



The Role of ICT-Based Learning Media in Improving the Quality of Islamic Religious Education Learning: A Study on the Use of Artificial Intelligence at MAN 2 East Aceh

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ABSTRACT

This study addresses the increasing necessity for madrasahs to modify teaching methodologies in accordance with the requirements of 21st-century education, while maintaining fundamental Islamic spiritual values. The objective is to analyze the implementation, pedagogical advantages, and obstacles of incorporating Information and Communication Technology (ICT) and Artificial Intelligence (AI)-based learning media in Akidah Akhlak education at Madrasah Aliyah Negeri (MAN) 2 Aceh Timur. Utilizing a qualitative field research design, data were collected through systematic observations, comprehensive interviews, and document analysis including the school principal, Akidah Akhlak educators, and tenth-grade students. The data analysis comprised steps of reduction, data presentation, and conclusion formulation, utilizing triangulation to guarantee validity and trustworthiness. The results demonstrate that the utilization of digital platforms like Google Classroom, YouTube, Canva, and Quizizz, in conjunction with AI-driven applications such as ChatGPT and Islamic educational platforms, markedly improved students' motivation for learning and their comprehension of Islamic beliefs and ethical principles. These technologies empowered educators to convert abstract theological notions into more visible, contextual, and interactive learning experiences. Nonetheless, the survey revealed other problems, such as inadequate technological infrastructure, unreliable internet connectivity, and disparate levels of digital proficiency among educators and learners. These limits were mitigated by institutional initiatives including ongoing training, mentorship programs, and incremental enhancement of infrastructure. The amalgamation of ICT and AI enhances students' digital literacy while simultaneously fortifying spiritual literacy, so establishing technology as a potent instrument for reinforcing the principles of ta'lim, ta'dib, and tarbiyah in modern Islamic education.

1. Introduction

The use of ICT in Islamic Religious Education (PAI) learning is widely recognized as being able to enhance students' motivation and engagement in the learning process. ICT-based learning media, such as videos, animations, and interactive applications, can provide a more enjoyable and engaging learning experience for students compared to conventional learning methods (Kharismatunisa, 2023). This technology also allows students to access learning materials more flexibly, without limitations of space and time, so that learning does not only take place in the classroom but can also be

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continued outside school hours (Latami, 2023). For instance, at MAN 2 East Aceh, the implementation of ICT-based learning media has begun to be optimized to improve the quality of PAI learning (zuraida et al., 2025). Although it has not yet been fully implemented, several teachers have started to utilize this technology in delivering instructional materials, such as using online learning applications and digital simulations to deepen students' understanding of religious concepts (Nurhaeti, 2023).

However, the application of ICT in PAI learning is not limited to simple media such as videos and interactive applications. With the rapid development of technology, Artificial Intelligence (AI) has emerged as one of the latest innovations that can be utilized in education (Nasution et al., 2025). AI has the capability to analyze student data and provide recommendations tailored to individual learning needs and abilities (Khamdani, 2023). In the context of religious education, AI has the potential to deliver more personalized and in-depth learning, as it can provide automatic feedback that helps students improve their understanding of religious materials in real time (Prihatiningtyas et al., 2025). The use of AI in learning enables the learning process to become more efficient and effective, as well as improving students' absorption of the taught materials (Taridi et al., 2023).

At MAN 2 East Aceh, the utilization of AI in PAI learning has become one of the strategic steps to address the challenges of the digital era, which demands innovation in various fields, including religious education (Ahmadi et al., 2011). According to recent studies, the use of AI in learning can assist teachers in monitoring students' learning progress in a more structured and comprehensive manner (Ahmadi et al., 2011). AI is able to process student learning data and automatically generate progress reports, allowing teachers to provide more specific guidance to students who experience learning difficulties (Singh et al., 2025; Wahid, 2024). Furthermore, AI can adapt instructional materials to students' learning styles, enabling each student to learn according to their own pace and needs, which ultimately can improve learning outcomes (Masuwai et al., 2025; Negm, 2025). Differentiated learning within the Independent Curriculum (Kurikulum Merdeka) content also strongly supports the improvement of learning quality for students who wish to gain deeper knowledge and richer learning experiences (Engkizar et al., 2017).

