

Opportunities and Challenges of Artificial Intelligence and Their Implications in Islamic Education

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Abstract

This research aims to determine the opportunities and challenges of Artificial Intelligence (AI) and its implications in Islamic education. The research approach and method used is a qualitative approach with a literature review method. Data sources through articles or books related to the opportunities and challenges of artificial intelligence in the world of education and its implications in Islamic education. The data analysis technique used is in-depth analysis. The research results show that opportunities for the implications of AI in Islamic education include efficiency and fast management of data and information.

Keywords: Artificial Intelligence; Islamic Education; Islam.

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Abstrak

Penelitian ini bertujuan untuk mengetahui peluang dan tantangan Artificial Intelligence (AI) dan implikasinya dalam pendidikan Islam. Pendekatan dan metode penelitian yang digunakan adalah pendekatan kualitatif dengan metode kajian pustaka. Sumber data melalui artikel atau buku yang berkaitan dengan peluang dan tantangan artificial intelligence dalam dunia pendidikan dan implikasinya dalam pendidikan Islam. Teknik analisis data yang digunakan adalah analisis mendalam. Hasil penelitian menunjukkan bahwa peluang implikasi AI dalam pendidikan Islam meliputi, efisiensi dan pengelolaan data dan informasi secara cepat.

Kata Kunci : Artificial Intelligence; Pendidikan Islam; Islam.

A. Introduction

In digital era, technological advancements have a big impact on people. Individual, social, and

professional lives can be impacted by technology (Conceição et al., 2020). One area of life where the advancement of digital technology may have an impact is

education. The ability to access information at any time and place, the use of machines (computerization), the ability to automate all regular tasks, and the ability to communicate anywhere at any time (Soderstrom et al., 2011) There has been a discernible trend in educational progress over the past two decades towards the integration of Information and Communication Technology (ICT) as a 21st-century school management strategy. It is impossible to dispute the necessity of technology utilisation in the educational sector in the digital age, particularly in light of the rise of artificial intelligence (AI) (Ngongo et al., 2019).

The contemporary Industry 4.0 period has seen changes and influences in many areas of human life, including education, due to the advent of digital technology. According to Hoyles & Lagrange (2010), digital technology has the biggest impact on the global education system at the moment. This is because digital technology-based learning offers characteristics that are effective, efficient, and aesthetically pleasing (Putrawangsa & Hasanah, 2018). Artificial intelligence, or AI, is a

product of the expansion of digital technology in the digital age. Artificial intelligence plays a crucial role in the advancement of educational technology. There are undoubtedly clear ramifications for how people will work in the future (Hakim, 2022). AI has advantages for educators and learners, including assisting with assignments automatically, serving as a tutor, providing a prompt, universal answer, and supporting individual learning (Karandish, 2021).

The integration of AI technology in the field of education is an essential requirement due to the inevitability of technological advancements. Islamic religious education is an integral component of educational science in the digital age and should be adept at harnessing the potential of technological advancements, such as artificial intelligence (AI) and information and communication technology (ICT), to enhance media development and improve learning resources. Despite the advantages and possibilities, artificial intelligence poses numerous obstacles for the field of education, particularly for teachers and students. In a study conducted by Zimmer in 2017, it was

shown that the utilization of artificial intelligence (AI) can hinder the development of critical thinking and creativity in pupils.

This is due to the fact that AI typically adheres to established patterns and lacks the capability to generate novel ideas. Undoubtedly, this reality has the potential to adversely impact future generations. Additionally, a 2018 poll done by Kryterion revealed that approximately 60% of students acknowledged engaging in academic dishonesty by cheating during online exams (Malik et al., 2023). In addition to presenting obstacles and potential risks, artificial intelligence (AI) also offers advantages and opportunities that can be harnessed to enhance students' capabilities. Alkhamis, a representative from Kuwait University, elucidates the transformative potential of integrating AI technology in education, specifically in reshaping the dynamics of student-teacher interactions within the classroom. It is crucial to prioritise teaching pupils about this as part of a new educational paradigm. Furthermore, AI can utilize this information to acquire a more

profound comprehension of the learning process (Hakim, 2022).

