

EXPLORING THE IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE IN ISLAMIC EDUCATION: A SYSTEMATIC LITERATURE REVIEW

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Abstract : *The integration of Artificial Intelligence (AI) in Islamic education is changing the landscape of religious learning, in line with the broader trends of the 5.0 Industrial Revolution. The application of AI in Islamic education offers innovative ways to enhance the learning experience, expand access to religious knowledge, and provide a comprehensive educational pathway. However, it is clear that there is a lack of systematic literature that explicitly addresses the application of AI in Islamic education. This study aims to investigate the application of Artificial Intelligence (AI) in Islamic education, examining its potential to enhance personalized learning and educational accessibility. To answer the research questions, the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines were used to systematically identify 18 of the 379 articles, covering the period 2022 to 2024, and retrieved from three databases, namely Scopus, Google Scholar, and ERIC, according to the established exclusion and inclusion criteria. The results show that (1) AI effectively improves students' understanding, motivation, critical thinking skills, creativity, and efficiency in Islamic education. (2) Challenges include ethical issues, privacy concerns, and changing teacher roles. (3) Ethical considerations ensure that AI applications are aligned with Islamic principles and promote responsible use. It is recommended that stakeholders develop guidelines to balance technological advancement with the maintenance of ethical and spiritual principles.*

Keywords: Artificial Intelligence, Islamic Education, AI effectiveness, AI challenges, Ethical Considerations

Abstrak: Integrasi Kecerdasan Buatan (AI) dalam pendidikan Islam mengubah lanskap pembelajaran agama, sejalan dengan tren Revolusi Industri 5.0 yang lebih luas. Penerapan AI dalam pendidikan Islam menawarkan cara-cara inovatif untuk meningkatkan pengalaman belajar, memperluas akses ke pengetahuan agama, dan menyediakan jalur pendidikan yang komprehensif. Namun, jelas bahwa ada kurangnya literatur sistematis yang secara eksplisit

membahas penerapan AI dalam pendidikan Islam. Penelitian ini bertujuan untuk menyelidiki penerapan Kecerdasan Buatan (AI) dalam pendidikan Islam, memeriksa potensinya untuk meningkatkan pembelajaran yang dipersonalisasi dan aksesibilitas pendidikan. Untuk menjawab pertanyaan penelitian, pedoman PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) digunakan untuk mengidentifikasi secara sistematis 18 dari 379 artikel, yang mencakup periode 2022 hingga 2024, dan diambil dari tiga basis data, yaitu Scopus, Google Scholar, dan ERIC, sesuai dengan kriteria eksklusi dan inklusi yang ditetapkan. Hasil penelitian menunjukkan bahwa (1) AI efektif meningkatkan pemahaman, motivasi, keterampilan berpikir kritis, kreativitas, dan efisiensi siswa dalam pendidikan Islam. (2) Tantangannya meliputi masalah etika, masalah privasi, dan perubahan peran guru. (3) Pertimbangan etika memastikan bahwa aplikasi AI selaras dengan prinsip-prinsip Islam dan mendorong penggunaan yang bertanggung jawab. Disarankan agar para pemangku kepentingan mengembangkan pedoman untuk menyeimbangkan kemajuan teknologi dengan pemeliharaan prinsip-prinsip etika dan spiritual.

Kata kunci: *Kecerdasan Buatan, Pendidikan Islam, Efektivitas AI, Tantangan AI, Pertimbangan Etika*

INTRODUCTION

The advent of the Industrial Revolution 5.0 has triggered significant transformations in various sectors, including education (Bakkar & Kaul, 2023; Harahap et al., 2023; Naraidoo et al., 2024; Putra, 2023; Sukatin et al., 2023). With a focus on the fusion of human capabilities and advanced technology, this era is characterized by the increasing integration of Artificial Intelligence (AI) into various fields (Thakre et al., 2024). The integration of AI into education systems around the world has the potential to revolutionize the way learning is done, making it more personalized, efficient and accessible (Karroum et al., 2024). In the context of Islamic education, AI has the potential to transform Islamic education by modernizing traditional teaching methods and expanding access to religious knowledge, as per research from (Marlina & Yaza Azahra Ulya, 2024; Rozaanah, 2024; Shofiyyah et al., 2024).