Nevertheless, the implementation of Artificial Intelligence (AI) in Islamic Religious Education (PAI) learning at MAN 2 East Aceh still faces several challenges (Arifin et al., 2025; Russell et al., 2025). Although the school has had a computer laboratory for a long time, the number of available computer units remains insufficient, resulting in less-than-optimal learning processes (Reksiana et al., 2024). This condition is also commonly found in other madrasahs in the Peureulak region (Rahmawati & Mustofa, 2024). One of the major obstacles is the limited technological infrastructure available in madrasahs, particularly in areas far from urban centers such as the Peureulak sub-district. Not all madrasahs have adequate access to AI-related technologies, including stable internet connections and supporting hardware. These conditions pose significant challenges to the optimal implementation of AI-based learning media. In addition, the readiness of educators to utilize this technology is also a determining factor in the successful application of AI in learning. Many teachers still experience difficulties in adapting to rapid technological developments, especially in using AI as an effective instructional support tool.

Therefore, training and mentoring programs are required for teachers at MAN 2 East Aceh so that they can master AI technology and utilize it optimally in PAI learning. The government, as a key stakeholder in educational policymaking, also plays an important role in providing adequate infrastructure to support the implementation of this technology. Without strong government support, the application of AI in PAI learning in schools will not be able to run effectively. Furthermore, it is important for schools to establish partnerships with various parties, such as technology and educational institutions, in order to gain access to AI software that is appropriate for the needs of religious education (Sevilla et al., 2025).

The application of AI in PAI learning must also be accompanied by ethical and moral considerations, as religious education not only emphasizes the transfer of knowledge but also the formation of students' character and morality (Handayani, 2019). Therefore, in using AI as a learning medium, teachers must continue to pay attention to ethical and moral aspects, ensuring that technology functions not merely as a tool but also as a means of instilling noble Islamic values in students. In this way, the use of AI in PAI learning aims not only to improve students' academic achievement but also to nurture a generation with strong moral character who are capable of facing the challenges of the times with a solid foundation of faith.

Overall, the implementation of ICT-based learning media, particularly AI, in PAI learning at MAN 2 East Aceh has great potential to enhance the quality of Islamic religious education. However, to achieve this goal, collaborative efforts from various stakeholders are required, encompassing technological readiness, infrastructure development, and educational policy support. With appropriate support, AI can become an effective tool to help students better understand religious teachings and to cultivate a generation that is both faithful and knowledgeable in the digital era.

2. Methodology

This study employs a qualitative research method. The qualitative approach was selected because the study seeks to gain an in-depth understanding of educational phenomena, particularly those related to the utilization of ICT-based learning media integrated with Artificial Intelligence (AI) in Islamic Religious Education (PAI) learning (Roulston & Choi, 2017). The approach used in this study is an ICT-based learning media approach, which is intended to examine how information and communication technology can be utilized as a medium to support the achievement of learning objectives.

The research was conducted at MAN 2 East Aceh, located at Jalan Banda Aceh–Medan km 396, Cot Geulumpang Village, Peureulak Sub-district, East Aceh Regency, Aceh Province. MAN 2 East Aceh is a large Islamic senior high school (madrasah aliyah) that is easily accessible due to its close proximity to the main provincial road in the Peureulak area. The research was carried out from August to October 2025.

In this study, there are two types of data sources: primary data sources and secondary data sources. The primary data sources include teachers, the head of the madrasah, administrative staff or school operators, and students of MAN 2 East Aceh. Data were collected through observation, interviews, and documentation. The secondary data sources consist of books, relevant literature, media data related to this research, and documentation associated with MAN 2 East Aceh as the research site.

Data analysis in qualitative research was conducted concurrently with data collection and after data collection had been completed within a certain period. The data analysis process involved data reduction, data presentation, and the drawing of conclusions.

3. Results

3.1 The Utilization of Learning Media Based on ICT and AI Learning Theories at MAN 2 East Aceh

The findings of this study indicate that the implementation of Information and Communication Technology (ICT) and Artificial Intelligence (AI) based learning media in the Akidah Akhlak subject at MAN 2 East Aceh is aligned with the 21st-century learning paradigm, which emphasizes the importance of digital literacy, collaboration, and active learner engagement through the use of modern technology. This approach is consistent with perspectives asserting that the integration of ICT can enhance students' learning achievement by creating interactive and participatory learning environments (Rofiq, 2024).

Munir (2024) explains that ICT-based learning functions to improve the effectiveness of the teaching and learning process through the integration of technology, pedagogy, and content, commonly referred to as Technological Pedagogical Content Knowledge (TPACK). These findings are reflected in the teaching practices of Akidah Akhlak teachers at MAN 2 East Aceh, who actively utilize videos, digital quizzes, Google Forms, and AI-based platforms such as ChatGPT to deepen students' understanding of concepts of faith and the attributes of Allah.

