

## Artificial Intelligence in Islamic Education: Building Knowledgeable and Globally Competitive Muslim Generations

Rismawati Rismawati<sup>1\*</sup>, Andi Anirah<sup>2</sup> & Adhriansyah A. Lasawali<sup>3</sup>

<sup>1</sup> Islamic Religious Education Study Program State Islamic University Datokarama Palu, Indonesia

<sup>2</sup> State Islamic University Datokarama Palu, Indonesia

<sup>3</sup> Muhammadiyah University of Palu, Indonesia

\*Corresponding Author: Rismawati Rismawati, E-mail: [rismawatialifah@gmail.com](mailto:rismawatialifah@gmail.com).

### ARTICLE INFO

Volume: 4  
ISSN: 2963-5489

### KEYWORD

Artificial Intelligence, Islamic Education, Knowledgeable, Globally Competitive, Muslim Generations.

### ABSTRACT

This study aims to analyze the role of Artificial Intelligence (AI) in strengthening Islamic education in the era of the Fourth Industrial Revolution and Society 5.0. The main focus is on identifying the roles, opportunities, challenges, and implementation strategies of AI to support adaptive, personalized, and relevant learning for the global Muslim generation. The research design employs a qualitative approach using library research. Data were collected from primary and secondary literature, including books, Sinta-indexed journal articles, and international publications from the last five years. Content analysis was applied to identify themes and patterns related to AI integration in Islamic education, covering pedagogical, ethical, and institutional aspects. The findings indicate that AI significantly contributes to enhancing pedagogical effectiveness, expanding access to classical and contemporary Islamic knowledge sources, and opening opportunities for big data-based research in the development of Islamic sciences. However, the study also highlights several challenges, including risks of plagiarism, algorithmic bias, erosion of critical thinking skills, low digital literacy among educators, and inadequate institutional infrastructure. In conclusion, the successful integration of AI in Islamic education depends not only on technological sophistication but also on Islamic values that emphasize morality, spirituality, and the principles of *maqāṣid al-sharī'ah*. Therefore, implementation strategies should focus on capacity building for educators, equitable provision of digital infrastructure, and the development of clear ethical guidelines. This study provides both conceptual and practical contributions for formulating sustainable, inclusive, and ethical policies in AI-based Islamic education.

### 1. Introduction

The development of artificial intelligence (AI) technology has become one of the most significant innovations in 21st-century education. In the context of Islamic education, AI not only serves as a tool to simplify the learning process but also functions as a strategic instrument to provide more adaptive, personalized, and interactive learning experiences. The application of this technology enables students to gain broader access to Islamic knowledge sources, ranging from classical texts to contemporary

\*Rismawati Rismawati is a Student of Islamic Religious Education Study Program at Postgraduate School, State Islamic University Datokarama Palu, Indonesia. This paper was presented at the 4<sup>th</sup> International Conference on Islamic and Interdisciplinary Studies (ICIIS) 2025, as a presenter, held by the Postgraduate School State Islamic University Datokarama Palu, Indonesia.

literature available in digital databases (Zarkani et al., 2024). Thus, AI has the potential to build a more modern, efficient, and relevant ecosystem for Islamic education that meets the needs of Muslim generations living in the era of globalization and the Fourth Industrial Revolution, while also strengthening the position of Islamic education in addressing the challenges of Society 5.0 (Marwa et al., 2025). Despite offering great opportunities, the integration of AI in Islamic education also raises several critical issues. One of these concerns is how this technology can be utilized without diminishing the ethical and spiritual values that form the core of Islamic education (Mustoip et al., 2024). In some cases, the use of AI in producing academic works has sparked worries about increasing plagiarism practices and the declining academic integrity of students (Ali et al., 2025). Furthermore, infrastructure gaps, teachers' digital literacy, and the readiness of Islamic educational institutions to face technological disruption also pose serious challenges. Therefore, the development of AI in Islamic education must be framed not only as a pursuit of technological advancement but also as an effort to strengthen morality, spirituality, and the character development of Muslim generations.