Historically, Islamic education has relied on personal relationships between teachers and students (N. J. H. Ramadhan, 2024; Zaman & Mursyada, 2024), traditional teaching methods (Suwarin Rais Nusi et al., 2024), and community-based learning (Armita et al., 2024). As AI technologies such as personalized learning algorithms, virtual learning environments, and automated assessments develop in general education, it is worth considering how these tools can be adapted to enhance Islamic education (Rozaanah, 2024). Potential benefits include the wider dissemination of religious knowledge for students in remote areas as well as the ability to customize learning experiences according to individual needs.

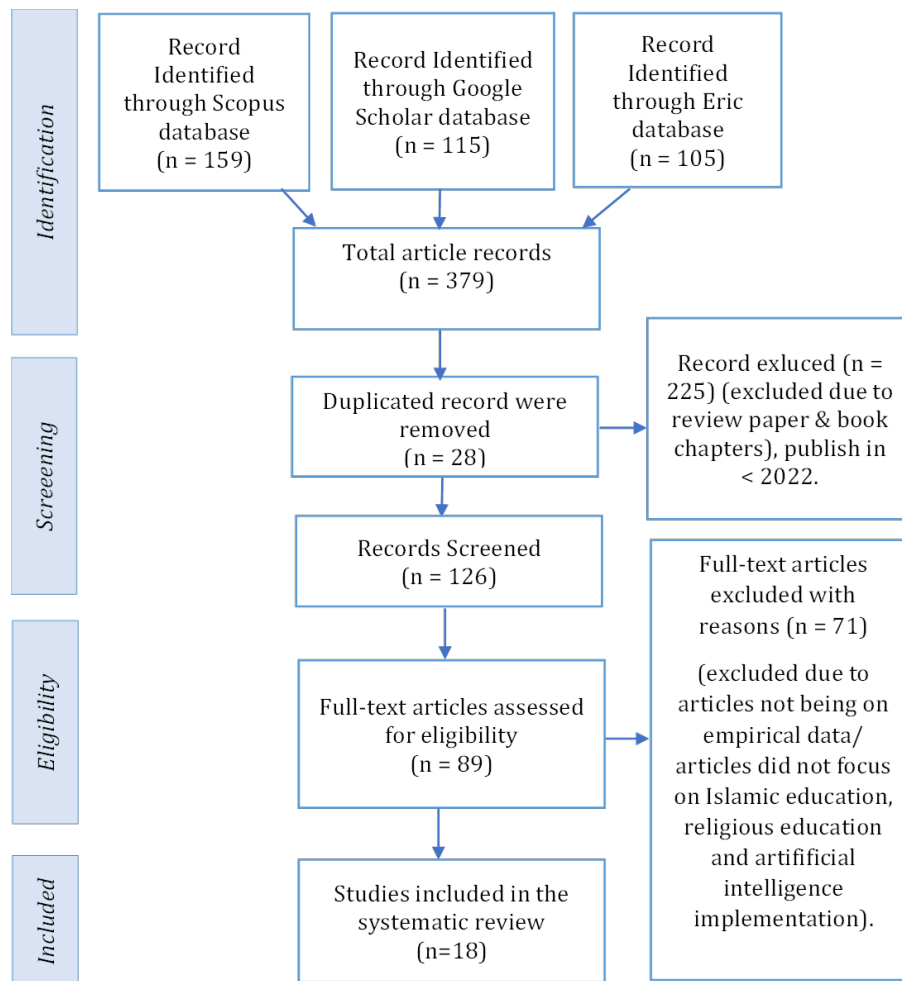
A significant challenge in the application of AI to Islamic education lies in ensuring that technological advances are aligned with the Islamic moral and ethical framework. Issues such as data privacy, algorithm bias, and depersonalization of the learning

