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DEVELOPMENT OF AN ARTIFICIAL INTELLIGENCE-BASED ISLAMIC RELIGIOUS EDUCATION CURRICULUM TO IMPROVE LEARNING QUALITY

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Abstract

The development of an Artificial Intelligence (AI)-based Islamic Religious Education (PAI) curriculum has become an urgent necessity in today's digital era. An AI-based curriculum offers a more personalized, adaptive, and interactive learning approach, thereby enhancing the effectiveness and relevance of religious education in addressing the challenges of the 21st century. Using a qualitative approach with a library research method, this study examines how AI can be integrated into the objectives, content, methods, and assessment of PAI learning. In addition, it explains the benefits and implications for teachers, students, and educational institutions. The findings of this study indicate that: 1. The development of an AI-based Islamic Religious Education (PAI) curriculum has proven to be a strategic approach to improving the quality of learning in the digital era, 2.The implementation of AI in PAI learning has a positive impact on teachers and students. For teachers, AI enhances instructional efficiency and assists in analyzing and detecting students' learning difficulties more accurately, 3. The successful implementation of an AI-based PAI curriculum is highly dependent on systemic and collaborative support. Synergy among policymakers, educators, and technology developers is required to ensure that the developed curriculum remains humanistic, value-oriented, and sustainable.

Keywords: PAI Curriculum, Artificial Intelligence, Learning Innovation, Digital Education

A. Introduction

The development of information and communication technology over the past two decades has driven major changes in various aspects of life, including education. We are currently living in the era of the Fourth Industrial Revolution, which is now evolving

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towards Society 5.0, where humans coexist with Artificial Intelligence (AI), big data, and the Internet of Things (IoT) in their daily activities (Putu Sudira,2016). The education sector is requPAId not only to adapt but also to actively transform in order to produce a generation that is responsive to the demands of the times while maintaining a strong moral and spiritual foundation.

In the context of Indonesia, a country where religion is an integral part of national life, religious education holds a strategic role. Islamic Religious Education (PAI) functions not only as a means of transmitting religious knowledge, but also as a vehicle for character building, ethics, and the cultivation of humanitarian values. However, in practice, the teaching of PAI at various educational levels still faces many challenges. One of the main issues is the tendency towards conventional and uninspPAId teaching methods, where teachers dominate the learning process through lectures and rote memorisation, with minimal active student involvement (Fadilah Khairani et al.,2024).

In this digital era, today's learners are part of a generation deeply familiar with technology—often referred to as digital natives. The gap between the traditional approaches used by educators and the technological inclinations of students creates a disconnect in the educational process. As a result, PAI lessons are often perceived as unengaging, monotonous, and out of touch with students' real-life contexts. In fact, if designed and developed using more modern approaches, religious education has great potential to become a powerful and enjoyable means of internalising values.

One breakthrough in PAI curriculum development is the integration of Artificial Intelligence (AI) into the design and implementation of learning. In the educational context, AI functions as a tool that enables the learning process to become more personalised, adaptive, and efficient. Through this technology, teachers can identify individual students' learning needs, develop automated assessments, and provide timely and relevant feedback (Brent Morgan et al.,2020). AI-based PAI learning also enables the creation of interactive digital materials, such as simulations of Qur'anic stories, chatbot-based Q&A sessions on Islamic theology, and personalised Qur'anic interpretation (tafsir) applications.

Furthermore, the development of an AI-based PAI curriculum is not merely about utilising digital tools, but involves a comprehensive transformation of the entPAI learning design process from determining objectives and selecting content to formulating teaching strategies and evaluation methods. This means the curriculum must be designed in a way that addresses the spiritual needs of learners, while also leveraging technological advancements as effective media for conveying religious messages (Olaf Zawacki-Richter et al.2019). In this regard, PAI teachers also need to receive training and support in mastering AI technologies to enable their proper integration into the learning process.

The transformation of the Islamic Religious Education (PAI) curriculum through the integration of Artificial Intelligence (AI) has become increasingly important in response to the growing complexity of global challenges—ranging from the unfiltered flow of information to the potential crisis of values among younger generations. The development of a PAI curriculum that is responsive to technological advancements not only enhances the quality of the teaching and learning process, but also serves as a strategic effort to maintain the relevance of Islamic values in shaping the character of the nation. Based on this background, this study aims to comprehensively examine how the development of an AI-based PAI curriculum can be implemented and to explore its potential in improving the quality of learning in terms of effectiveness, efficiency, and the relevance of content to contemporary needs.

B. Method

This study employs a qualitative approach using a library research method to explore information, theories, and secondary data from various relevant literatures in order to support a conceptual analysis of the integration of Artificial Intelligence (AI) into the Islamic Religious Education (PAI) curriculum to enhance learning quality. The main data sources include books, scientific journals, previous research findings, government documents, and relevant academic studies.The data analysis procedure used in this study is descriptive-analytical, which involves describing the content of the collected literature and then analyzing the interrelationships among concepts to formulate ideas for the development of an AI-based PAI curriculum. The main focus of this research is the development of an Artificial Intelligence (AI)-based Islamic Religious Education (PAI) curriculum to improve learning quality.

