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Learning Innovation through Artificial Intelligence to Improve Writing Skills of Islamic Religious Education Students

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ABSTRACT

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Objective: This study aims to explore the role of artificial intelligence (AI) in enhancing the writing skills of Islamic Education (PAI) students through innovative learning approaches.

Methods: Utilizing a qualitative research methodology, this study conducts a descriptive text analysis of literature relevant to AI and education. Data were gathered through library research, encompassing theses, dissertations, and scholarly articles, with a focus on 35 key sources identified via Google Scholar.

Results: The findings indicate that AI significantly contributes to personalized learning by providing tailored feedback and facilitating access to instructional materials. AI systems enhance students' writing coherence, structure, and creativity while addressing technical aspects such as grammar and plagiarism detection.

Novelty: This research offers new insights into the integration of AI in Islamic education, highlighting its potential to transform pedagogical approaches and foster collaborative learning environments among PAI students.

Conclusion: The study underscores the necessity for educational institutions to adopt AI technologies to improve writing skills and develop dynamic, effective, and personalized learning experiences within the Islamic Education framework.

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1. Introduction

Artificial Intelligence (AI) is now widely recognized as a crucial instrument in the worldwide education industry, especially in Indonesia. Its incorporation into the learning process has demonstrated encouraging outcomes. The function of AI in education is diverse, going beyond simple automation to serve as a catalyst for transformative learning experiences. This is especially clear when considering the improvement of pupils' writing abilities. Recent research has emphasized the efficacy of artificial intelligence (AI) in delivering customized learning experiences. This is achieved by evaluating individual student data to identify their strengths and limitations. Consequently, educational content is tailored to address the specific requirements of each student (Gikandi, Morrow, and Davis 2011). This individualized method not only accelerates the process of acquiring knowledge but also greatly promotes students' scholastic achievement (Brophy 1988). Artificial intelligence (AI)-driven teaching technologies, such intelligent tutoring programs and automated feedback systems, have proved crucial in giving students immediate feedback and assisting them in quickly improving their writing abilities (LEE 2023). Moreover, the ability of AI to swiftly acquire and analyze extensive quantities of data guarantees that educators and students stay informed about the most recent advancements in knowledge and technology (Luan et al. 2020). In a continuously changing educational environment, it is necessary to keep up with current information in order to retain instructional relevance and quality (Leidner and Jarvenpaa 1995). Moreover, AI has demonstrated its ability to reduce the administrative

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responsibilities placed on instructors, enabling them to dedicate more attention to the imaginative and participatory elements of instruction (Luckin et al. 2022). AI streamlines repetitive procedures like grading and evaluation, allowing teachers to dedicate more time to individualized student guidance, thus enhancing the entire educational experience (Srinivasa, Kurni, and Saritha 2022). The integration of AI in education also fosters inclusivity by addressing varied learning requirements, guaranteeing that each student, irrespective of their background or learning preferences, has a customized educational encounter (Al-Gerafi et al. 2024). Nevertheless, the incorporation of artificial intelligence in education is not devoid of obstacles (Nishant, Kennedy, and Corbett 2020). Concerns like as data privacy, discrepancies in technology accessibility, and the necessity for strong legal frameworks to safeguard student information are important issues that must be resolved in order to fully capitalize on the advantages of AI in education (Berendt, Littlejohn, and Blakemore 2020).

Even though artificial intelligence (AI) has a lot of promise for the classroom, there are a few urgent problems that must be resolved before it can be completely utilized. The digital divide, or the difference between those with and those without access to contemporary information and communication technologies, is one of the main issues (Cullen 2001). The disparity in technical access between urban and rural areas is especially prominent in developing nations such as Indonesia (Archibugi and Coco 2004). Students residing in rural regions frequently face a dearth of essential technological infrastructure, including fast internet connectivity and contemporary devices, hence impeding their capacity to derive advantages from AI-powered instructional tools (Mannuru et al. 2023). The existing disparity in technology further worsens educational inequities and presents a substantial obstacle to the mainstream integration of AI in education (Schiff 2021). Another crucial concern revolves on the protection and confidentiality of data (Kshetri 2013). Huge volumes of student data are gathered and analyzed as part of the application of AI in education, which raises worries regarding the possible misuse of private data (Wang 2021). Stringent rules and ethical norms are increasingly necessary to safeguard student data and ensure its responsible use (Giuffrida and Hall 2023). Furthermore, there is apprehension regarding the possibility of AI reinforcing preexisting biases (Mays et al. 2022). Artificial intelligence (AI) systems undergo training using extensive datasets. If these datasets contain biases, the AI may unintentionally perpetuate these prejudices, resulting in unjust outcomes (Ntoutsis et al. 2020; Xia et al. 2022). AI-powered grading systems have the potential to put some groups of pupils at a disadvantage if they are not meticulously built and closely supervised. Hence, it is imperative to cultivate artificial intelligence systems that exhibit transparency, equity, and responsibility. The use of AI in education also calls for a large investment in professional development and teacher preparation. Teachers must possess the requisite expertise and understanding to proficiently utilize artificial intelligence (AI) tools in their instructional methods (Celik 2023). Continual training and assistance are necessary to enable teachers to effectively utilize AI technology in order to better their teaching techniques and enhance student achievements (Luckin et al. 2022).

