

Potential and Practice of Artificial Intelligence (AI) Literacy in Madrasah Education in Indonesia

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ARTICLE INFO	ABSTRACT
Volume: 4 ISSN: 2963-5489	Artificial intelligence, known as Artificial Intelligence (AI), is a field in computer science that aims to create systems or devices that can mimic human mindsets, learning processes and behavior. The main goal is to develop technology that is able to carry out tasks that usually require human intelligence, such as understanding language, recognizing images and sounds, making decisions, and solving problems In Indonesia, the development of artificial intelligence (AI) is very rapid and has begun to have an impact on almost all aspects of human life, including in the context of religion. This paper examines how to apply artificial intelligence (AI) in educational institutions in Indonesia, especially in madrasas. Through a qualitative approach with literature studies, analyzing the application of artificial intelligence (AI) in religious education-based institutions in Indonesia. The research findings show that AI can serve as an aid in the learning process, but it cannot take over the position of the teacher which is an important element in the process. This study contributes to the discourse of learning in the digital era by introducing a new paradigm in the world of education, especially in madrasas.
KEYWORDS	
Artificial intelligence (AI), education in Indonesia, madrasah education	

1. Introduction

The rapid development of digital technology in the 21st century has brought significant changes in many aspects of life, including in the education sector. One of the technological innovations that is in the spotlight is artificial intelligence (AI). The existence of AI has not only changed the way humans work and interact, but also provided new opportunities to change the education system to be more flexible, efficient, and personalized.

2. Literature Review

2.1 Concepts and dimensions of AI literacy

AI literacy is interpreted not only as technical skills in using tools, but includes aspects: (1) basic understanding of what AI is, (2) practical skills in utilization (3) critical analysis skills, and (4) ethical considerations and responsibilities (including privacy, plagiarism, and social impact) (Dwi Wicaksono and Sri Rahayu, 2025). Several studies in the field of education in Indonesia combine these aspects as a framework to measure AI literacy.

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2.2 National policies and curriculum initiatives

The Government of Indonesia has added the strengthening of digital literacy, coding, and artificial intelligence to the national policy document and curriculum including guidelines for the use of generative-AI for higher education that provide a policy basis for the integration of AI at the school or madrasah level. The implementation of this policy creates an opportunity to develop AI literacy modules that are appropriate for the context of madrasas (Husnah mahmudah, 2025).

2.3 The potential of AI for madrasah education

Some of the key potentials of AI for the context of madrasah education:

- Personalization of learning (adaptive learning, materials according to students' abilities),
- Automation of administrative tasks (formative assessments, data management),
- Enrichment of religious materials and values through intelligent media that can present historical contexts/religious texts interactively (Yuda Al Fadillah, Alifa Rafli Akbar, and Gusmaneli, 2024).

2.4 Empirical practice and implementation challenges in madrassas

Several preliminary studies (articles and field reports) have recorded experiments on the application of AI applications in improving digital literacy skills in madrasas, one example is research investigating the use of AI applications to strengthen digital literacy and learning in madrasas, as well as quantitative research on students' understanding of AI (including ChatGPT) in madrasas. The challenges are infrastructure gaps, teacher capacity, ethical and privacy issues and value suitability.

3. Methodology

This research was taken from a number of sources, including journal articles, books, and research reports related to artificial intelligence (AI). Data analysis was carried out using content analysis, focusing on the role of Artificial Intelligence (AI) in madrasah education.

4. Results and Discussion

4.1 The Potential of Artificial Intelligence (AI) in Madrasah Education

The results of the study indicate that the use of artificial intelligence can have a significant positive impact on improving the quality of learning in madrasas, both in terms of teaching, management, and character formation of students.

4.2 AI Literacy Practices in Madrasah

From the results of observations in several madrassas in Indonesia, it was revealed that the implementation of literacy is still in the early phase. Nevertheless, there have been concrete steps that pay attention to good developments, including: the use of AI in education, teacher and student training, and collaborative learning that utilizes technology.

4.3 Challenges in Implementation

Despite the great potential, the implementation of AI literacy in madrassas still faces a number of significant obstacles: limited digital infrastructure, especially in madrassas located in remote locations, teachers' lack of ability to understand the principles and ethics of using AI, the lack of an AI literacy curriculum that integrates Islamic values, and ethical concerns about the use of AI that may undermine spiritual values or create an over-reliance on technology (Rizka Aifalesasunanda, Yudin Citriadin, and Fathul Maujud, 2024).

5. Conclusion

Madrasah education in Indonesia has a significant possibility to strengthen artificial intelligence literacy as part of the change in Islamic education in the 21st century. However, cooperation between the government, teachers, and educational institutions is needed to strengthen infrastructure, improve capabilities, and develop an AI curriculum that is in line with Islamic principles.

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