

AI and Ethics in Civic Education: A Literature Review on Building Digital Citizens

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Abstract

In the increasingly advanced digital era, Artificial Intelligence (AI) has become an integral part of the educational landscape. This progress introduces new challenges, particularly regarding ethics and the formation of societal character. This study employs a descriptive qualitative method using a literature review of publications from the last five years, with data collected from various relevant journals indexed by Google Scholar. Through content analysis, this study identifies the relationship between AI, ethics, and civic education, as well as how to shape intelligent, responsible, and integrity-driven digital citizens through ethical approaches in AI utilization. The findings reveal that AI holds great potential to enhance civic education through broader access to information and more inclusive and adaptive learning. However, without a proper ethical framework, AI also presents risks such as plagiarism, information manipulation, and the erosion of social responsibility. Furthermore, the analysis finds that aligning AI with the values of Pancasila and principles of digital ethics is essential in forming digital citizens who are not only technologically literate but also responsible, ethical, and legally aware in digital spaces. Therefore, strong integration between technology, ethics, and civic education values is required to ensure that the use of AI contributes to the development of a civilized and just digital society.

Keywords: Digital Ethics, Civic Education, Digital Citizenship

Introduction

The development of artificial intelligence (AI) over the past two decades has brought significant changes to various aspects of life, including education. AI not only brings technological innovation but also shapes a new paradigm for learning that is more adaptive, personalized, and data-driven. This technology enables the birth of intelligent learning systems, virtual assistants, in-depth analytics of student data, automated creation of teaching materials, and rapid and accurate evaluation. In Indonesia, the use of AI is beginning to be seen through interactive learning media, automated lesson plan development, adaptive quizzes, and digital assessment systems that accelerate student feedback.

Globally, the trend of implementing AI in education continues to increase. Research by Madani et al., (2025) and a 2023 Turnitin survey in the United States showed that nearly half of students from 600 universities have used Generative AI

technology in their learning activities. A similar phenomenon has also emerged in Indonesia. A 2023 survey by Tirto and Jakpat revealed that more than 86% of students aged 15–21 have used AI to complete assignments, both at school and at university, at least once a month. However, behind these opportunities, a number of concerns have emerged, ranging from potential dependency, decreased creativity, to weakened critical thinking skills (Ummu Hanifah & Novebri Novebri, 2024).

Several previous studies have confirmed the potential of AI in supporting the learning process. Zhang & Aslan, (2021) emphasizes its role in strengthening teaching methods and personalizing materials, while Holmes et al., (2019) highlights its contribution to increasing student participation. However, research Zahara et al., (2023) warns that the use of AI can also have negative impacts, such as reducing student motivation and teacher initiative due to over-reliance on technology. Therefore, the use of AI in education must be

balanced with ethical considerations, data protection, and privacy security (Wiratama, 2021).

Civics education is an essential part of the national education system, strategically serving to shape character, strengthen national identity, and foster awareness of the rights and obligations of citizens. Entering the digital era, the civics learning process has undergone significant changes, moving toward a more interactive and technology-based model. The presence of social media, e-learning platforms, and digital applications not only enriches learning materials but also opens broader opportunities for civics discussion. However, this dynamic demands increased digital literacy so that students can select valid information and avoid hoaxes and hate speech.

In the context of civics education, digital transformation opens more interactive learning spaces through social media, e-learning, and digital applications. However, this situation also demands strengthening digital literacy so that students can sort out accurate information and avoid hoaxes and hate speech. This is closely related to the concept of digital citizenship, which emphasizes the importance of ethics, security, and responsibility in interacting in the digital space (Ribble & Park, 2019).

In line with the vision of *Society 5.0* which integrates AI, IoT, and Big Data with a human-centered approach education needs to be directed not only at transferring knowledge, but also at developing critical, participatory, and adaptive attitudes. Ki Hajar Dewantara's thoughts are relevant as a philosophical foundation in strengthening Civic Education, so that the younger generation can compete globally without losing the roots of national values (Fazira et al., 2024). In this case, Pancasila serves as a moral guideline that directs the use of technology, including AI, so that it always sides with humanity, social justice, and national unity (Harjanto & Najicha, 2024).

Apart from the ethical aspect, legal awareness also plays an important role. Understanding and compliance with legal norms can reduce behavior straying into the digital world, keeping moral integrity, as well as strengthen cohesion social. By combining digital literacy, ethics, Pancasila values, and legal awareness, civic education in the digital

age can produce intelligent, critical, and responsible citizens

Based on framework said, research This aim examine literature latest about the relationship between AI, ethics, and education citizenship, with focus on efforts form digital citizens with character and integrity.