Numerous theoretical frameworks that emphasize AI's potential to improve learning outcomes encourage its use in education. A model that falls into this category is the Zone of Proximal Development (ZPD), which was first put forth by Vygotsky in 1978. It highlights the significance of assigning students activities that are within their capabilities but call for help from a more experienced individual in order to be completed. AI can act as a knowing companion by offering individualized assistance and guidance to aid pupils in advancing through their Zone of Proximal Development (ZPD). Constructivist learning theory (Piaget, 1954) is another pertinent theory that holds that knowledge is constructed by learners via active engagement with their surroundings (Chi and Wylie 2014). AI solutions can enhance active engagement by offering interactive and adaptable learning experiences that motivate students to investigate, test, and contemplate their learning (Huang, Lu, and Yang 2023). Moreover, the theory of cognition Chew and Cerbin (2021) proposes that learning is enhanced when the cognitive strain on learners is optimized. Artificial intelligence can assist in the management of cognitive load by offering timely assistance and resources, minimizing unnecessary cognitive burden, and enabling students to concentrate on significant learning activities. These theoretical stances offer

a strong basis for comprehending the possible advantages of artificial intelligence (AI) in education and directing the creation and application of AI-driven educational activities (Markauskaite et al. 2022).

The imperative to include AI into educational practices is emphasized by the increasing amount of research that emphasizes its advantages and the necessity to fix current deficiencies in the literature. Although multiple research have showcased the capacity of AI to improve different facets of education, there are still notable deficiencies that require attention (Zhang and Aslan 2021). Prior research has predominantly concentrated on the technical facets of AI deployment, giving comparatively less attention to its educational consequences (Dwivedi et al. 2021). Further investigation is required to examine the optimal integration of AI into various educational settings and its potential to assist in meeting distinct learning requirements. Moreover, although AI has demonstrated its ability to enhance student engagement and increase learning outcomes, there is a scarcity of research regarding its enduring influence on student success and preparedness for future careers (Xia et al. 2022). Gaining a comprehensive understanding of the enduring consequences of AI in education is essential for the development of durable and influential AI-powered educational methods. Moreover, there is a necessity for further investigation into the ethical and societal consequences of artificial intelligence in the field of education. With the increasing presence of AI in educational environments, it is crucial to guarantee that its utilization adheres to ethical norms and fosters fairness and inclusiveness (Díaz-Rodríguez et al. 2023). It is crucial to address these areas of study that are now lacking in order to fully utilize the potential of artificial intelligence in education and to ensure that all students can benefit from it (Hwang et al. 2020).

The main aim of this research is to examine the impact of Artificial Intelligence on improving the writing abilities of students studying Islamic Education. The objective of this study is to investigate the potential of AI-powered educational tools in offering individualized assistance and feedback to students, leading to enhanced writing skills. This research aims to analyze the influence of AI on students' writing abilities. It intends to add to the existing literature on the use of AI in education and offer practical knowledge for educators and policymakers. The research has important ramifications, since it can provide valuable insights for creating AI-based educational interventions that enhance student learning and foster academic achievement. Moreover, this research has the capacity to emphasize the advantages of artificial intelligence in tackling educational disparities and offering comprehensive learning opportunities for every student. The ultimate purpose of this project is to deepen our knowledge of how artificial intelligence (AI) can be applied to improve educational results and further the larger objective of raising the standard of education in Indonesia.