process must be carefully addressed (Ningsih et al., 2024;Sholeh et al., 2024). The use of AI in education, despite its ability to simplify learning, may inadvertently conflict with Islamic values if not applied wisely. As research from (Rozaanah, 2024) states that the implementation of AI in Islamic education has changed the paradigm and methods so that it requires a balanced approach to ensure that reflection, contemplation, and discussion remain an integral part of religious character building. Then research from (Rusdi et al., 2023) mentioned that the use of technology in teaching religious values has a significant impact on students' moral development, so it is very important to ensure that technology-enhanced teaching methods do not harm moral character, emphasizing the importance of religious values in shaping students' ethical development. Therefore, ethical considerations are of paramount importance in discussions about the role of AI in this area.

Despite the growing interest in the role of AI in education, there is still a lack of research that specifically explores its application in Islamic education. Existing studies have largely focused on AI in secular educational settings, such as research from (Matias & Zipitria, 2023), (Sağın et al., 2024), and (Sunitha et al., 2023). Thus creating a gap in the understanding of how these technologies can be adapted to the unique needs and values of Islamic institutions. This gap is especially evident in large academic databases such as Scopus, where systematic analysis of AI in Islamic education is scarce. Addressing this shortcoming is critical, especially as Islamic education plays a vital role in shaping the lives of millions of students globally, including in areas that lack access to quality education.

Based on the previous discussion, this study aims to determine the effectiveness of artificial intelligence in Islamic education, challenges faced in the application of AI, and ethical issues in the use of AI. This research is expected to provide a more comprehensive understanding of the potential of AI in education and provide suggestions for improving learning practices in schools, especially those based on Islamic education.

This study uses a systematic literature review approach by following the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines developed by (Liberati, 2009). PRISMA helps researchers to formulate clear research questions and to carry out systematic searches. The PRISMA stages are identification, screening, data extraction and eligibility to obtain review articles according to the criteria (which are included). This method can also help to minimize different types of bias and help researchers to better synthesize their research findings. The goal is for researchers to be able to identify and map similar research topics simultaneously. Figure 1 shows the article search process as follows.

Figure 1. Flow diagram of PRISMA process

Article searches were conducted from Agustus 20 to September 15, 2024. The literature searches were conducted using key terms in three databases: Scopus, Google Scholar and Education Resources Information Center (ERIC). Identification is carried out by searching for and developing keywords used to search for articles or references in systematic literature reviews (SLR) obtained from searches to find relevant literature between 2022 and 2024. Systematic literature reviews are carried out using keywords such as “Islamic Education”, “Religious Education”, “Artificial Intelligence”, “AI Application” and “AI Implementation”, with a total record of 392 articles. Subsequently, the collected articles underwent a screening process based on inclusion and exclusion criteria to ensure relevance and currency. Only English and Indonesian journal articles with original data were selected, while review articles were excluded. From the screening results, 126 articles met the criteria, while 253 were rejected.

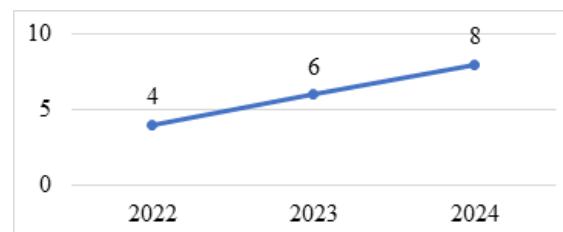
All shortlisted articles underwent a second screening at the eligibility stage to ensure relevance. Eligibility was assessed by reviewing the title and abstract, as well as the methodology, results, and discussion where appropriate. A total of 71 articles were

excluded because: (1) did not focus on empirical data or the topics of Islamic education, religious education, and artificial intelligence; (2) duplication; (3) limited access; and (4) were scoping reviews. Only 18 articles passed to the quality assessment stage for further in-depth review.