The widespread adoption of artificial intelligence (AI) in educational institutions, including Islamic education, has brought both positive and negative implications. Teachers have expressed concerns about the potential negative effects of AI, highlighting the need for a thorough analysis of the challenges and opportunities it presents. This analysis is crucial for teachers and students to identify and mitigate the negative impacts of AI, while also leveraging its potential in the realm of learning to enhance educational efforts.

Extensive research has been conducted on education in the digital era, focusing on the impact of industry 4.0 and society 5.0, as well as the integration of artificial intelligence in education. To gather specific data on this topic, a search was conducted on the Google Scholar database using the keywords "digital" and "artificial intelligence in education" for the period between 2018 and 2023.

The identified research themes include Islamic education in the era of society 5.0, opportunities and challenges for Islamic education in the industrial era 4.0, global utilization of artificial

intelligence in Islamic education, artificial intelligence in Islamic religious learning, opportunities and challenges for learning Islamic education in the 21st century, utilization of Artificial Intelligence (AI) Technology in addressing the challenges faced by teachers in the digital era, challenges and opportunities of artificial intelligence in the fields of Islam, Qur'an and Hadith, and Islamic religious education in the era of digitalization. However, research specifically focusing on analyzing the challenges and opportunities of artificial intelligence in the world of education and its implications in Islamic education is scarce. Therefore, this research makes a valuable contribution to the development of Islamic education in the era of artificial intelligence.

B. Research Methods

The research methodology employed in this study involves conducting a literature review, often known as library research, using a qualitative research strategy. The employed approach is a literature review.

The data sources utilized in this research comprise papers, books, and scientific works that discuss the problems and prospects of artificial intelligence in the realm of Islamic education. These sources mostly include scientific materials obtained from reputable platforms such as Google Scholar, SAGE, and Scopus.

The data gathering approach employed in this research is documentation, which involves the retrieval of information pertaining to artificial intelligence from sources such as notes, journals, books, or articles. Data analysis methodology In this study, the researcher employs content analysis (Neuendorf, 2017) to examine the data. The purpose is to uncover the messages, meanings, and moral values conveyed in the books that serve as the primary data source for this research (Neuendorf, 2017).

The researcher also aims to reveal the message or content of the article related to the research focus. The steps of content analysis involve the classification of communication signs, the utilizations of criteria for classification, and the application of specific analysis tools for making predictions. This research involved conducting data analysis, specifically focusing on publications or articles pertaining to artificial intelligence, as well as exploring the obstacles and potential associated with artificial intelligence. Furthermore, methodically categories the content pertaining to difficulties and

opportunities in the field of artificial intelligence. Furthermore, conduct a thorough examination of the potential advantages and obstacles associated with intelligence and their influence on the field of education.

C. Results and Discussion

1. Basic Concepts *Artificial Intelligence*

John McCarthy introduced the term AI in 1956. During that period, John McCarthy orchestrated a conference with the aim of enticing individuals who possessed exceptional skills and knowledge in the field of artificial intelligence. The activity was titled The Dartmouth Summer Research Project on Artificial Intelligence. The conference featured participation from AI advocates and researchers from Carnegie Mellon University (CMU), MIT, and IBM.

During the meeting, (McCarthy, 2007) discussed AI and defined it as the pursuit of creating computers that exhibit intelligent behavior. Artificial Intelligence is the field of study and application that focuses on creating intelligent machines, particularly computer programs. "AI is connected to the similar task of utilizing computers to

comprehend human intelligence, but it is not obligated to limit itself to methods that are biologically observable," stated John McCarthy in 1956. H. A. Simon asserts that artificial intelligence (AI) is a discipline that enables computers to carry out activities that surpass human capabilities.