2. Method

This study collects and processes data using a qualitative research methodology, concentrating on descriptive text analysis (Vaismoradi 2013). The qualitative approach is employed to comprehensively analyze the literature pertaining to the research subject. The main data sources for this study are obtained from literature, which involves actions such as reading, understanding, and analyzing different texts and books relevant to the problem being investigated. The research methodology employed in this study is library research, which involves gathering data from scholarly literature, recording observations, reading, and analyzing research materials. This research is qualitative, involving the description and analysis of data using verbal methods rather than statistical approaches. Information is acquired by conducting searches across several sources, such as theses, dissertations, scientific publications, and e-books accessible on the internet.

Google Scholar is utilized to perform searches by using appropriate keywords that are relevant to the variables being researched. The journals are chosen based on their pertinence to these keywords. Following the search, the researchers choose 35 journals and reference books for additional examination, condensation, and categorization in order to create ideas and insights pertaining to the research subject. The rigorous selection process guarantees that the literature examined is closely matched with the research questions and objectives. To glean important insights and offer a thorough comprehension of the function of artificial intelligence in augmenting Islamic Education students' writing abilities, every literary work undergoes a rigorous examination (Păvăloaia and Necula 2023). This systematic methodology enables a comprehensive

examination of current knowledge and the recognition of deficiencies that this study intends to tackle. The study attempts to make a significant contribution to the field by combining the information from various sources and offering suggestions for the successful application of AI in teaching (Dwivedi et al. 2021).

3. Result and Discussion

The study of creating computer programs that can carry out tasks that resemble those of humans is known as artificial intelligence, or AI. Zawacki-Richter et al. (2019), artificial intelligence (AI) is the study, practice, and applications of teaching computers to perform tasks that are deemed intelligent by humans. Artificial intelligence (AI) is the field of study that focuses on programming computers to perform jobs that are currently done by humans, with the goal of increasing the level of intelligence in computers. It pertains to robots that possess the ability to think, assess activities, and make decisions, imitating human cognitive functions (Lemaignan et al. 2017). AI, a field within computer science, is dedicated to automating intelligent behavior. This includes areas such as knowledge representation, algorithms, languages, and programming techniques. Natural language processing, robotics, computer vision, neural networks, speech recognition, and expert systems are some of the subdisciplines of AI technology (Lemaignan et al. 2017).

The ongoing development of AI has brought significant attention and controversy to the discussion about its presence and role (Dwivedi et al. 2021). Healthcare, banking, and transportation are just a few of the industries that have greatly benefited from artificial intelligence (AI) technology (Dwivedi et al. 2021). AI is capable of carrying out activities that need human intelligence, such as processing languages, recognition of patterns, and decision. Nevertheless, this discussion brings up significant inquiries regarding its influence on human employment, privacy, and overarching ethics (Zawacki-Richter et al. 2019). AI has the potential to improve efficiency and creativity in various fields, including medical diagnosis, drug discovery, and financial modeling. However, it also raises concerns about job loss as a result of automation and robotics. The dynamic nature of the economy and the evolving job landscape may lead to disparities and provide substantial obstacles in ensuring fair allocation of technical advantages (Lemaignan et al. 2017). The collection and analysis of big datasets by AI raises ethical concerns, particularly regarding the potential infringement on individual privacy. Furthermore, choices made by algorithms in the absence of human input raise ethical questions. Hence, it is imperative to establish robust regulatory and ethical frameworks to effectively steer the development of AI in accordance with human values. This discussion highlights the intricate relationship between technological progress and its effects on society (Lemaignan et al. 2017). It emphasizes the importance of adopting a balanced strategy to maximize advantages while also maintaining sustainability, fairness, and the well-being of individuals.

Technology has become a vital element of human existence, revolutionizing the way people interact with one other, especially in the realm of communication. Technology has become deeply ingrained in various parts of society, including education. Higher education institutions must adapt to changing environmental conditions and rapid technological progress (Bloom 2022; García 2021). Higher education institutions are required to improve their performance by incorporating technology in the present competitive landscape (Kirkwood and Price 2014). Artificial Intelligence (AI) is a technical innovation that can be applied in the field of education (Guan, Mou, and Jiang 2020). Market forecasts suggest that the education sector is one of the top ten businesses adopting artificial intelligence (AI) between 2018 and 2025 (Karpunina et al. 2020). Artificial intelligence (AI) empowers robots to engage in computational thinking and decision-making, specifically tailored to carry out tasks that are traditionally handled by people. Chatbots are a practical application of AI that analyze text input to generate responses based on recognized keywords. Hence, the development of dialogue systems is essential for ensuring the smooth progression of conversations (Young et al. 2010).