Literature Review

Artificial Intelligence (AI) in Education

Definition and Types of AI in Learning Contexts-Artificial Intelligence (AI) refers to the ability of machines to perform tasks that typically require human intelligence, such as learning, pattern recognition, and decision-making Russell & Norvig, (2016) making Common types of AI used in education covering learning machines, processing Language natural, and system helpful recommendations in personalization experience Study.

Example Implementing AI in the Classroom AI has implemented in various way in space class, such as use of chatbots for answer question students, tools analysis For evaluate progress learning and applications AI-based that provides material customized learning with need student (Zhang & Aslan, 2021). For example, a learning platform that uses AI can give bait come back instant to students and help they understand difficult concept.

Ethics in AI Technology

Principles Ethical AI: Fairness, Transparency, Accountability, Privacy The use of AI in education must base on the principle strong ethics, including fairness, transparency, accountability, and privacy (Floridi et al., 2021). Justice ensure that AI is not discriminate individual based on race, gender, or background behind social. Transparency related with How AI algorithms work and make decision, while accountability require AI developers and users to responsible answer on consequence from use technology This.

Risks Ethics : Algorithmic Bias, Data Breaches, Decision Automation Although AI offers Lots benefits, there are risk significant ethical bias. Algorithmic bias can appear if the

data used For training AI no representative, which leads to decisions that are not fair. In addition, data breaches and other issues privacy can happen if user data No managed with good. Automation decisions can also be made reduce involvement man in the process of taking important decisions. The ethical use of artificial intelligence must be based on at least four main principles: transparency, accountability, fairness, and security and privacy protection. These four aspects serve as the fundamental foundation for designing and implementing AI to align with ethical values (Nasman, 2024).

Citizenship Education and Digital Citizenship

The purpose of Civic Education in 21st Century Context Citizenship education aim For prepare individuals to become active, responsible citizens responsible and ethical (Zulfikar & Dewi, 2021). In the 21st century, the goal This the more important remember complexity challenge social and political issues faced by society.

Dimensions of Digital Citizenship: Digital Literacy, Responsibility, Social Participation Digital citizenship includes digital literacy, namely ability For use technology in a way effective and ethical , as well as not quite enough answer social For participate in public in a way positive (Ribble & Park, 2019). Dimensions This important For ensure that individual No only capable use technology , but also understanding impact from action them in the digital world.

The Relationship Between AI, Ethics, and Civic Education

How AI Can Strengthen or Weakening AI's Civic Values has the potential strengthen values citizenship with give access more information spacious and facilitating participation active in discussion social (Hidayat, 2023). However, if No used with wise, AI can also weaken values the with leading to injustice and the spread of misleading information.

The Role of Teachers and Curriculum in Direct The Use of AI in Ethics of effective citizenship education must covers training about ethics use of AI, so that student can use

technology This in a way responsible answer (Faiz & Kurniawaty, 2023). Teachers play a role important in integrate values ethics to in curriculum, ensuring that student No only Study using AI, but also understanding moral and social implications from its use.

Method (for original research)

Setting and Participants

This study uses a literature review approach to examine the connection between Artificial Intelligence (AI), ethics, and civic education. Data source selected from academic database trusted, including Google Scholar, Scopus, and repositories scientific other.

Criteria selection source includes : Relevance with AI topics, issues ethics in technology and education citizenship, Year published , with priority in publication in 10 years final, Focus on studies theoretical or empirical which discusses AI implementation, framework ethics, or results education citizenship.

Data Collection

Data collection process is carried out in a way systematic through search, filtering, and extraction information from selected literature. The stages includes :

1. Search using keywords such as "intelligence" artificial in education," "AI ethics," and "education citizenship"
2. Filtering title and abstract For evaluate relevance with objective study
3. Review text complete For ensure selected studies fulfil criteria inclusion
4. Primary data extraction, including objective research, methodology, findings, and implications related to AI, ethics, and education citizenship

Results and Discussion

A recent literature review shows that the use of artificial intelligence (AI) in civics learning is developing in increasingly complex and diverse patterns. One key finding is how AI plays a role in supporting personalized learning. Using machine learning algorithms, systems can analyze students' preferences, abilities, and cognitive development and then tailor civics learning materials to individual needs. This

technology enables personalized learning through student data analysis, making materials more relevant to their experiences (Zhang & Aslan, 2021). Chatbots and virtual assistants expand student participation in online discussions Holmes et al., (2019), while learning analytics help teachers monitor student engagement in civic issues (Harjanto & Najicha, 2024). Furthermore, AI-based digital simulations and gamification, such as virtual parliaments and mock elections, have been shown to improve democratic understanding and deliberative skills (Zulfikar & Dewi, 2021). This pattern demonstrates that AI plays a role not only as a medium for delivering material but also as a facilitator of participatory learning experiences.

