance between the authenticity of Islamic scholarly tradition and the demands of technological innovation. Based on this model, practical implications for curriculum development, teacher competency, and Islamic education governance will be discussed in the following subchapters.

Implications of the Sanad Integration Model and Digital Ecosystem for Islamic Education

The conceptual model of the integration of the Sanad and the digital ecosystem produced in this study has important implications for the development of Islamic education in the era of technological transformation (Saputra & Rahmah, 2026). Unlike approaches that position

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

digitalization as the primary goal of educational modernization, the results of this study demonstrate that technology should be understood as a pedagogical instrument that remains within the epistemological framework of Islamic education. This perspective aligns with developments in international studies on Digital Religion, which position technology as a social space that shapes religious practices. However, this study expands this perspective by demonstrating that digital transformation must also be accompanied by the reconstruction of the legitimacy mechanisms of knowledge (Azizi, Nuraini, Audina, & Siswanto, 2025). Thus, technological innovation in Islamic education is measured not only by the level of adoption of digital devices but also by its ability to maintain the authenticity of the knowledge transmission process.

The first implication relates to the development of the Islamic education curriculum. The results indicate that the curriculum is no longer sufficiently oriented towards mastering religious material and technological skills separately, but rather needs to integrate epistemological competencies that enable students to understand how religious knowledge is produced, verified, and accounted for. In this context, the concepts of sanad, talaqqi, tabayyun, and digital literacy need to be positioned as complementary core competencies. The curriculum also needs to develop critical thinking skills regarding digital information, so that students are not only able to access various religious sources but also able to evaluate the authority, validity, and scientific context of each piece of information received. This approach aligns with the trend in digital education research emphasizing the importance of integrating digital literacy and critical thinking. However, this research adds the dimension of epistemological legitimacy, which has previously received little attention.

The second implication relates to the transformation of the teacher's role in Islamic education. The research findings indicate that the presence of digital technology, search engines, and artificial intelligence does not eliminate the importance of teachers. Instead, digital transformation expands the teacher's role from mere transmitters of material to knowledge curators, guides in the verification process, and facilitates the development of students' scientific character. In the digital learning ecosystem, teachers play a role in guiding students in exploring primary sources, understanding the scientific context, and connecting digital information with the sanad tradition, the foundation of Islamic education. Thus, a teacher's authority is no longer built solely through mastery of material, but through their ability to guide students in managing the abundance of information generated by algorithms and artificial intelligence.

The third implication concerns the institutional transformation of Islamic boarding schools

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

(pesantren) as Islamic educational institutions that have long been guardians of the tradition of scientific transmission. The research findings indicate that Islamic boarding schools have a significant opportunity to become centers for the reconstruction of Islamic epistemology in the digital era if they are able to integrate the tradition of talaqqi with the adaptive use of technology. The digitalization of Islamic boarding schools should not be understood as a process of replacing face-to-face learning, but rather as an expansion of learning spaces that enable the transmission of knowledge to reach a wider audience. The development of digital libraries, archives of ulama's sanads, documentation of book studies, online classes based on talaqqi, and a digital competency certification system for teachers are forms of innovation that maintain the distinctive character of Islamic boarding school education. With this approach, Islamic boarding schools become not only preservers of tradition but also key actors in building an Islamic education ecosystem that adapts to technological developments.

The next implication relates to the use of Artificial Intelligence (AI) in Islamic education. The development of generative AI has accelerated the process of searching, processing, and presenting religious information, thus opening up significant opportunities for improving the quality of learning. However, the research findings indicate that AI cannot be positioned as a scientific authority that replaces the role of teachers or sanad (traditional scribes). AI operates based on statistical patterns and data probabilities, while the legitimacy of knowledge in Islamic tradition is built through a process of transmission, verification, and the formation of adab (ethics), which cannot be reduced to mere information processing. Therefore, the use of AI in Islamic education should be positioned as an academic aid that supports the exploration of knowledge, while the final validation process remains within a scientific mechanism involving teachers, authoritative references, and the sanad tradition. This perspective also broadens the international discourse on AI in education by presenting the dimension of Islamic epistemology as an ethical framework for the use of smart technology.