The research problems in this study are formulated based on these dynamics: (1) how AI plays a role in enhancing the effectiveness of Islamic education learning; (2) what opportunities can be utilized from the application of AI for the development of Islamic knowledge; (3) what ethical, spiritual, and academic challenges arise in its implementation; and (4) what strategies can be undertaken to optimize the use of AI in building Muslim generations who are both knowledgeable and globally competitive (Nasrullah et al., 2023). These research problems are important as they provide both a conceptual and practical foundation for Islamic educational institutions in Indonesia and at the global level. The objectives of this study are: (1) to analyze the role of AI in Islamic education learning; (2) to identify opportunities and prospects of AI utilization in the development of Islamic scholarship; (3) to describe the challenges encountered in AI implementation; and (4) to formulate strategies for empowering Muslim communities through AI-based Islamic education. By achieving these objectives, this study is expected to provide a tangible contribution, both academically and practically, to the enrichment of Islamic education literature and to serve as an applicative guideline for educational institutions in utilizing AI effectively, ethically, and in accordance with Islamic values (Hidayat & Fadhilah, 2022).

## **2. Literature Review**

### **2.1 The Development and Application of Artificial Intelligence in Islamic Education**

Recent literature indicates an accelerated adoption of AI technology in the field of Islamic education, particularly since the emergence of curriculum adaptation needs in the era of Society 5.0. Empirical studies affirm that AI has been utilized at various levels of education, from madrasahs to universities, to develop adaptive modules, interactive media, and automated assessment systems that facilitate access to both classical and contemporary Islamic learning materials (Zarkani et al., 2024; Marwa, Anwar, & Firmansyah, 2025). These findings are consistent with studies portraying AI as a catalyst for the modernization of learning processes, while also highlighting institutional governance challenges that must be addressed systematically.

### **2.2 Personalization, Deep Learning, and Pedagogical Effectiveness**

One of the scientific consensuses is that AI particularly approaches based on deep learning and adaptive models—can enhance the personalization of learning (e.g., tailoring materials to the learner's level of understanding, providing automated feedback, and learning analytics). Case studies in madrasahs and elementary schools have shown improved cognitive achievement and easier access to learning resources when AI is integrated with appropriate instructional design (Khoiri & Akib, 2025; Marwa et al., 2025). However, review articles also caution that evidence of the long-term impact on the development of religious character is still limited and requires longitudinal evaluation.

### **2.3 Ethics, Academic Integrity, and Algorithmic Risks**

The literature highlights ethical issues and the potential misuse of AI including risks of plagiarism, erosion of critical thinking skills, and algorithmic bias that may produce content that is inaccurate or inconsistent with Islamic values. Survey and mixed-method studies involving students and lecturers emphasize the need for ethical guidelines and AI literacy education to prevent academic misconduct and maintain the originality of scholarly work (Ali, Hayati, Faiza, & Khaerah, 2025). Furthermore, several researchers stress the necessity of collaboration among religious scholars, educators, and technology developers to implement Sharia/maqāṣid principles in AI system design.

### **2.4 Institutional Readiness, Educator Literacy, and Implementation Strategies**

Field studies and literature reviews have identified three main obstacles: (a) uneven digital infrastructure; (b) low AI and digital pedagogy literacy among Islamic Education (PAI) teachers; and (c) the lack of clear institutional policies regarding AI usage.

Empirical research in madrasahs and elementary schools recommends intervention packages including continuous teacher training, phased infrastructure investment, and implementation guidelines based on Islamic values to ensure that AI strengthens the teacher's role as a moral guide rather than replacing it (Mustoip et al., 2024; Zarkani et al., 2024). These recommendations provide a strategic foundation that will be further examined in this study.

## 2.5 Research Gaps and Future Directions

Although the literature is relatively rich in technical aspects and initial case studies, there is a research gap in the longitudinal evaluation of AI's effects on the development of religious character, the theological validation of AI content, and policy models that harmonize technological innovation with the objectives of Islamic education. Therefore, this study aims to fill these gaps by integrating a content-based literature analysis (Sinta-indexed) with policy recommendations focused on the technical-pedagogical-religious synergy (sustainability, equity, and ethics).

