E-ISSN: 0000-0000, P-ISSN: 0000-0000
Advances in Educational Innovation (AEI), Vol 1, Issue 1, 2024, Page 01-06
https://doi.org/10.69725/aei.v1i1.81

Contents lists available at Inovasi Analisis Data

Advances Educational Innovations

journal homepage: https//analysisdata.co.id

Artificial Intelligence in Civic Education Finding a Balance between Technology and Teacher Roles

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ARTICLE INFO

Article history:
Received 10 May 2024
Accepted 25 June 2024
Publication 10 Agustust 2024

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Muhammad Iqbal Baihaqi

Keywords: *Artificial Intelligence (AI), Civic Education, Student Engagement, Learning Outcomes, Education Efficiency*

Reasearch Type:
Colaboration, Observation

ABSTARCT

Objective: This study examines the role of Artificial Intelligence (AI) as both an innovative tool and a challenge in citizenship education at Islamic Vocational School Kanigoro. It aims to provide insights into how AI impacts educational practices, student engagement, and learning outcomes.
Methods: A qualitative approach was employed, utilizing observations and interviews to gather data from teachers and students. This method allowed for an in-depth exploration of the dynamics and implications of AI integration in the classroom.
Results: The study found that AI technologies, such as Quizizz and Kahoot, were effectively used to automate administrative tasks and personalize learning experiences, significantly improving educational efficiency and student engagement. AI-driven platforms provided tailored instructional content and rapid assessments, enhancing teaching methodologies and learning outcomes. However, challenges such as over-reliance on AI, privacy concerns, and potential algorithmic bias were identified.
Conclusion: This study highlights the transformative potential of AI in citizenship education while underscoring the importance of balancing technological innovation with human interaction. Effective integration of AI can enhance learning experiences and foster critical thinking and ethical reasoning among students. The findings advocate for continuous professional development for educators, ethical AI practices, and the preservation of human-centric educational values. Future research should explore diverse educational contexts to further understand the benefits and challenges of AI in education.

1. Introduction

In recent years, the rapid advancement of technology, particularly Artificial Intelligence (AI), has fundamentally reshaped various industries, ushering in what is commonly referred to as the Fourth Industrial Revolution (Syam and Sharma 2018). This revolution, characterized by the integration of AI into everyday processes, has not only revolutionized production and service sectors but also holds profound implications for education (Knell 2021). paradigm shifts and new trends are increasingly prominent in the field of educational research. For example, research results show a decline in conventional technology-supported learning design research and a proliferation of student profiling and learning analysis models (Guan, Mou, and Jiang 2020). As AI capabilities continue to grow, its application in educational settings is becoming increasingly prominent, promising to improve the efficiency and effectiveness of learning (Zhang and Aslan

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2021). The phenomenon of AI's integration into industries spans across sectors like manufacturing, healthcare, finance, and entertainment, where automated processes and predictive algorithms optimize production, diagnosis, financial forecasting, and content personalization (Burström et al. 2021; Jan et al. 2023; Leone et al. 2021). This transformation, fueled by AI's ability to analyze vast datasets and make data-driven decisions, has led to increased operational efficiency and innovation in products and services (Akter et al. 2021).

In the realm of education, AI presents a transformative potential by personalizing learning experiences, automating administrative tasks, and providing adaptive feedback mechanisms (Dai and Ke 2022). This shift marks a departure from traditional teaching methods towards more interactive and tailored educational approaches, accommodating diverse learning styles and needs (City et al. 2024). Educational institutions, including Islamic Vocational School Kanigoro, are increasingly leveraging AI to enhance curriculum design, student engagement, and overall learning outcomes. Su and Zhong (2022) recommended that AI literacy be achieved through three competencies: AI Knowledge, AI Skills, and AI Attitude. The use of social robots as learning companions and programmable artifacts was shown to assist children in understanding AI principles. Moreover, AI's impact extends beyond operational improvements to ethical considerations and societal implications. Concerns about data privacy, algorithmic bias, and the ethical use of AI underscore the importance of responsible AI deployment in educational contexts (Díaz-Rodríguez et al. 2023). Addressing these concerns is crucial to fostering trust in AI systems and maximizing their benefits while mitigating potential risks. Habbal, Ali, and Abuzaraida (2024) barriers related to implementing the TRiSM AI framework, including hostile attacks, the ever-changing threat landscape, ensuring regulatory compliance, addressing skills gaps, and acquiring expertise in the field.