Furthermore, this research demonstrates that digital transformation demands the emergence of a new paradigm regarding Islamic digital literacy. Digital literacy is not simply defined as the ability to operate technological devices or access information via the internet. It needs to be understood as an epistemological competency that integrates technical skills, critical thinking, ethical awareness, and scientific responsibility. Within this paradigm, students are encouraged to develop a culture of tabayyun (religious inquiry), verify information sources, understand the scientific authority of sources, and recognize that digital popularity is not synonymous with scientific validity. Thus, Islamic digital literacy serves as a bridge between

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

modern technological developments and the core values of Islamic education, which emphasize scientific honesty, moral responsibility, and respect for the chain of transmission of knowledge. Theoretically, the results of this study also contribute to the development of Digital Religion studies. To date, Digital Religion theory has primarily explained changes in communication patterns, identity, and religious authority in the digital space. This research broadens this perspective by demonstrating that digital transformation not only changes the way religion is communicated but also influences the mechanisms of production, validation, and legitimacy of religious knowledge. By integrating the concepts of sanad, talaqqi, tabayyun, and digital literacy into the Digital Religion framework, this article offers a conceptual model that can serve as a foundation for developing studies on the epistemology of Islamic education in the algorithmic era. The implications of this research suggest that the reconstruction of Islamic education in the digital era does not require a dichotomy between tradition and technology. Instead, Islamic education requires an integrative paradigm that positions technology as a learning medium, while sanad continues to function as the foundation for the legitimacy and accountability of scholarship. Through curriculum integration, the transformation of teachers' roles, the strengthening of Islamic boarding schools (pesantren), the ethical use of AI, and the development of Islamic digital literacy, the conceptual model offered in this study is expected to serve as a basis for developing adaptive, authentic, and sustainable Islamic education policies and practices. The overall discussion then forms the basis for compiling a conclusion that summarizes the theoretical contributions, practical implications, and directions for further research regarding the reconstruction of the sanad of scholarship in the algorithmic era.

CONCLUSION

The transformation of digital technology has brought fundamental changes to the mechanisms of knowledge production, distribution, and legitimacy in Islamic education. Research shows that the development of search engines, social media, and digital algorithms has shifted the pattern of religious authority from a system based on the transmission of sanad (traditional chain of transmission) to one increasingly influenced by algorithmic visibility. Under these conditions, people tend to acquire religious knowledge through digital platforms, prioritizing the popularity of the content over the epistemological validity of the source. This shift suggests that the primary challenge for Islamic education in the digital era lies not in the availability of technology, but rather in the changing mechanisms of knowledge verification that have long been the foundation of Islamic scientific tradition.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

This research makes a theoretical contribution through the development of a Conceptual Model of the Integration of Sanad and Digital Ecosystems, linking the principles of Islamic epistemology with the theory of Digital Religion. This model positions the teacher as the academic authority, sanad as the mechanism for scientific legitimacy, verification as the process of validating sources, algorithms as the medium for information distribution, digital literacy as an epistemological competency, and tabayyun as a clarification mechanism that produces authentic scientific authority that is both adaptive and adaptable to technological developments. Thus, this research expands the study of Digital Religion, which has focused primarily on the transformation of religious communication and authority, by presenting the epistemological dimension of Islamic education as a foundation for building a knowledge validation system in the algorithmic era.

Practically, the findings of this study imply the need for a reconstruction of Islamic education through strengthening the curriculum based on epistemological literacy, transforming the role of teachers as curators and guides in the knowledge verification process, optimizing the role of Islamic boarding schools (pesantren) as centers for the transmission of sanad (traditional Islamic transmission) that are adaptive to technology, and ethically utilizing artificial intelligence (AI) in the learning process. The integration of digital technology and sanad principles is expected to produce an Islamic education system that is not only responsive to technological developments but also maintains the authenticity, integrity, and sustainability of the Islamic scientific tradition. Future research is recommended to test the proposed conceptual model through empirical studies at various Islamic educational institutions so that the effectiveness of its implementation can be evaluated in a broader context.