RESULT AND DISCUSSION

Based on an analysis using the SLR method of articles on artificial intelligence applications in Islamic education, the researcher identified 18 relevant articles for further investigation. These consist of two quantitative studies and sixteen qualitative studies. The study will analyze 4 articles published in 2022, 6 in 2023, and 8 in 2024. The publication frequency trend from 2022 to 2024 is shown in Figure 2 below.

Figure 2. Research Based on Year of Publication



The study identified three key themes from the findings: (1) the effectiveness of AI in Islamic education, (2) the challenges associated with AI in Islamic education, and (3) the ethical implications of using AI in this context. Firstly, research shows that AI is generally effective in Islamic education if applied appropriately. AI is effective in helping students deepen their understanding, motivating them to achieve quality results, as well as improving learning efficiency through personalized learning. AI technologies also significantly improve students' critical thinking skills, creativity and efficiency. Research by Hayati & Sayekti (2024) highlights the ease of use and benefits of AI in education, leading to positive attitudes toward its adoption. This aligns with Agustin et al., (2024), who found that ChatGPT enhances students' digital literacy, particularly in improving the quality of online research. Further supported by Afif & Nawawi (2024), Mustofa et al. (2024), and Wasehudin et al. (2024) an integrated and sustainable approach to AI shows great potential in helping students deepen their understanding of the Quran and Hadith, enrich learning experiences, and foster a more knowledgeable and ethical generation. Islamic teachings encourage the use of technology to manage resources, and tools like ChatGPT enhance education by facilitating learning and motivating students to achieve high-quality outcomes. AI can improve learning efficiency through personalized learning, automated assessments, virtual tutoring, intelligent content delivery, and translation services.

Furthermore, Sodikin (2024) emphasizes that AI technology effectively enhances

students' critical thinking by addressing knowledge gaps. The integration of AI in Islamic education has the potential to revolutionize learning by personalizing it to meet individual needs (Awad et al., 2022). To maximize this, lesson plans, resources, and assessments should be designed with AI in mind to further develop critical thinking skills. Similarly, Syafitri et al. (2024) note that AI enhances understanding of the Qur'an and Hadith through interactive learning, offering benefits such as personalized learning, creativity, and efficiency. Karim & Sugianto (2023) also support the idea that AI helps students achieve the goals of Islamic education, describing the evolving role of students as recipients, collaborators, and leaders through AI-driven education. Likewise, Muttaqin (2023) discusses the benefits of using AI tools like ChatGPT in Islamic education, which improve accessibility, personalized learning, and creativity for both teachers and students. Linear with research by Bali et al. (2022) shows that the application of artificial intelligence in higher education has a positive and meaningful relationship between intelligence and learning between educators and students, including IQ, EQ, and SQ.

The following discussion focuses on the application of AI in Islamic education, which faces complex challenges. These challenges relate to ethical issues, privacy, and the role of teachers. According to Salsabila & Rohiem (2024), the use of AI in religious education under the Merdeka Curriculum can improve the quality of learning, but it also presents a number of challenges. AI can facilitate the creation of more effective learning strategies and accelerate the research process, but on the other hand, this technology has the potential to shift the role of educators and raise privacy concerns. Privacy is a major concern as AI often processes and stores sensitive data about students and teachers, which if not properly regulated, can violate individuals' privacy rights. This is particularly important in the context of Islamic education, which upholds ethical principles. In addition, AI risks reducing human interaction, which has been important in shaping students' character and morals, and can reduce the active role of teachers in the teaching and learning process. This shift in the role of teachers raises concerns that AI could replace the role of educators, making it important to maintain a balance between the use of technology and human interaction. On the other hand, many teachers, especially in Islamic education settings, are unfamiliar with AI and see it as a threat rather than a tool (Nafi'a & Yunita, 2023). The use of AI also comes with risks of misuse, such as the potential for radicalization or apostasy, as well as algorithm bias that can influence the interpretation of religious teachings incorrectly (Rohman et al., 2023).

