

Transforming Islamic Education through Artificial Intelligence: The Perspective of the Independent Learning Curriculum

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ARTICLE INFO	ABSTRACT
Volume: 4 ISSN: 2963-5489	This article explores the transformative role of Artificial Intelligence (AI) in Islamic education within the framework of the Merdeka Belajar Curriculum. As digital technologies increasingly shape educational practices, AI emerges not only as a supporting tool but also as a catalyst for innovative, flexible, and personalized learning. Through a qualitative descriptive approach and literature-based analysis, this study examines how AI contributes to adaptive learning systems, curriculum flexibility, and student-centered pedagogies while simultaneously addressing the ethical, pedagogical, and theological implications of its integration. The findings reveal that AI applications such as adaptive platforms, Qur'an learning apps, and interactive educational tools enhance student engagement, independence, and learning outcomes, in line with the principles of Merdeka Belajar. However, challenges remain, including digital inequality, teacher readiness, policy gaps, and the need for ethical guidelines to ensure that AI complements rather than undermines the moral and spiritual mission of Islamic education. The study concludes that AI can serve as a powerful instrument to strengthen Islamic education when integrated through a multidimensional framework that balances technological innovation with pedagogical and ethical considerations.
KEYWORD Artificial Intelligence, Islamic Education, Merdeka Belajar Curriculum, Adaptive Learning, Educational Transformation	

1. Introduction

The rapid development of digital technology has brought significant changes to various aspects of life, including education. One of the most prominent innovations is the emergence of Artificial Intelligence (AI), which functions not only as a supporting tool but also as an instrument of learning transformation (Razilu, 2025). In the context of Islamic education, the use of AI presents both challenges and opportunities to enrich the teaching and learning process, especially when connected to the implementation of the Merdeka Belajar Curriculum, which emphasizes flexibility, independence, and differentiated learning (Purnomo, 2024).

The Merdeka Belajar Curriculum was designed as a response to the needs of the 21st century, which require critical thinking, collaboration, creativity, and digital literacy. In practice, however, the implementation of this curriculum demands innovative approaches to ensure that Islamic values remain relevant and contextual. This is where AI offers solutions, such as adaptive learning systems, AI-based Islamic educational applications, and student learning data analysis that enables teachers to

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design more personalized learning. Thus, the integration of AI into Islamic education not only supports the achievement of curriculum goals but also strengthens the spiritual and moral mission that characterizes Islamic education (Nainggolan, 2025). The transformation of Islamic education through AI also requires a reinterpretation of the teacher's role. Teachers are no longer merely conveyors of information but facilitators who are capable of utilizing technology to instill Islamic values while equipping students with global competencies. This aligns with the principle of Merdeka Belajar, which provides students with broader opportunities to develop their potential in ways that suit their individual needs and interests. Therefore, the use of AI should be viewed not only from a technological standpoint but also from philosophical, pedagogical, and theological perspectives that underpin Islamic education (Susanto et al., 2024).

Accordingly, this article aims to analyze how AI can act as a catalyst in transforming Islamic education, particularly within the framework of the Merdeka Belajar Curriculum. This study is expected to provide new perspectives on integrating technology with Islamic values in education while offering academic contributions to the development of competitive Islamic education in the digital era.

2. Literature Review

The development of Artificial Intelligence (AI) in education has been widely examined from pedagogical, technical, and evaluative perspectives. Several studies emphasize that AI, particularly through adaptive learning platforms, can provide personalized learning experiences based on students' profiles, progress, and learning styles. These adaptive learning systems have shown potential to increase engagement and learning outcomes by adjusting learning pathways and feedback in real time (Gligorea et al., 2023).

In the context of curriculum and learning reform, some research highlights how technology, including AI supports the implementation of more flexible and competency-based curricula. Studies on curriculum reform initiatives in Indonesia (Merdeka Belajar) point out the need for teacher training, digital infrastructure, and data policies to accommodate new technologies so that curriculum goals can be achieved without neglecting equity in access to education. Ideally, AI integration should align with the principles of flexibility, differentiation, and contextual learning that characterize the Merdeka Belajar framework (Wahyudiono, 2023).

Literature on religious and Islamic education demonstrates two major lines of discussion: (1) the functional benefits of AI, such as chatbots for religious text inquiries, Qur'an text analysis, and interactive Islamic learning resources which can expand access and personalization of religious learning; and (2) ethical and formational issues, concerns that AI should not replace relational aspects, moral formation, and interpretative authority that are central to religious education. Scholars recommend a collaborative approach between theologians, educators, and technologists to design value-sensitive AI solutions (Djazilan et al., 2024).

Several case studies in faith-based schools show early implementations, such as chatbots tailored to institutional values, adaptive learning platforms that include religious content, and teachers transitioning from "information transmitters" to "facilitators and content curators." However, empirical reports also highlight challenges: limited resources, digital gaps across regions, teachers' need for digital literacy training, and concerns over privacy and accuracy of AI-generated content. Therefore, research suggests gradual adoption, ethical guidelines, and continuous evaluation (du Plooy et al., 2024).

Theoretically, the integration of AI into Islamic education under the Merdeka Belajar framework requires a conceptual framework that combines cognitive, affective, and spiritual objectives. Some authors stress that AI should strengthen Islamic character development (akhlaq), critical thinking, and digital literacy, not merely improve technical efficiency. Thus, curriculum design and assessment instruments should evaluate not only cognitive achievements but also students' value and behavioral development within the religious context (Papakostas, 2025).