Based on interview results, teachers stated that the use of ICT helps them explain abstract religious concepts in a more visual and contextual manner. This is in line with learning media theory, which emphasizes that instructional media function as an extension of the senses, enriching students' learning experiences through the integration of text, audio, and visual elements (Syahid et al., 2024). Thus, teaching practices at the madrasah reflect the principles of multisensory learning, in which technology serves as a facilitative tool to bring the values of Islamic creed to life in a concrete and engaging way.

Meanwhile, the utilization of AI in Akidah Akhlak learning aligns with the theory of Artificial Intelligence in Education (AIED) proposed by Luckin. This theory suggests that AI functions as a cognitive partner that supports learners in constructing knowledge through exploration, reflection, and intelligent feedback (Khaerah, 2023). In this context, Akidah Akhlak teachers at MAN 2 East Aceh employ AI-based applications to guide students in seeking explanations of the attributes of Allah and subsequently engage them in critical discussions to ensure alignment with Islamic creed principles. This approach reflects the concept of human-centered AI, in which technology does not replace the role of the teacher but instead strengthens meaningful instructional interaction.

These field findings are further supported by the study conducted by Yusuf (2024), which states that AI-based innovations in Islamic schools can improve the quality of learning while simultaneously fostering ethical awareness regarding the use of technology. In addition, research by Khaerah (2023) emphasizes that the integration of AI in Islamic education has the potential to develop students' critical thinking skills and cultivate deeper religious reflection.

Therefore, it can be concluded that the implementation of ICT and AI in Akidah Akhlak learning at MAN 2 East Aceh is not merely technical in nature, but also addresses pedagogical dimensions and spiritual values. Technology is proportionally integrated as a means of strengthening learning experiences, enriching teacher–student interactions, and supporting meaningful learning that is oriented toward the holistic development of students' potential.

3.2. The Relevance of ICT to the Development of Islamic Education and the Independent Curriculum at MAN 2 East Aceh

From the perspective of Islamic education, the implementation of Information and Communication Technology (ICT) and Artificial Intelligence (AI) based learning at MAN 2 East Aceh remains firmly rooted in the principles of ta'lim, ta'dib, and tarbiyah, namely the process of knowledge transmission, the formation of proper conduct (adab), and the development of Islamic personality. The integration of technology within the madrasah environment is not intended to replace spiritual values, but rather to serve as a reinforcing medium for strengthening faith awareness and rational understanding of the teachings of Allah SWT. Accordingly, the use of digital media does not represent a secularization of learning; instead, it constitutes a methodological transformation that enables Islamic values to be conveyed in ways that are more relevant to contemporary contexts.

Al-Ghazali, in *Ihya' 'Ulum al-Din*, emphasizes that the ultimate goal of Islamic education is the attainment of ma'rifatullah, namely a profound recognition of Allah through authentic knowledge

and lived experience. This principle is reflected in the Akidah Akhlak learning practices at MAN 2 East Aceh, where teachers utilize ICT-based media such as videos and visual simulations concerning the Oneness of Allah and His attributes to strengthen students' spiritual appreciation of divine majesty. Through this approach, students not only comprehend the concept of tawhid cognitively but also internalize it through learning experiences that engage their affective and spiritual dimensions.

These findings are consistent with the study by Suwahyu (2024), which explains that digitally based learning in the madrasah context can reinforce the relationship between science and spirituality, provided that educators continue to position tawhid values at the center of curriculum integration. Similarly, research by Suharyat (2024) demonstrates that the application of AI in Islamic education can support students in developing reflective capacities toward ayat kauniyah through data-driven analysis and digital exploration grounded in Islamic ethics.

The integration of Islamic values and technology is also aligned with the spirit of the Independent Curriculum (Kurikulum Merdeka), which emphasizes contextual, meaningful, and student-centered learning. In this context, ICT and AI function to transform traditional learning paradigms into more interactive and exploratory models. Students are no longer passive recipients of information but active agents capable of connecting values of faith with social phenomena and technological advancement. Teachers assume the role of facilitators who guide critical thinking processes, reflective dialogue, and the internalization of spiritual values in real-life contexts. This approach reaffirms that technology serves merely as a means, while divine values remain the central essence of the educational process in the madrasah (Rusdiana, 2024).