The theoretical framework supporting the integration of AI in education emphasizes its role in optimizing educational processes through personalized learning experiences and efficient administrative tasks. Scholars (Dai and Ke 2022) AI's potential to simplify decision-making, improve student assessment, and provide customized feedback, thereby improving overall educational outcomes. Additionally, AI's capacity to analyze vast amounts of student data enables educators to identify learning patterns and individual strengths and weaknesses more effectively than traditional methods allow (Khosravi et al. 2022). This data-driven approach not only enhances the precision of educational interventions but also facilitates the adaptation of teaching strategies to better meet the diverse needs of students (Zhao et al. 2023). Moreover, AI-powered educational platforms can simulate real-world scenarios, offering students immersive learning experiences that bridge the gap between theoretical knowledge and practical application (Song, Wu, and Ding 2024). By integrating AI into educational frameworks, institutions like Islamic Vocational School Kanigoro can optimize resource allocation, enhance instructional quality, and foster a more inclusive learning environment (Skowronek et al. 2022). Students in education are required to keep up with evolving innovations and to bridge this gap, pedagogical approaches play an important role (Ammar, Al-Thani, and Ahmad 2024). These advancements signify a paradigm shift towards student-centered education, where AI acts as a catalyst for innovation, equity, and personalized learning pathways.

In understanding the impact of Artificial Intelligence (AI) in education, it is crucial to consider how this technology can influence learning environments and student engagement. Ongoing debates about the integration of AI in education underscore the importance of exploring how AI can complement traditional teaching methods while addressing contemporary challenges, thus fostering more inclusive and adaptive learning environments. Previous studies have shown varied outcomes regarding the use of AI in education. AI has the potential to enhance personalized learning experiences by delivering tailored content according to each student's needs and learning styles. For instance, AI-based adaptive learning platforms can analyze real-time student performance data to provide customized feedback, potentially improving academic outcomes (Supriyadi & Asih, 2021; Malatuny, 2022). However, concerns exist regarding the equitable distribution of AI benefits across various socio-economic and demographic groups. Critics worry that AI-based educational tools could exacerbate existing educational inequalities if there is uneven access to technology and digital literacy skills. Luckin et al. (2022) AI readiness recognizes that such contextualization is not an option: it is important

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because of the complexities, sensitivities and variations between different sectors and settings, all of which impact the application of AI. Additionally, ethical considerations regarding algorithmic bias and data privacy have arisen concerning the use of AI in decision-making processes such as student assessments and admissions (Minaswati, 2023). According to (Arbelaez Ossa et al. 2023) Using case-based learning with examples from scenarios where AI is currently implemented can also train reflective, ethical, and interdisciplinary skills.

The urgency to research these disparities and debates stems from AI's potential to revolutionize educational practices while posing challenges that must be addressed to ensure fair and ethical implementation. By investigating these complexities, researchers can provide insights into how AI can be effectively integrated into educational settings to maximize its benefits and mitigate risks (Bhutoria 2022). Understanding its impact on student engagement, learning outcomes, and educational equity is crucial for informing policy decisions and educational strategies in the digital era.

2. Methode Innovation

The research employs a qualitative method to comprehensively explore and understand the utilization of Artificial Intelligence (AI) as both an innovative solution and a challenge in citizenship education at Islamic Vocational School Kanigoro. Qualitative research, according to Creswell (2016: 13), focuses on techniques for describing, exploring, and understanding the meanings that individuals or groups attribute to social or human issues. This approach is chosen to delve deeply into the dynamics and implications of AI integration in educational practices.

The qualitative methodology involves the use of observation and interviews to gather rich, contextual data from teachers and students. Observation allows researchers to directly witness the learning processes facilitated by AI in the classroom. By observing these interactions firsthand, researchers can capture nuanced aspects of how AI is employed, its effectiveness in enhancing teaching methodologies, and its impact on student engagement.

Additionally, interviews are conducted to gain insights into the perceptions, experiences, and challenges encountered by teachers and students regarding the use of AI. These qualitative techniques are instrumental in capturing the subjective experiences and interpretations of AI's role in education, offering a holistic understanding beyond mere quantitative metrics.

Data collected from observations and interviews are meticulously analyzed to identify patterns, themes, and significant findings. Through content analysis, the researcher aims to uncover insights into the innovative applications of AI in citizenship education and the challenges it poses. This methodological approach not only provides a descriptive account but also allows for a deeper exploration of the complex interactions between AI technology, educational practices, and learning outcomes. Overall, the qualitative method employed in this study is essential for generating in-depth insights that can inform educational practices, policy decisions, and further research initiatives aimed at maximizing the benefits and mitigating the challenges associated with AI in education.

3. Result and Discusion

The integration of Artificial Intelligence (AI) in citizenship education has emerged as a transformative force in educational practices, leveraging advancements in Fourth Industrial Revolution technologies. This section presents the findings and discussions derived from a study conducted at Islamic Vocational School Kanigoro, focusing on the implementation and impact of AI in citizenship education.