An examination of Google Trends data spanning from 2016 to 2023 provides valuable insights on the growing fascination with chatbots in Indonesia. Between 2016 and 2017, there was a steady rise in search interest, suggesting the initial acceptance and increasing interest in chatbot technology. In 2018, there was a significant increase, indicating increased awareness and potentially the emergence of new chatbot applications or platforms that became popular. In the year 2019, there was a significant surge in search

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interest, with a growth rate of 92% from October 2018 to October 2019. This substantial increase emphasizes a phase of swift acceptance and incorporation of chatbot technology in diverse industries.

Between 2020 and 2021, there was a stable trend with a consistently increasing trajectory, suggesting a continued interest and use of chatbots in many everyday applications. The years 2022 and 2023 experienced a rapid spike in growth, most likely due to the heightened dependence on digital communication tools amid the COVID-19 epidemic. Chatbots have become indispensable in delivering automated customer support, health information, and various other services. The increasing popularity of chatbot searches over time indicates the expanding use of AI technology in several facets of everyday life, namely in the field of education. Chatbots have emerged as valuable instruments for increasing communication, delivering immediate responses, and optimizing user experience.

The rise in popularity of chatbots can be attributed to various factors, including the ongoing advancements in AI and natural language processing technologies, the market's need for enhanced efficiency and user engagement, the accelerated digital transformation caused by the COVID-19 pandemic, and the improved user experience provided by advanced chatbots. The education sector stands to benefit greatly from the use of chatbots, as they may offer round-the-clock support to students, deliver tailored learning experiences, streamline repetitive administrative duties, and enhance the accessibility of instructional materials for students with varying requirements and backgrounds. Overall, the continuous rise in chatbot search patterns between 2016 and 2023 highlights the growing significance and incorporation of chatbot technology across several industries, particularly in education. This integration is expected to enhance efficiency, user engagement, and tailored experiences.

Despite the tremendous improvements in communication technologies, writing abilities continue to be crucial in the era of chatbots (Putra et al., 2023). While chatbots are capable of delivering immediate and efficient replies, effective communication still hinges on proficient writing abilities. The design of sentences, word choice, and clear and effective messages are still important. Proficiency in writing is essential in fields like customer service and virtual assistants, as it enables the creation of well-crafted scripts or inquiries for chatbots. Effective writing guarantees that chatbots comprehend the messages, resulting in precise and satisfactory responses. In addition, the ability to write creatively is crucial for the development of chatbots that are captivating and easy to use. Chatbots that employ a more anthropomorphic approach, incorporating comedy or informal language, enhance the user's experience in an inviting way. Writing for chatbots presents unique issues, including the requirement for succinct and unambiguous language structure due to character or space constraints in chat interfaces. Writers must possess the ability to formulate inquiries in a manner that is readily comprehensible to chatbots, which are simply computer programs designed to identify patterns and structures in language.

In the rapidly progressing digital environment, the skill of writing effectively remains significant, even in the age of chatbots. It is crucial to have the ability to create clear, influential, and, if necessary, creative communications in order to effectively interact with this technology (Hadian, Pkim, & Rahmi, 2023). While it is important to stay updated with technology advancements, improving writing skills is still valuable for effective communication in various situations, such as interacting with chatbots.

The demand for artificial intelligence (AI) has significantly increased, especially among students of Islamic Education (PAI) who aim to improve their writing skills. Artificial Intelligence (AI) provides a multitude of advantages that can significantly enhance the writing abilities of students in this domain. AI facilitates a personalized approach to learning by modifying curriculum and learning materials to cater to the unique needs and skill levels of individual learners (Duryat, 2021). By doing thorough data analysis, artificial intelligence (AI) systems have the capability to offer accurate and timely feedback on students' work, enabling them to comprehend their strengths and weaknesses in specific areas. Furthermore, AI's ability to recognize language patterns helps PAI students improve the coherence and structure of their language skills. These systems have the ability to identify patterns and standards in skilled language usage, assisting students in producing coherent and impactful written messages.