The final discussion is the ethical implications of using AI in Islamic education to overcome these challenges, several solutions can be implemented. Firstly, strong policies related to data protection and privacy are needed in the application of AI in the Islamic education environment, by ensuring that any data collected is used transparently and in accordance with Islamic ethical principles (A. R. Ramadhan, 2023). Secondly, to reduce algorithm bias, it is important to use data that is diverse

and representative of all groups in AI development. In addition, AI should be seen as a tool, not a substitute for teachers. Training teachers in the use of AI technologies can help them stay relevant and play an active role in learning, while maintaining a balance between technology and education based on Islamic spiritual values (Raquib et al., 2022). The sustainability of Islamic education, particularly in madrasas, largely depends on their ability to adopt AI judiciously while still maintaining Islamic principles. This requires the development of digital skills, innovative technologies and appropriate curricula so that Islamic education institutions can continue to adapt to the digital age without losing their identity and spiritual values (Sutrisno, 2023).

Therefore, it is important to ensure that the application of AI in Islamic education is aligned with Islamic ethical principles (Mukarom et al., 2023). These principles include beneficence, where AI should be used to improve the quality of education and help students develop; non-maleficence, by ensuring AI does not cause negative impacts on students or the education system; autonomy, which respects individual freedom in the learning process; justice, which emphasizes the equitable distribution of technology without discrimination; and transparency, which demands openness in the use of data and decisions made by AI systems (Wiranto & Suwartini, 2022). By adhering to these principles, AI can serve as a tool that is not only efficient, but also in accordance with Islamic values of justice and kindness, creating harmony between modern technology and spiritual value-based education. The results are summarized in more detail in Table 1, which is provided below.

Table 1. Summary of results for the 18 selected SLR articles

No	Author	Article Title	Method/Sample	Results
1.	Hayati & Sayekti (2024)	"Acceptance Of Artificial Intelligence Technology by UIN North Sumatra Students"	Quantitative approach: TAM model. Data was collected through an online questionnaire with 120 respondents.	The study shows that religious and ethical values significantly impact Muslim students' attitudes toward AI, with concerns about its alignment with Islamic teachings being a key factor. However, perceptions of AI's ease of use and benefits in education reflect positive attitudes toward its adoption.
2.	Agustin et al. (2024)	"Enhancing Digital Literacy through Chat GPT: The Impact on Islamic Education Research Skills Among Students at State Islamic University."	Quantitative approach: Data Collection Techniques Using Questionnaires for Islamic Religious Education Students at UINSA.	The results showed that the simple regression test with a significance value (sig) of $0.000 < 0.05$ indicated that Chat GPT has a significant influence on the digital literacy of Postgraduate PAI students. This study also shows that the use of Chat GPT contributes to improving students' digital literacy skills, especially in improving the quality of online research.