The study conducted at Islamic Vocational School Kanigoro explored various applications of AI in enhancing citizenship education. AI technologies were leveraged primarily to automate administrative tasks and enhance instructional methodologies. One of the significant findings was the use of AI-driven platforms such as Quizizz and Kahoot to automate the generation of examination questions aligned with the curriculum and desired difficulty levels. This automation not only saved teachers' time but also provided a diverse set of

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questions tailored to student needs. Furthermore, AI facilitated rapid and accurate assessment of student assignments, ensuring unbiased evaluations and timely feedback. Through AI-powered analytics, teachers could identify learning difficulties and provide personalized interventions, thereby enhancing student engagement and learning outcomes. These findings are consistent with previous research indicating AI's ability to improve educational efficiency and effectiveness (Singh & Hiran, 2022; Bulut & Wongvorachan, 2022).

AI played a pivotal role in personalizing learning experiences by analyzing student data to tailor instructional content and methods according to individual needs. This personalized approach not only improved students' understanding of citizenship concepts but also fostered a more inclusive learning environment. Research has highlighted AI's potential to customize educational content and delivery, thereby catering to diverse learning styles and abilities (Din et al., 2023; Fernandes et al., 2023). Moreover, AI-enabled access to educational resources such as interactive simulations and multimedia content enriched students' learning experiences. AI algorithms directed students to the most relevant learning resources, enhancing their comprehension of complex citizenship concepts. Studies have demonstrated that AI-guided learning resources can significantly enhance student engagement and academic achievement (Schrumpf, 2022; Yang et al., 2022).

Despite its benefits, the integration of AI in citizenship education presents several challenges that warrant careful consideration. One prominent concern is the potential over-reliance on AI, which could diminish direct interactions between teachers and students. Such reliance may reduce opportunities for social interaction and the development of crucial social skills essential for active citizenship (McCarthy, 2007).

Privacy and data security issues also emerge as critical challenges in AI-driven educational settings. The collection and analysis of student data necessitate stringent safeguards to prevent unauthorized access or misuse. Moreover, concerns about algorithmic bias pose risks in AI applications, potentially influencing decision-making processes and feedback mechanisms in ways that may perpetuate societal biases (Aquino, 2023; Ulnicane & Aden, 2023).

Achieving a balanced integration of technology and human roles is crucial for effective citizenship education. While AI enhances learning experiences, teachers' pivotal role as facilitators of learning remains irreplaceable. Teachers possess the expertise to adapt instructional strategies, provide contextually relevant guidance, and foster critical thinking and ethical reasoning among students (Ahmadi & Farid Ibda, 2021).

Effective integration involves leveraging AI as a tool to augment rather than replace human interaction. This approach ensures that technology enhances rather than supplants meaningful teacher-student interactions and collaborative learning experiences. Moreover, it empowers teachers to use AI tools judiciously, selecting those that align with educational goals and foster socio-emotional development (Wibowo, 2023).

Research conducted at Islamic Vocational School Kanigoro highlighted specific challenges and insights into AI's role in citizenship education. Firstly, concerns were raised regarding potential job displacement among teachers and students' over-reliance on AI for learning tasks. It was emphasized that while AI can streamline teaching and assessment processes, effective implementation requires educators to possess adequate AI literacy and skills to maximize its benefits (Rochim, 2024).

Secondly, challenges such as technological dependency and bias in AI-generated learning materials were identified. Over-reliance on AI may inadvertently stifle students' independent learning and creativity, limiting their ability to develop critical thinking skills necessary for informed citizenship (Hutson & Ceballos, 2023).

Thirdly, AI-generated educational materials may exhibit bias due to the inherent biases in training data. This bias could potentially overlook diverse perspectives crucial for comprehensive citizenship education. Therefore, rigorous oversight and continuous evaluation are essential to mitigate biases and ensure the inclusivity and accuracy of AI-driven educational content (Patrikar et al., 2023; Sinha et al., 2023).

To mitigate these challenges, educators must adopt a proactive and responsible approach to AI integration in citizenship education. This involves continuous professional development to enhance AI literacy among teachers, fostering collaborative partnerships with stakeholders, and promoting ethical AI practices in educational settings (Ahmad et al., 2023; Peng et al., 2023). By striking a balance between technological innovation and humanistic values, educators can create a learning environment that cultivates critical

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thinking, ethical reasoning, and active citizenship among students. The integration of AI should empower educators to enrich learning experiences while preserving the essential role of human interaction in nurturing well-rounded individuals prepared for the challenges of the future (DeCamp & Lindvall, 2023).

4. Conclusion

In conclusion, the study underscores the transformative potential of AI in enhancing citizenship education while highlighting the need for careful consideration of its challenges. By leveraging AI as a supportive tool rather than a replacement for human interaction, educators can optimize learning experiences and empower students to become informed and engaged citizens. Future research should continue to explore innovative AI applications that promote inclusive and effective citizenship education in diverse educational contexts. This study contributes valuable insights into the evolving landscape of AI in education, emphasizing the importance of ethical AI implementation and the preservation of human-centric educational values. As AI continues to shape educational practices, maintaining a balanced approach is crucial to harnessing its full potential for the benefit of all learners.

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