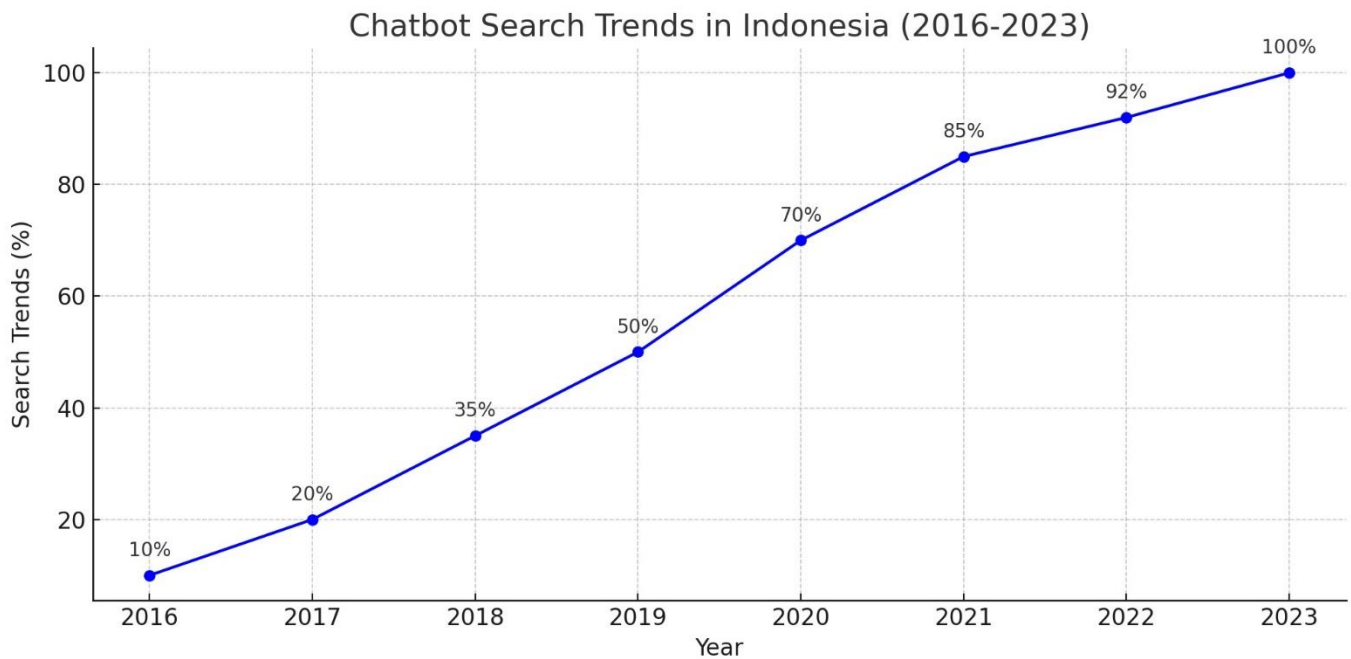


Figure. 1. Increasing Trend of Chatbots Usage in Indonesia from 2016 to 2023

Students can more easily access appropriate instructional materials and enhance their writing skills in line with the PAI curriculum by using AI-customized interactive learning resources. AI also promotes the development of ideas and creativity among PAI students. AI can act as a catalyst for students to create distinctive and meaningful written works by monitoring topic trends and offering inspiration (Hayati, 2020). Adoption also brings challenges, including ethical considerations and the need for new skills development (Gupta et al. 2024). In addition, AI-driven automation technologies have the capability to improve technical elements of writing, including grammar, spelling, and plagiarism detection. This enables students to allocate more attention to the fundamental substance of their written work.

Furthermore, AI improves virtual cooperation among students in Public Administration and International Affairs (PAI), allowing them to provide valuable feedback to one other and promoting a collaborative and cooperative learning environment (Askana Fikriana, 2023). Not only does this enhance their writing skills, but it also fosters the development of a dynamic learning community. The significance of artificial intelligence (AI) for students in the field of personal artificial intelligence (PAI) lies in its ability to enhance writing skills, indicating a favorable change in educational approaches. Artificial intelligence facilitates the development of flexible, effective, and personalized learning experiences, which aid students in enhancing their writing skills within the broader context of Islamic Education.

4. Conclusion

In the rapidly evolving digital landscape, artificial intelligence (AI) plays a pivotal role in enhancing the writing skills of Islamic Education (PAI) students. AI facilitates personalized and adaptive learning approaches while providing timely feedback that enables students to identify their strengths and weaknesses in writing. By recognizing language patterns, AI aids in improving the coherence and structure of students' written work. Additionally, AI fosters creativity and innovation, while also addressing technical aspects of writing, such as grammar and plagiarism detection. The integration of AI in PAI education not only supports skill development but also promotes a collaborative learning environment, ultimately contributing to the formation of a dynamic and sustainable learning community.

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