Defines AI as the outcome of comprehending and simulating human cognitive processes, and creating computers capable of intelligent imitation of human behaviour. Being smart entails possessing extensive knowledge, expertise, and the ability to think well in order to make informed decisions and take appropriate action, all while adhering to a strong moral compass. According to Rich and Knight, AI is the field of study that focuses on enabling computers to perform tasks that humans are now more proficient at (McCarthy, 2007).

According to Stuart J. Russet and Petr Norvig, a computer device has the ability to comprehend its surroundings and can do activities that increase the likelihood of achieving success in that particular environment for various objectives. (Bernard, 2018). The primary

objective of artificial intelligence (AI) is to develop software or robots that can assist humans in their daily tasks. AI is expected to enhance machine intelligence and significantly contribute to solving complex problems. For instance, the advancement of AI can lead to the creation of efficient calculators capable of rapid calculations (Hakim, 2022).

AI has multiple roles in supporting learning, which can be outlined as follows. Virtual mentor refers to an online guidance system that provides support and advice. Devices such as Learning by Asking (LBA), voice assistants, third smart content, and presentation translators are utilized in this context.

2. Islamic Education Concept

The field of education consistently garners public attention due to its significance. Educational study and development are perpetual due to the inherent connection between education and the evolving nature of human culture and civilization across time (Madjid, 2020).

According to Muhammad SA. Ibrahim (Firmansyah, 2023) Islamic education can be defined as a comprehensive system of instruction that

empowers individuals to live their lives in alignment with Islamic principles, facilitating the seamless integration of Islamic teachings into their daily lives. According to Muhammad Fadhil al-Jamali (Mujib & Mudzakkir, 2006), Islamic education is the deliberate endeavor to enhance, motivate, and persuade individuals to attain a higher level of development based on elevated principles and a virtuous existence. The ultimate goal is to cultivate an individual who is morally upright and well-rounded, encompassing intellectual, emotional, and behavioral aspects.

Moreover, according to Muhammad Javed al-Sahlani, Islamic Education is the systematic endeavor to elevate individuals to a state of utmost excellence and enhance their capacities. Al-Toumy al-Syaibany defines Islamic education as a transformative process that involves changing one's behavior and engaging with the surrounding community. This process is facilitated by teaching, which is considered a fundamental activity and an integral part of various professions in society. (Al-Syaibany., 1979).

Abdurrahman Saleh Abdullah identifies three primary aims of Islamic education: bodily objectives (*ahdaf al-jismiyyah*), spiritual objectives (*ahdaf ar-ruhiyyah*), and mental purposes (*ahdaf al-aqliyyah*). This highlights the fact that education in Islam encompasses both the physical and spiritual aspects, in addition to the intellectual side. (Abdullah, 2007).

Islamic education encompasses various educational components. *Firstly*, educators are adults who have the responsibility of providing guidance and support to students in their physical and spiritual growth. The aim is to help them reach maturity and become capable of fulfilling their duties as Allah's creations, acting as stewards on earth, functioning as social beings, and developing the ability to be independent individuals (Tafsir, 2022). *Secondly*, students are sentient beings with unique personality features that align with their maturation and advancement. The growth and development of an individual can be impacted by any given environment (Surur et al., 2022). *Thirdly*, educational interaction refers to the mutually beneficial relationship between instructors and students that aims to

accomplish educational objectives. The study conducted by Surur emphasizes the significance of contact in enhancing the efficacy of the learning and teaching process within the classroom (Surur et al., 2022).

The purposes of education in Islam encompass wants, processes, predictions, and intents (Alim, 2014). The objectives of Islamic education encompass a wide range of aims, but they can be distilled into two primary objectives. *Firstly*, it aims to cultivate students into obedient devotees of Allah (*abdullah*), as stated in QS. Al-Dzariyat: 56. This involves enabling them to comprehend and fulfil their role as caliphs on earth, as outlined in QS. Al-Baqarah: 30.