C. Finding and Discussion

1. Basic Concept of the Islamic Religious Education (PAI) Curriculum

In general, a curriculum is a set of plans and arrangements concerning educational objectives, content, learning materials, and methods used as guidelines for implementing learning activities (Kemendikbud, 2016). In the context of religious education, the curriculum is not only intended to transfer religious knowledge, but also to shape students' values, attitudes, and religious behaviours. The Islamic Religious Education (PAI) curriculum possesses distinctive characteristics that set it apart from general subjects, particularly its emphasis on character building, spirituality, and the internalisation of Islamic values in everyday life (Arofah Aprilia Putri,2018).

The PAI curriculum must go beyond theoretical delivery; it must also touch upon students' affective and psychomotor aspects. Therefore, its design integrates Islamic values contextually with students' real-life experiences. Key characteristics of the PAI

curriculum include being normative-transcendental, contextual, integrative, and humanistic. It must also be adaptive to socio-cultural dynamics and technological advancements to remain relevant in the modern era.

Nationally, the purpose of religious education in Indonesia is regulated in Law No. 20 of 2003 on the National Education System, which is to shape Indonesian individuals who are faithful and pious to God Almighty and possess noble character. Religious education is expected to foster students with strong spiritual, social, and national awareness (UU RI No. 20 Tahun 2003).

Globally, religious education aims to shape individuals who are tolerant, open-minded, and possess a comprehensive understanding of diversity. It also serves as an instrument for promoting global peace by instilling universal values such as honesty, justice, responsibility, and compassion among fellow human beings (Rosnani Hashim,, 2005). Thus, the PAI curriculum must be capable of responding to globalisation challenges, such as rising religiously motivated conflicts, a global moral crisis, and the moral decline of younger generations.

In practice, the implementation of the PAI curriculum still faces numerous challenges. One major challenge is the continued use of traditional, one-way teaching methods that fail to engage students actively and do not connect with their everyday lives (Miftahul Huda and Irwansyah Suwahyu, 2024). As a result, PAI lessons are often perceived as monotonous and overly focused on rote memorisation, rather than on internalising Islamic values.

Additionally, the rapid advancement of technology has not yet been optimally utilised in PAI learning. Today's generation, being digital natives, are more responsive to technology-based approaches. Teachers' limited digital skills and the lack of digital facilities are also barriers to implementing an innovative PAI curriculum. Another challenge is the gap between the normative curriculum content and the complex, diverse realities of students' social lives.

Therefore, there is a need to develop a more progressive and contextual PAI curriculum (Zawacki-Richter et al 2019). including the integration of intelligent technologies such as Artificial Intelligence (AI), to make learning more relevant, engaging, and effective in shaping Islamic character in the digital age.

2. The Use of Artificial Intelligence (AI) in Education

Artificial Intelligence (AI) is a branch of computer science that focuses on developing systems capable of mimicking human intelligence, such as decision-making, language understanding, and learning from data. In education, AI has evolved into a technology that enhances efficiency and personalisation in learning. Common forms of AI used in education include machine learning, natural language processing (NLP), and adaptive learning systems. Machine learning enables systems to learn from student data patterns and adjust

content or approaches automatically (Morgan et al 2020). NLP allows machines to understand and respond to human language, as seen in educational chatbots that can answer students' questions or explain concepts interactively. Meanwhile, adaptive learning systems create tailored learning paths suited to each student's unique needs, thus reinforcing the principle of differentiated instruction (Stefan A D Popenici and Sharon Kerr 2017).

AI has been integrated into teaching and learning in various applications. One example is AI-powered chatbots designed as virtual tutors to assist students outside classroom hours. These chatbots can explain material, provide practice questions, and offer real-time feedback (Lijia Chen et al, 2020). Furthermore, automated assessment systems using AI have become a major innovation. These systems can evaluate student work, assign scores, and even deliver detailed feedback in a short time (Zawacki-Richter et al.,2019), especially for multiple-choice tests and short essays. AI-based learning platforms such as Squirrel AI and Knewton have proven effective in improving student performance by analysing learning behaviour data and offering content tailored to students' ability levels (Wayne Holmes et al).

The advantages of using AI in education include increased teaching efficiency, personalised learning, and ease of access to learning materials anytime and anywhere. AI reduces teachers' administrative workload, enabling them to focus more on students' pedagogical and socio-emotional development (Popenici and Kerr, 2017). In the context of PAI, AI can also serve as an engaging, accessible medium of interactive religious outreach for the digital generation for instance, through digital tafsir applications, automated prayer reminders, or AI-powered interactive content tailored to students' learning styles in subjects such as theology, ethics, and Islamic jurisprudence (Huda and Suwahyu, 2024)

However, AI implementation in education is not without its challenges. Ethical and data security issues arise when students' personal data may be exposed without adequate protection. Moreover, excessive reliance on AI may risk undermining the human role in education, particularly that of teachers who instil moral and spiritual values (Popenici and Kerr, 2017). In PAI specifically, AI-based learning must still uphold affective dimensions and model values, which fundamentally requ PAI the presence of teachers as moral exemplars.