REFERENCE

Akbar, M. A., Bela, S., Paradisa, L. L., & Niswah, C. (2026). Ilmu, Adab Dan Tradisi Keilmuan: Menelusuri Fondasi Klasik Pendidikan Muslim Dalam Peradaban Islam. *Halaqah: Journal of Education and Management*, *1*(1), 102–106. https://doi.org/https://doi.org/10.59869/88rae759

Altsaury, R. A. A., & Rahmawati, A. (2025). The Epistemology of Sunnah as a Pillar of Transformative Curriculum in Islamic Education : A Thematic Study of Scientific Hadith. *Takwil: Journal of Quran and Hadith Studies*, *4*(1), 141–157. https://doi.org/https://doi.org/10.32939/twl.v4i1.5551

Arbiah, Sari, N. A., & Mukmin. (2025). Studi Islam dalam Konteks Pembelajaran di Era Digital : Tantangan Diskursus Keagamaan Kontemporer. *Chalim Journal of Teaching and Learning*,

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

5(2), 141–154. https://doi.org/10.31538/CJOTL.V5I2.2764

Azizi, M. R., Nuraini, T. D., Audina, S., & Siswanto, A. H. (2025). Rekonstruksi Epistimologi , Dakwah Dalam Konteks Digitalisasi Dan Era Disrupsi. *Jurnal Penelitian Nusantara*, *1*(1), 654–666. https://doi.org/10.59435/menulis.v1i6.404

Farhah, & Sauri, M. S. (2024). Komunitas Islam Digital : Identitas Sosial Dan Perubahan Abad Ke-21. *Mozaic: Islamic Studies Journal*, *03*(02), 7–12. https://doi.org/https://doi.org/10.35719/mozaic.v

Fikri, A., Efendy, D. F., Duyun, S. R., & Zannah, E. L. (2026). Peran Ruang Digital Sebagai Medium Pembelajaran Dalam Meningkatkan Literasi Agama Generasi Z. *Ahsani Taqwim: Jurnal Pendidikan dan Keguruan*, *3*(1), 47–60. https://doi.org/https://doi.org/10.63424/ahsanitaqwim.v3i1.513

Hadi, A. (2025). Antropologi Pendidikan Islam Dalam Era Digital : Mengkaji Perubahan Paradigma Dan Praktik Pembelajaran Kontemporer. *Jurnal MUDARRISUNA: Media Kajian Pendidikan Agama Islam*, *15*(3), 526–544. https://doi.org/https://doi.org/10.22373/13escc30

Hakim, F., & Dahri, H. (2025). Islam di Media Sosial sebagai Komodifikasi dan Implikasinya terhadap Pendidikan Islam. *Andragogi Jurnal Pendidikan dan Pembelajaran*, *5*(1), 187–206. https://doi.org/https://doi.org/10.31538/adrg. v5i1.1813

Hidayatullah, A., Nasyar, A., & Rudjikartawi, E. (2025). Islamic Education in the Development of Traditions and Educational Institutions. *International Journal on Advanced Science, Education, and Religion (IJoASER)*, *8*(3), 1–5. https://doi.org/https://doi.org/10.33648/ijoaser.v8i3.938

Izza, D., & Mansyur, S. (2026). Peran Media Sosial Terhadap Perubahan Identitas Keagamaan dan Praktik Keberagaman pada Generasi Z di Indonesia. *ULIL ALBAB : Jurnal Ilmiah Multidisiplin*, *5*(3), 341–353. https://doi.org/https://doi.org/10.56799/jim.v5i3.13890

Jamil, S. (2022). Teknologi Dan Pendidikan Islam: Peluang Dan Tantangan Dalam Era Digital. *Wistara: Jurnal Pendidikan Bahasa dan Sastra*, *3*(1), 122–126.

Kuswara, M. A. (2025). Pesantren 4 . 0 : Dekonstruksi atas Hibridisasi Pedagogi Islam dan Ketahanan Epistemologis di Tengah Ekosistem Digital. *Tsaqafatuna: Jurnal Ilmu Pendidikan Islam*, *7*(1), 59–68. https://doi.org/https://doi.org/10.54213/tsaqafatuna.v7i1.592

Mahud, S. (2025). Islamic Religious Education in the Age of Algorithms: Artificial Intelligence, Authority, and the Literacy Crisis. *Action Research Journal Indonesia (ARJI)*, *7*(4), 3512–3530. https://doi.org/https://doi.org/10.61227/arji.v7i4.649

Maulana, M. N. A., Aulia, F., & Irawan. (2025). Analisis Pemahaman Al-Ghazali dan Abu Thalib Al-

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

Makky Terhadap Struktur Keilmuan PAI. *Jurnal Miftahul Ilmi: Jurnal Pendidikan Agama Islam*, *2*(1), 13–29. https://doi.org/10.59841/miftahulilmi.v2i1.33