## 3. Methodology

This study employs a qualitative approach using library research to analyze the role of artificial intelligence (AI) in Islamic education. The qualitative approach was chosen because it provides an in-depth understanding of the phenomenon of AI integration within the context of Islamic scholarship, which encompasses not only technical aspects but also ethical, spiritual, and social dimensions. Data were collected from both primary and secondary literature, including journal articles, books, and scientific publications from the last five years that are indexed in Sinta or internationally recognized. Analysis was conducted using content analysis techniques, identifying themes, concepts, and relevant patterns related to the implementation of AI in Islamic education (Creswell & Creswell, 2018; Zarkani et al., 2024). The research procedure included: (1) collecting relevant literature related to AI, Islamic education, and digital transformation; (2) selecting sources based on credibility and recency; (3) organizing data according to the research focus; and (4) performing thematic analysis to examine the roles, opportunities, challenges, and strategies of AI implementation in fostering knowledgeable and globally competitive Muslim generations. Data validity was ensured through source triangulation by comparing findings across multiple academic publications. This method enables the researcher to present a comprehensive conceptual review while providing practical recommendations that can be applied by Islamic educational institutions to utilize AI ethically and effectively (Nasrullah et al., 2023; Mustoip et al., 2024).

## 4. Results and Discussion

The findings of this study indicate that artificial intelligence (AI) plays a strategic role in enhancing the effectiveness of Islamic education. The main results highlight that AI can create adaptive and personalized learning experiences, where instructional materials are tailored to the understanding and needs of each learner. This approach enables students to learn at their own pace, thereby improving conceptual comprehension and analytical skills. These findings are consistent with Khoiri and Akib (2025), who reported significant improvements in students' cognitive achievements through the use of AI-based adaptive learning models. Moreover, AI has the potential to expand access to both classical and contemporary Islamic knowledge, thereby making Islamic literacy more equitable and inclusive. Consequently, this study addresses its primary objective of evaluating AI's contribution to learning effectiveness while emphasizing that AI is not merely a tool but a strategic instrument to foster a modern, relevant, and globally competitive Islamic learning ecosystem.

On the other hand, this study also highlights the ethical and academic challenges arising from AI implementation. Concerns regarding plagiarism, erosion of critical thinking skills, and algorithmic bias have emerged as serious issues, as noted by Ali et al. (2025). This research extends previous literature by adding a spiritual dimension, emphasizing that AI use without a clear ethical framework could undermine the core values of Islamic education. Therefore, the development of AI literacy guidelines grounded in Islamic principles is crucial to maintain academic integrity while strengthening students' religious character. These findings underscore that moral and pedagogical considerations must be integrated into technology adoption, ensuring that AI is applied wisely and aligned with the holistic goals of Islamic education.

Another critical aspect identified is the low level of digital literacy among educators and the institutional readiness for effective AI adoption. Mustoip et al. (2024) and Zarkani et al. (2024) previously highlighted infrastructural and pedagogical digital barriers, and this study confirms that these remain significant challenges. However, this research contributes a new perspective by identifying implementation strategies that position teachers as moral guides and learning facilitators rather than merely technical operators. This approach ensures that AI utilization is conducted ethically, in accordance with *maqāṣid al-sharī'ah*, and supports the development of students who are knowledgeable, academically competent, and capable of competing

globally without compromising Islamic values. Overall, this study emphasizes that AI is not just a technological tool but a transformative instrument capable of building a holistic, modern, and ethically grounded Islamic education system.

Overall, the findings of this study affirm that artificial intelligence (AI) holds great potential to strengthen the global competitiveness of the Muslim generation, particularly in the context of education increasingly shaped by the dynamics of digital technology. AI is not only capable of enhancing learning effectiveness and broadening access to the rich heritage of Islamic scholarship, but it can also serve as a means of shaping graduates who are not only intellectually competent but also adaptive to global change. Nevertheless, the success of AI implementation in Islamic education greatly depends on the ability to maintain a balance between technological innovation and the reinforcement of Islamic values that underpin the entire educational process. Without a strong ethical and spiritual foundation, the use of AI risks reducing the essence of Islamic education, which in its true sense aims to cultivate *insan kamil* (the complete human being).

This discussion has strong relevance to contemporary practice, as it highlights that the integration of AI into Islamic education cannot be carried out partially or unilaterally, but must involve close synergy among various stakeholders. Educators play a role in designing effective learning models, scholars hold moral authority to ensure alignment with the principles of *sharia*, while technology developers are responsible for creating systems that are safe, transparent, and free from bias. The collaboration of these three parties will give rise to AI-based Islamic education policies that are not only oriented toward technological sophistication but also attentive to sustainability, inclusivity, and ethics. In this way, AI in Islamic education can become a transformative instrument capable of preparing a globally competitive Muslim generation without losing its religious identity.