Based on the above review, several research gaps are identified: (1) controlled empirical studies on the effectiveness of AI specifically in Islamic Education (PAI) under the Merdeka Belajar framework; (2) pedagogical models that integrate Islamic principles with adaptive algorithms; (3) policy studies on data governance in religious education and ethical guidelines; and (4) research on teacher training design for transitioning into technology-facilitating roles. This article seeks to address part of these gaps by combining literature review, policy analysis, and evidence-based recommendations for curriculum and implementation design.

3. Methodology

This study employs a qualitative descriptive research design with a literature-based approach (Fitri & Haryanti, 2020). The design was chosen to enable an in-depth exploration of the role of Artificial Intelligence (AI) in transforming Islamic education within the framework of the Merdeka Belajar Curriculum. Rather than testing hypotheses, this research seeks to analyze, interpret, and synthesize existing studies, policies, and theoretical perspectives to generate a comprehensive understanding and new insights.

The primary data sources consist of scholarly articles, policy documents, and empirical reports published within the last five years (2020–2025). Databases such as Scopus, Web of Science, Google Scholar, and PubMed were used to retrieve academic literature. In addition, national policy documents from the Indonesian Ministry of Education, Culture, Research, and Technology (Kemendikbudristek) related to Merdeka Belajar were included to contextualize the analysis.

The data collection process involved systematic searching, screening, and selection of literature. Keywords used included “Artificial Intelligence in education”, “Islamic education and AI”, “Merdeka Belajar curriculum”, and “adaptive learning and religion”. Inclusion criteria required the articles to be peer-reviewed, published between 2020–2025, and directly related to AI integration in education, particularly within Islamic or religious contexts. Exclusion criteria involved outdated studies, non-peer-reviewed reports, and sources without methodological clarity.

4. Results and Discussion

The findings of this study indicate that Artificial Intelligence (AI) has considerable potential to transform Islamic education, particularly when aligned with the principles of the Merdeka Belajar Curriculum. Adaptive learning systems supported by AI enable personalized learning experiences in which students can progress at their own pace and receive feedback tailored to their needs. This approach resonates with the philosophy of differentiated instruction embedded in Merdeka Belajar. For instance, AI-based applications for Qur’an learning and Islamic knowledge exploration allow students to engage with religious content interactively, thereby promoting both cognitive growth and self-regulated learning. At the same time, the ability of AI to analyze vast amounts of student learning data offers educators valuable insights into students’ learning patterns, difficulties, and progress. These insights can inform instructional design that balances academic achievement with the cultivation of spiritual and moral values, which remain central to Islamic education.

AI also serves as a catalyst in realizing the flexibility envisioned by the Merdeka Belajar Curriculum. By delivering adaptive content, providing real-time assessments, and generating individualized feedback, AI ensures that learners receive support suited to their unique circumstances. A student who struggles with subjects such as fiqh, tafsir, or Islamic history can immediately access additional resources and explanations, while more advanced learners can be guided toward enriched materials. In this way, AI facilitates student-centered learning, and teachers are repositioned from the role of knowledge transmitters to facilitators who guide students through meaningful, technology-assisted learning experiences.

Despite these advantages, the integration of AI into Islamic education brings forth significant ethical and pedagogical challenges. The relational and spiritual connection between teachers and students, which is fundamental to character and moral education (akhlaq), cannot be replaced by technology. Over-reliance on AI risks reducing Islamic education to a technical process, disregarding its affective and spiritual dimensions. Therefore, AI must be seen as a complementary tool rather than a substitute for human educators. Teachers remain central in transmitting Islamic values, while AI functions as an auxiliary instrument that enhances access, personalization, and efficiency.

Nevertheless, several barriers complicate the integration of AI within the Merdeka Belajar framework. The digital divide in Indonesia continues to hinder equal access to technology, especially in rural and underprivileged regions. Moreover, many educators still lack sufficient digital literacy to implement AI tools effectively in the classroom, highlighting the urgent need for comprehensive training programs. Policy frameworks governing ethical AI use, data privacy, and content validation in religious contexts are also underdeveloped, posing risks to both accuracy and trustworthiness. Additionally, cultural and theological sensitivities demand careful curation of AI-generated content to ensure alignment with Islamic teachings and traditions.

The implications of these findings suggest that integrating AI into Islamic education under the Merdeka Belajar Curriculum requires a holistic approach that encompasses pedagogical, technological, and ethical dimensions. Pedagogically, AI should enhance learning personalization and assessment while maintaining the spiritual integrity of Islamic education. Technologically, strong infrastructure and digital literacy development are essential to ensure effective and equitable implementation. Ethically, AI must be employed with sensitivity to Islamic values so that it reinforces rather than undermines the mission of education. Through this multidimensional perspective, AI can be harnessed not only to improve educational quality but also to sustain the broader objectives of Islamic education in nurturing knowledge, morality, and spirituality.

5. Conclusion

In conclusion, Artificial Intelligence (AI) offers transformative opportunities for Islamic education within the Merdeka Belajar Curriculum by enabling personalized, adaptive, and flexible learning experiences that enhance student engagement and independence while supporting curriculum goals; however, the spiritual, relational, and moral dimensions of education must remain central, positioning teachers as facilitators of values and character development with AI serving as a supportive tool, and addressing challenges such as the digital divide, teacher readiness, and policy gaps through integrated pedagogical, technological, and ethical strategies will be essential to ensure that AI strengthens rather than diminishes the holistic mission of Islamic education.

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