Musttasir. (2025). Peran Pendidikan Islam Nonformal dalam Pengembangan Masyarakat Islam di Era Digital. *JURNAL AN-NASYR: JURNAL DAKWAH DALAM MATA TINTA*, *0147*, 81–92. https://doi.org/https://doi.org/10.54621/jn.v12i1.1108

Pohagi, D., & Sutrisno, R. D. (2025). Gereja Virtual dan Komunitas Digital : Transformasi Iman dalam Ekosistem Media Sosial. *Jurnal Ilmu Pendidikan Keagamaan Kristen*, *1*(4), 80–100. https://doi.org/10.63536/arastamar.v1i4.94

Pratama, Y. A., Berg, I. Van Den, Putri, A. M., Rachmawati, E., & Dwijayanty, R. (2025). Implementasi Whatsapp Sebagai Alat Pemasaran Digital dan Dampaknya Terhadap Loyalitas Pelanggan : Studi Kasus Vondelgym. *Jurnal Inspirasi Ilmu Manajemen, 4*(2), 68–86. https://doi.org/10.32897/jiim.2025.4.2.5209

Qolbiyah, Z., Ghazal, S. Al, & Khambali. (2025). Analisis Konsep Akhlak Murid terhadap Guru dalam Kitab Ta ' līmul Muta ' allim dan Ādābul ' Ālim wal Muta ' allim. *Bandung Conference Series: Islamic Education*, *5*(2), 485–492. https://doi.org/10.29313/bcsied.v5i2.20015

Ramadhani, O., & Khoirunisa. (2025). Generasi Z dan Teknologi : Gaya Hidup Generasi Z di Era Digital. *Jurnal Pendidikan dan Ilmu Sosial*, *3*(1), 323–331. https://doi.org/https://doi.org/10.54066/jupendis.v3i1.2916

Sabariah, Wahyuni, S., Alim, M. N., Psrb, M. Y. H., Lubis, K., Khairani, M., & Alfarizi, M. (2026). Fragmentasi Otoritas Religius di Ruang Digital : Studi Sosiologi Pendidikan Islam terhadap Praktik Pembelajaran Berbasis Media Sosial. *Nizamiyah: Jurnal Sains, Sosial dan Multidisiplin*, *2*(2), 145–165. https://doi.org/https://doi.org/10.64691/3smbjy56

Saputra, A., & Rahmah, K. (2026). Integrasi Artificial Intelligence dalam Perencanaan Pembelajaran : Tinjauan Konseptual Literasi Digital dan Kesiapan Guru PAI. *Kariman*, *14*(1), 81–93. https://doi.org/https://doi.org/10.52185/kariman.v14i1.1087

Sholihin, & Solichin, M. M. (2026). Rekonstruksi Pendidikan Islam Berbasis Nilai Lokal Madura dalam Menghadapi Disrupsi Media Digital. *Jurnal Penelitian dan Pendidikan Islam*, *2*(1), 133–142. https://doi.org/10.66031/ihsan.v2i1.496

Susilawati, & Faisal, M. (2026). Narasi Moderasi Beragama di Media Sosial (Analisis Wacana terhadap Kontestasi Otoritas Keislaman Generasi Muda). *Al-Zayn: Jurnal Ilmu Sosial & Hukum*, *4*(4), 617–631.

Widjanarko, P. (2025). Researching Digital Religion From A Media Studies Perspective : A Conceptual Review. *Jurnal Konvergensi*, *6*(2), 332–351.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

https://doi.org/https://doi.org/10.51353/ffww6v20

Zaman, W. K. (2024). Dakwah Digital Dan Generasi Z : Pergeseran Otoritas Keagamaan Di Media Sosial. *ISIHUMOR : Jurnal Ilmu Sosial dan Humaniora*, *2*(4), 200–219. https://doi.org/https://doi.org/10.58540/isihumor.v2i4.1885

Zulfah, E. M., Suryana, Y., & Latipah, E. (2023). Pandangan Mahasiswa Psikologi UIN Sunan Kalijaga Terhadap Cyber Religion. *Jurnal Ilmiah Profesi Pendidikan*, *8*(3), 1568–1576. https://doi.org/https://doi.org/10.29303/jipp.v8i3.1544

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License