## 5. Conclusion

This study confirms that artificial intelligence (AI) plays a strategic role in strengthening the effectiveness of Islamic education and enhancing the global competitiveness of Muslim generations in the digital era. AI has been shown to provide adaptive, personalized, and inclusive learning experiences, thereby not only expanding access to the vast treasury of Islamic knowledge but also shaping graduates who are intellectually competent and responsive to global changes. Thus, AI should not be viewed merely as a tool, but as a transformative instrument capable of building a modern, relevant, and competitive ecosystem of Islamic education. Nevertheless, the findings also emphasize that the implementation of AI is inseparable from ethical, academic, and spiritual challenges. Issues such as plagiarism, declining critical thinking skills, algorithmic bias, and low levels of teachers' digital literacy present serious obstacles. Without a clear ethical framework, the use of AI risks undermining the core values of Islamic education, which are ultimately directed toward the formation of *insān kāmil* (the complete human). Therefore, strengthening AI literacy guidelines based on Islamic values and adopting strategies that position teachers not merely as technical operators but as moral guides and learning facilitators are crucial.

The success of integrating AI into Islamic education largely depends on strong synergy among various stakeholders. Education experts are responsible for designing effective learning models, religious scholars ensure alignment with the principles of Shari'ah, and technology developers are tasked with providing systems that are safe, transparent, and free from bias. Collaboration among these three parties will give rise to AI-based Islamic education policies that are sustainable, inclusive, and ethical. By maintaining a balance between technological innovation and the reinforcement of Islamic values, AI can serve as a strategic instrument to prepare Muslim generations who excel globally without losing their religious identity.

## References

- Ali, N., Hayati, M., Faiza, R., & Khaerah, A. (2025). Artificial Intelligence (AI) dalam Pendidikan Islam: Trends, persepsi, dan potensi pelanggaran akademik di kalangan mahasiswa. *INJIRE: Indonesian Journal of Islamic Religious Education*, 5(1), 45–58. [https://injire.org/index.php/journal/article/view/18?utm\\_source=chatgpt.com](https://injire.org/index.php/journal/article/view/18?utm_source=chatgpt.com)
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
- Hidayat, R., & Fadhillah, S. (2022). Strategi pengembangan pendidikan Islam di era revolusi industri 4.0. *Tarbiyah Islamiyah: Jurnal Ilmiah Pendidikan Agama Islam*, 12(2), 101–115.
- Khoiri, & Akib, A. R. M. (2025). *Implementation of deep learning in Islamic Religious Education (PAI) learning in Madrasah*. Indonesian Journal of Islamic Studies (IJIS), 1(2). <https://doi.org/10.62567/ijis.v1i2.909>

- Marwa, N. K., Anwar, S., & Firmansyah, M. I. (2025). *The implementation of artificial intelligence in Islamic education learning at elementary school*. *Edu Cendikia: Jurnal Ilmiah Kependidikan*, 4(03), 1676–1686. <https://doi.org/10.47709/educendikia.v4i03.5413>
- Mustoip, S., Al Ghozali, M. I., Lestari, D., Dz, A. S., & Damayanti, I. (2024). Implementation of artificial intelligence in Islamic religious education learning at Madrasah Ibtidaiyah. *Eduprof: Islamic Education Journal*, 9(2), 211–225.
- Nasrullah, R., Santosa, A., & Fadhli, M. (2023). Digital transformation and Islamic education in the disruption era. *Al-Tarbawi: Jurnal Pendidikan Islam*, 8(1), 55–70.
- Zarkani, M., Burhanudin, B., Bahari, L. P. J., & Bahri, S. (2024). *Actualization of the use of artificial intelligence (AI) in developing Islamic education in the era of Society 5.0*. *Khazanah Pendidikan Islam*, 6(1), 57–71. <https://doi.org/10.15575/kp.v6i1.41312>
- Zarkani, M., Burhanudin, L. P. J. B., & Bahari, S. B. (2024). Actualization of the use of artificial intelligence (AI) in developing Islamic education in the era of Society 5.0. *Khazanah Pendidikan Islam*, 6(3), 233–245. <file:///C:/Users/asusl/Downloads/andiaja,+57-71-1.pdf>