Secondly, Islamic education seeks to foster individuals who are deeply committed to serving Allah, as emphasized in QS. Ali Imran: 102. Additionally, it aims to guide students towards attaining goodness in both the present life and the hereafter, as mentioned in Q.S Al Baqarah: 201 (Zaim, 2019). The fifth item is an Islamic Education material that includes both Islamic and national education content. Education tools refer to the physical

resources and infrastructure that support the teaching and learning process, such as furniture, energy, and Wi-Fi. On the other hand, teaching methods are specific approaches or techniques used to attain educational objectives. The education methods in Islam can be derived from the Qur'an, encompassing lecture methods, discussions, debates, storytelling, and the use of examples, as well as incorporating conventional educational methods. The educational milieu in Islam encompasses informal education inside the home, formal education within schools, and informal education within the (Surur et al., 2022). The presence of these seven educational factors is crucial for the establishment of an educational process in Islam.

3. Opportunities and challenges of Artificial Intelligence in Education
Potential applications of artificial intelligence in the digital era for enhancing Islamic education include: The availability of e-moderating services allows instructors and students to effortlessly speak with each other during communication activities, regardless of distance, location, or time constraints. Educators and students have the ability to

utilize organized and planned educational resources or instructional materials through the internet, allowing them to evaluate the extent to which the teaching materials have been studied by both parties. Students have the ability to access educational materials at their convenience and location, as long as the resources are saved on a computer. Students can conveniently acquire supplementary information pertaining to their studies on the internet. Both educators and students can engage in online debates, which can accommodate a substantial number of people, so enhancing their knowledge and understanding. expansive; Transforming the role of pupils from typically being passive to actively engaged; Comparatively more efficient(Ngongo et al., 2019).

Artificial Intelligence is able to assist students in individual learning experiences. The use of AI is critical to providing a more consistent and accessible learner experience. Valentin Kuleto said that the use of Artificial Intelligence (AI) Technology in facing teachers' teaching challenges is very

important for various reasons (Kuleto et al., 2021).

First, Efficiency and Data Management: In the information-rich digital era, teachers are faced with increasingly complex tasks in managing student data. The use of AI can help teachers filter, group and analyze student data more efficiently. AI algorithms can collect data from multiple sources, providing deep insight into individual students' progress and needs, and helping teachers make more informed decisions (Khairi et al., 2022).

Second, it is imperative to individualize the learning experience in order to cater to the unique needs and preferences of each student. Teachers face challenges in providing personalized attention to each student in overcrowded classrooms. AI can assist teachers in utilizing machine learning algorithms to detect students' learning preferences and deliver customized curriculum based on individual needs. Customizing the learning experience can enhance student enthusiasm and involvement, leading to improved learning results (Kom, 2021).

Third, providing effective feedback is crucial for enhancing student

comprehension. Nevertheless, delivering prompt and comprehensive feedback to every student in a bustling classroom setting can be difficult. AI enables teachers to utilize automated tools for the analysis of student performance and the provision of instant feedback. By utilizing this approach, students can rapidly enhance their areas of weakness, while teachers are able to offer more efficient and impactful coaching (Uno & Mohamad, 2022).

Fourth, AI technology has the potential to enhance teaching efficacy by assisting teachers in improving their instructional methods. By employing advanced data analysis techniques, educators can discern recurring trends in student learning, discern particular student requirements, and optimize their instructional approaches with great efficiency. Artificial intelligence (AI) can offer suggestions and recommendations to assist teachers in enhancing their teaching practices and attaining superior learning results (Rusmiyanto et al., 2023).