Thus, while AI offers many opportunities to improve the quality and accessibility of education including in PAI its application must be guided by wise policy to ensure it does not displace the essential role of educators and continues to uphold humanistic and spiritual values in the learning process.

3. Model for Developing an AI Based PAI Curriculum

The development of an AI-based Islamic Religious Education (PAI) curriculum in the era of artificial intelligence requPAIs a strong foundation in philosophical, pedagogical, and technological aspects. Philosophically, the AI-based PAI curriculum remains rooted in the

values of monotheism, ethics, and Islamic humanism, but is transformed through approaches that are more contextual and adaptive to contemporary developments (Khairani et al, 2024). Pedagogically, this model promotes student-centred learning, supporting the principles of differentiation and flexibility. Technologically, AI is utilised as a medium to deliver, organise, and personalise learning content intelligently and automatically (Huda and Suwahyu, 2024).

The four main components of the curriculum objectives, content, methods, and assessment undergo significant transformation through AI integration. Curriculum objectives now extend beyond the mastery of conventional Islamic content to include digital literacy, character development, and spiritual awareness relevant to 21st-century challenges. As such, religious education aims not only to produce ritually devout individuals but also those who are globally adaptable and able to use technology wisely.

PAI learning materials can now be developed in the form of interactive digital content such as narrative-based videos on Islamic history, animated simulations of social ethics, and online modules that adjust to students' comprehension levels in real-time. AI-supported digital platforms enable teachers to create rich, varied content tailored to student needs (Muhamad Hadziq et al., 2024)

Teaching methods are also shifting. Adaptive and personalised learning approaches are now central, where AI systems can analyse students' learning patterns and recommend the most effective materials or strategies for each individual (Nurul Annisa et al., 2024). The flipped classroom model where students study materials independently via digital platforms before discussing them in class is highly relevant for deepening understanding and encouraging active engagement.

Assessment methods are also evolving with the advent of AI-based evaluation tools. These systems can provide real-time feedback, assess essay answers using natural language processing (NLP), and continuously track students' cognitive and affective development. Such assessments go beyond measuring outcomes, focusing also on learning processes and character growth.

As a narrative example of an AI-based PAI curriculum development model: learning objectives are aligned with the *Profil Pelajar Pancasila* and 21st-century competency needs. Content is designed in an interactive microlearning format accessible via AI-based educational apps. The method combines synchronous and asynchronous learning and uses AI recommendation systems to tailor teaching strategies. Assessment is conducted digitally both formatively and summatively through platforms that automatically analyse exam results and report students' progress to teachers and parents.

The integration of AI into the PAI curriculum is not merely a matter of adopting new technology, but a transformation in the values and perspectives underpinning religious education itself. With a solid foundation, AI can become a strategic partner in creating

more meaningful, inclusive, and relevant PAI learning experiences suited to the dynamics of modern life.

4. Benefits and Implications of Developing an AI Based PAI Curriculum

The implementation of an AI-based Islamic Religious Education (PAI) curriculum has significant implications for all elements of the education system. For teachers, AI integration can enhance teaching efficiency by providing automated tools such as content recommendation systems, AI-based assessments, and real-time analysis of student learning performance. This technology also helps teachers identify learning difficulties early on, allowing for more accurate and personalised intervention strategies (Holmes, Bialik, and Fadel, 2019)

For students, AI implementation in the curriculum offers a more engaging, dynamic, and interactive learning experience. They can access PAI materials in various digital formats, including animated videos, interactive simulations, and game-based learning. Furthermore, AI enables personalised learning, where materials and methods are tailored to each student's learning style and ability, making the learning process more meaningful (Chen, and Lin, 2020).

Educational institutions also gain substantial benefits from this curriculum development. Integrating AI into the curriculum structure improves the overall quality of education and strengthens the competitiveness of educational institutions, particularly in responding to globalisation and the Fourth Industrial Revolution. Beyond this, AI integration promotes more relevant and adaptive education aligned with the times, without neglecting spiritual values and Islamic character formation (Hadziq, Havifah, and Badriyah, 2024).

D. Conclusion

The development of an Artificial Intelligence (AI)-based Islamic Religious Education (PAI) curriculum is a strategic step to address the challenges of learning in the digital era. The integration of AI into objectives, content, methods, and evaluation allows PAI learning to become more relevant to the needs of the 21st century. AI is not only capable of enriching teaching materials interactively but also provides adaptive and personalized approaches tailored to students' needs. For teachers, the utilization of AI can enhance the efficiency of the teaching process and support early detection of students' learning difficulties. Meanwhile, for students, this approach creates a more engaging, in-depth, and individualized learning experience. For educational institutions, the implementation of an AI-based curriculum encourages the creation of higher-quality, competitive education aligned with global developments. Therefore, the design and implementation of an

AI-based PAI curriculum need to be systematically supported through collaboration between policymakers, educators, and technology developers to ensure that religious education remains contextual, humanistic, and transformative amid the changes of the times.

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