The research findings also indicate that a technology-based approach supports the dimensions of the Pancasila Student Profile and the Rahmatan lil 'Alamin Student Profile, particularly in aspects related to faith, devotion to Almighty God, and noble character. Accordingly, Akidah Akhlak learning at MAN 2 East Aceh has implemented an integrative–holistic principle that unites faith (iman), knowledge (ilm), and practice (amal) within a future-oriented framework of Islamic education.

Furthermore, the use of ICT demonstrates strong relevance to improving the quality of Akidah Akhlak learning. The implementation of ICT and AI at MAN 2 East Aceh shows significant relevance to enhancing learning quality. Based on field findings, improvements were evident in terms of student participation, conceptual understanding, and learning evaluation outcomes.

The utilization of ICT makes learning more interactive and efficient by optimizing instructional time and visualizing materials that are difficult to explain using conventional methods. Meanwhile, the use of AI enables personalized learning tailored to students' abilities, which is a defining characteristic of an adaptive learning environment. Students are able to learn independently, find answers more quickly, and discuss their findings collaboratively in class, resulting in a two-way and productive learning process.

From the affective perspective, the use of technology in Akidah Akhlak learning has been shown to foster students' spiritual motivation. Through digital media, students not only receive religious information verbally but also experience learning in a more interactive and meaningful manner. Videos, AI-based simulations, and visualizations of natural phenomena that demonstrate the greatness of Allah help students more easily connect aqidah values with the realities of modern life. This has a positive impact on strengthening students' sense of awe, gratitude, and spiritual awareness, which serve as the foundational elements of Islamic education. In line with Alamin (2023), educational technology designed with a religiously grounded approach can enhance students' emotional engagement in understanding religious teachings contextually.

In this context, teachers play a strategic role as guides and guardians of Islamic values in every digital classroom activity. The use of artificial intelligence, such as ChatGPT, GeminiAI, or other

interactive platforms, must be accompanied by guidance to ensure it remains within the boundaries of sound Islamic creed. Teachers are not merely technological facilitators but also murabbi who ensure that digital advancement does not obscure the essence of faith. As stated by Alamin (2023), teachers in Islamic education function as value keepers, guiding learners to use knowledge and technology responsibly in accordance with the will of Allah SWT. Thus, the application of AI in learning not only enhances digital literacy but also strengthens faith literacy and students' religious consciousness.

Moreover, the integration of digital and spiritual literacy reflects the Qur'anic principle of *ulū al-albāb*, referring to individuals who think critically while remaining firmly grounded in faith. Students are trained to interpret technological phenomena not merely as products of modernity, but as manifestations of divine power and wisdom. This approach supports the creation of balance between *fikr* (critical reasoning) and *dhikr* (spiritual reflection) in Islamic education, enabling intellectual and spiritual capacities to develop harmoniously. Therefore, ICT- and AI-based learning at MAN 2 East Aceh does not solely emphasize technological competence but also cultivates religious sensitivity as a defining characteristic of authentic Islamic education.

In conclusion, the findings of this study demonstrate that the implementation of ICT and AI media at MAN 2 East Aceh is both relevant and strategic in improving the quality of Akidah Akhlak learning, in terms of teachers' competencies, students' learning outcomes, and a madrasah learning culture that is adaptive to the digital era without losing its Islamic identity.

4. Conclusions

Based on the research findings regarding the utilization of ICT and Artificial Intelligence (AI)-based learning media in Akidah Akhlak learning at MAN 2 East Aceh, the researcher draws the following conclusions:

1. The utilization of ICT-based learning media in delivering Akidah Akhlak material has been implemented gradually and continuously. Teachers make use of various media such as PowerPoint presentations, educational videos, interactive learning applications (Quizizz, Kahoot, and Google Forms), as well as AI platforms such as ChatGPT as supplementary learning resources to support students' understanding of faith-related concepts. These practices have made learning more engaging, interactive, and aligned with the characteristics of 21st-century learners. Overall, the utilization of ICT and AI in Akidah Akhlak learning at MAN 2 East Aceh has contributed significantly to improving the quality of Islamic religious education while maintaining spiritual values as the fundamental foundation of faith-based education.
2. The use of ICT and AI has a positive impact on students' understanding of *aqidah* concepts, particularly abstract topics such as the attributes of Allah. Digitally based learning enables students to engage in visual learning experiences, increases their participation, and fosters learning motivation and digital literacy that are relevant to the demands of the modern era.

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