Fifth, Equipping Students for the Digital Age: Utilizing artificial intelligence in education facilitates the acquisition of skills that are pertinent to

the digital age. In an era characterized by technological dominance, it is becoming progressively crucial to comprehend artificial intelligence (AI) and possess the capability to engage with technology. According to David (David, 2021), educators who include AI technology into their instruction can assist students in adapting to and preparing for the demands and possibilities of the digital age. Artificial Intelligence (AI) technology has promising opportunities in addressing these difficulties (Rusmiyanto et al., 2023). Artificial intelligence (AI) can assist educators in swiftly and effectively handling data and information. Using sophisticated algorithms, artificial intelligence (AI) can examine and evaluate student data to offer comprehensive understanding of each student's specific requirements and advancement. In addition, AI technology can facilitate individualized learning through the utilization of machine learning algorithms. AI can customize learning experiences for students by utilizing their particular preferences and data. This can enhance student engagement in the learning process and

facilitate their attainment of optimal performance.

Artificial intelligence has challenges in its development. AI has obstacles related to its use, such as health problems, ethics in life, human individuality in society (Kuleto et al., 2021). In addition, the relationship between students and teachers is neglected (Chiu et al., 2023). AI also has challenges for teachers such as a lack of interaction between teachers and students or even between students themselves. This lack of interaction can slow down the formation of values in the learning and teaching process; The tendency to ignore academic or social aspects and instead encourage the growth of business/commercial aspects; The learning and teaching process tends towards training rather than education; The changing role of teachers from previously mastering conventional (face-to-face) learning techniques, is now also required to know learning techniques based on information and communication technology (ICT); Students who do not have high motivation tend to fail; Not all places have internet facilities; Lack of personnel who know and have AI skills;

Lack of mastery of the AI language (Ngongo et al., 2019).

4. Opportunities and Challenge Artificial Intelligence in Islamic Education

Opportunities for AI in Islamic education include, Efficiency and Fast Management of Data and information (Rusmiyanto et al., 2023). Personalization of learning, effective feedback (Uno & Mohamad, 2022), increasing teaching effectiveness, preparing students for the digital era (David, 2021).

The challenge of AI in Islamic education is minimizing interaction between teachers and students or even between students and students, slowing down the formation of values in the learning and teaching process. Tendency to ignore academic or social aspects and instead encouraging the growth of business/commercial aspects. The learning and teaching process tends towards training. rather than education, the changing role of teachers from those who previously mastered conventional (face-to-face) learning techniques, low motivation, availability of internet facilities;, lack of staff who know and

have AI skills in Islamic religious learning.

5. Implications of AI Challenges and Opportunities in Islamic Education

The implications of AI

opportunities in Islamic education encompass various benefits. Firstly, AI can enhance the efficiency of teachers' work, leading to improved quality and speed of assignments. Additionally, AI can assist in managing student data and information related to sources and learning materials for Islamic religious education in a prompt manner (Rusmiyanto et al., 2023). Furthermore, AI enables personalized learning experiences for both teachers and students, eliminating the constraints of time and space. It also facilitates effective feedback in the learning process. Moreover, AI can enhance the effectiveness of teaching conducted by Islamic religious education teachers. Lastly, AI helps prepare students for the digital era.

The challenges posed by AI in Islamic education necessitate the optimization of teacher-student interactions to ensure that the formation of values during the learning and teaching

process is not hindered. Teachers must also prioritize social aspects and focus on value education rather than solely skills training. Additionally, teachers should enhance the provision of motivation, as AI may result in minimal motivation in learning. Lastly, teachers must continuously upgrade themselves to adapt to technological advancements in the digital era.

D. Simpulan

Based on the preceding discussion, it can be inferred that the potential and consequences of AI in Islamic education encompass the swift and effective handling of data and information. The challenge of AI in Islamic education lies in reducing teacher-student interaction, impeding the development of values in the learning process, neglecting academic and holistic aspects, favouring training over education, altering the role of teachers from conventional learning experts, low motivation, and a shortage of personnel with AI proficiency.

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