No	Author	Article Title	Method/Sample	Results
3.	Afif & Nawawi (2024)	"Optimalisasi Pengajaran Al-Quran dan Hadis Melalui Teknologi Kecerdasan Buatan: Tantangan dan Strategi Integrasi"	Qualitative approach: literature study	The results revealed that with an integrated and sustainable approach, AI technology has great potential to be an effective tool to deepen the understanding of the Quran and Hadith, enrich students' learning experience, and support the formation of a more knowledgeable and moral generation.
4.	Mustofa et al. (2024)	"Use of AI artificial intelligence chatGPT for arabic language learning media"	Qualitative approach: Library research	This research shows that technology does not depend on the value of its users, but rather on the producers and users. Islam encourages the utilization of technology in managing natural resources. Technology such as ChatGPT supports education by facilitating learning and motivating students to achieve quality results.
5.	Wasehuddin et al. (2024)	"Artificial Intelligence's Impact on the Development of Islamic Religious Education Learning at a Public Junior High School of Cilegon, Indonesia"	Qualitative approach: field observations and interviews to collect data.	Research shows that educational institutions are utilizing technological advancements and AI to improve learning efficiency and effectiveness. Examples of AI benefits include personalized learning, automated assessment, virtual tutoring, intelligent content, and presentation translation.
6.	Salsabila & Rohiem (2024)	"The Etichal Influence of Artificial Inteliigence (AI) in Religious Education: Implications, Challenges, and Innovative Perspectives on the Merdeka Curriculum"	Qualitative approach: case study at several Islamic educational institutions.	The study results show that AI in religious education under the Merdeka curriculum enhances learning but presents challenges. While AI helps create effective strategies and rapid research, it risks changing the role of educators and raises privacy concerns. Balancing technology with human interaction is critical, although AI offers innovative opportunities for learning platforms.
7.	Sodikin (2024)	"Transformasi Pendidikan Agama Islam Melalui Artificial Intelligent (AI): Upaya Meningkatkan Kemampuan Berpikir Kritis Mahasiswa"	Qualitative approach: case study. Data from lecturers and students of Darullughah Wadda'wah International Islamic University.	This study shows that AI technology effectively enhances students' critical thinking skills by addressing knowledge gaps. The integration of AI in Islamic education can revolutionize learning by personalizing the experience to meet individual needs. To optimize this, lesson plans, resources and assessments should be designed with AI in mind to further enhance critical thinking skills.

No	Author	Article Title	Method/Sample	Results
8.	Syafitri et al. (2024)	"The Role of Artificial Intelligence in Encouraging Innovation and Creativity in Islamic Education"	Qualitative approach: case study. Data from Islamic education at SMPN 2 Tigo Nagari.	This study reveals that AI in Islamic education improves understanding of the Qur'an and Hadith through interactive learning. Benefits include personalized learning, creativity and efficiency, although challenges such as ethics, privacy and teacher engagement remain. VR and AR increase student engagement and motivation.
9.	Nafi'a & Yunita (2023)	"Exploration of Teacher Perspectives on Artificial Intelligence among Ministries of Religion in East Java"	Qualitative approach: structured interviews. Data collection involved 50 in Kediri City.	The study reveals diverse views on AI among teachers in the East Java Ministry of Religious Affairs. Some see it as a way to enhance learning and administrative tasks, while others view it as a threat. Many teachers are also unfamiliar with AI.
10.	Karim & Sugianto (2023)	"Measuring the Future Needs of Islami Education Through the Role of Artificial Intelligence"	Qualitative approach: literature search studies.	The results of the study show educators' perspectives on AI, showing how AI helps them achieve the goals of Islamic education. In addition, this article discusses the paradigm of students, describing them as recipients, collaborators, and leaders through the use of AI in their education.
11.	Rohman et al. (2023)	"Islam in the Middle of AI (Artificial Intelligence) Struggle: Between Opportunities and Threats"	Qualitative approach: case study.	Studies show that well-developed AI can provide great benefits to Muslims, but poses risks such as misuse for apostasy, radicalisation and terrorism. The use of AI should be in line with Islamic teachings, adhering to ethical and moral principles.
12.	Muttaqin (2023)	"Implementation of Islamic Education Learning with Artificial Intelligence (CHATGPT)"	Qualitative approach: library research	This study shows that the use of ChatGPT in Islamic education enhances accessibility, personalised learning and creativity for both teachers and students. While it offers quick access to information, challenges include the need to validate authenticity, especially in religious contexts. Ethical and moral considerations are crucial in its application.

No	Author	Article Title	Method/Sample	Results
13.	Sutrisno (2023)	"Madrasa Agility In The Digital Age: Increasing Flexibility And Countering Artificial Intelligence Threats"	Qualitative approach: library research	The study shows that the sustainability of madrasas in the digital age depends on their flexibility and readiness to face AI challenges. This includes developing accessible learning programmes, using innovative technologies, and improving digital skills. Madrasahs should also reinforce Islamic values and wisely introduce AI.
14.	A. R. Ramadhan (2023)	"Phenomena of Chatbot Artificial Intelligence and Its Impact on Islamic Religious Education"	Qualitative approach: literature study	This research reveals that AI chatbots in religious education improve information distribution and student participation, but bring challenges such as technology dependency and ethical issues. An ethical design is needed, where the chatbot acts as a complement to the lecturer with close supervision.
15.	Wiranto & Suwartini (2022)	"Artificial Intelligence and Trustworthy Principles in Global Islamic Education"	Qualitative approach: literature study	The study shows AI's potential in personalizing Islamic learning, supporting special needs students, improving education systems, reducing dropouts, and enhancing innovation readiness. Ethically, AI aligns with Islamic values when following the AI Amanah principles of goodness, non-harm, autonomy, justice, and transparency.
16.	Bali et al. (2022)	"Artificial Intelligence in Higher Education: Perspicacity Relation between Educators and Students"	Qualitative approach: phenomenological at Nurul Jadid University (UNUJA).	This research shows that the application of artificial intelligence in higher education has both positive and negative impacts on the intelligence relationship with learning beyond conventional methods. The intelligence relationship between educators and learners, including IQ, EQ, and SQ, remains positive and purposeful.
17.	Raquib et al. (2022)	"Islamic virtue-based ethics for artificial intelligence"	Qualitative approach: library research.	This research shows that a distinctive Islamic virtue-based ethical approach can be used to explore ethical issues related to Artificial Intelligence more holistically, thanks to its rich ontological and traditional foundations, while controlling the excessive influence of the current state of affairs.

No	Author	Article Title	Method/Sample	Results
18.	Awad et al. (2022)	"Applications of Artificial Intelligence in Education"	Qualitative approach: case study.	AI played an important role in personalizing education in the learning system during covid 19, allowing students to focus on specific topics and learn at their own pace.

With this in mind, the collection of analyzed studies reveals a nuanced and diverse relationship between Artificial Intelligence (AI) and Islamic education. Across a range of contexts—from higher education institutions to junior high schools—AI has shown considerable potential to improve educational practices, particularly through personalized learning, increased digital literacy, development of critical thinking, and improved efficiency. The integration of AI tools such as ChatGPT shows tangible benefits in academic research and the dissemination of Islamic teachings, offering support tailored to learners' needs and access to knowledge that transcends traditional boundaries. Moreover, many studies show a growing readiness among institutions to adopt AI, especially when its application is aligned with educational goals and religious values.

However, these studies also underscore significant challenges and ethical considerations that must be addressed for AI to be truly effective and appropriate in the context of Islamic education. Concerns about AI's alignment with Islamic ethics, the potential erosion of the role of educators, technology dependency, and privacy issues highlight the need for a balanced approach. Religious and moral values should remain central to the design and implementation of AI tools in these settings. Ultimately, the findings suggest that while AI offers great opportunities to transform Islamic education, its adoption should be guided by an ethical framework rooted in Islamic principles, to ensure that technology can serve humanity without compromising core values.

CONCLUSION

Based on the analysis of the literature that has been presented, it can be concluded that the integration of AI in Islamic education presents significant opportunities and challenges. AI is proven to be effective in enhancing personalized learning, critical thinking and creativity, making it a valuable tool for improving educational outcomes and motivating students. However, its implementation raises concerns about ethical issues, such as privacy, algorithmic bias, and shifting roles of educators. To mitigate these challenges, strong policies on data protection, comprehensive teacher training, and alignment of AI use with Islamic ethical principles are essential.

The author recommends that future research should concentrate on the ethical governance of AI in Islamic education, particularly regarding how to uphold data privacy and security in a manner consistent with Islamic values. In addition, investigating the development of AI tools specifically tailored to the Islamic curriculum could support

more context-sensitive learning. Policy makers should consider establishing guidelines for the use of AI in religious settings, ensuring it complements rather than replaces human educators, while further research could explore the role of AI in enhancing spiritual and moral education.

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