However, the use of AI also presents serious ethical challenges. Algorithmic bias risks creating discrimination in learning, while student privacy is vulnerable to being compromised by big data collection (Floridi et al., 2021). Inequality in access to technology exacerbates the gap in learning quality between urban and remote areas (Zahara et al., 2023). Furthermore, over-reliance on AI can diminish students' creativity and critical thinking skills (Ummu Hanifah & Novebri Novebri, 2024). Equally important, generative AI has the potential to be used to spread disinformation and deepfakes, which weaken the critical thinking skills of young digital citizens (Hidayat, 2023).

While AI can expand access to information and enrich learning experiences, this technology still has fundamental limitations in shaping ethical digital citizens. One of the biggest challenges is AI's inability to understand moral values and social context. AI systems only process data based on mathematical patterns without considering ethical dimensions, cultural norms, or humanitarian principles Ummu Hanifah & Novebri Novebri, (2024) emphasizes that in civic education, understanding values cannot be reduced to algorithms because moral values require social sensitivity and humanistic critical reflection. If civic education relies too heavily on AI, there is a risk of the "dehumanization" of education, where aspects of morality, empathy, and social solidarity are marginalized by technical logic.

Furthermore, overreliance on technology is also a serious challenge (Zahara

et al., 2023). Studies have found that students who overuse AI tend to lose initiative, motivation to learn, and critical thinking skills. This is dangerous because civic education should encourage active participation, ethical reflection, and independent decision-making in the public sphere. If students habitually hand over analysis, argumentation, or moral reasoning to AI, they risk growing up as passive digital citizens unprepared to face the complexities of real-world socio-political issues.

To ensure that the use of AI truly supports the formation of digital citizens with integrity, a robust ethical framework is needed in education. One strategic step is to formulate an education policy based on digital ethics. Floridi et al., (2021) emphasizes that AI in education must be based on the principles of fairness, transparency, accountability, and privacy protection. Such policies should regulate the secure use of student data, prevent algorithmic discrimination, and guarantee equitable access to prevent the digital divide. In Indonesia, the integration of Pancasila values into digital education policies can serve as a moral guideline that grounds technology in the principles of humanity, social justice, and national unity (Harjanto & Najicha, 2024).

Beyond policy, teachers also play a key role in guiding the ethical use of AI (Faiz & Kurniawaty, 2023). Emphasizes that teachers are not merely users of technology but must also serve as moral guides, instilling critical awareness in students. Teachers need to integrate digital literacy with ethics education, so that students are not only able to use AI but also understand the social, legal, and moral impacts of their actions in the digital space. Thus, teachers act as a bridge, balancing technological sophistication with the need for humanitarian values in civic education.

The results of this discussion emphasize that AI presents two dimensions in civic education: as a facilitator of inclusive democratic learning and as a source of ethical risks that can erode civic values if not balanced with a strong ethical framework. Thus, the main challenge in developing digital citizens through AI lies in maintaining a balance between the use of technology to support learning and the instilling of humanistic civic values. Without strong ethical and pedagogical interventions, AI can produce a generation that is technically

savvy but weak in morals, empathy, and social responsibility. Therefore, citizenship education in the digital era must go hand in hand with strengthening digital ethics. Clear policies and the role of teachers as moral agents can ensure that AI is not merely a technological tool, but also an instrument for developing intelligent, critical, and responsible citizens in the digital world.

Conclusion

This literature review demonstrates that artificial intelligence (AI) presents both significant opportunities and challenges for citizenship education in the digital age. On the one hand, AI can enrich learning through personalized content, interactive chatbots, learning analytics, and participatory simulations that encourage more active student engagement. Utilizing this technology can expand access to information, strengthen digital literacy, and foster deliberative skills essential for digital citizenship.

However, on the other hand, AI also presents serious ethical risks, ranging from algorithmic bias, privacy violations, unequal access, and even a decline in creativity and critical thinking skills due to over-reliance on technology. These risks have the potential to undermine civic values that should be at the heart of learning, such as fairness, social responsibility, and democratic participation.

Therefore, the use of AI in civic education must be placed within a strong ethical framework. Digital ethics-based educational policies are needed to ensure data protection, fair access, and the integration of Pancasila values as a moral guideline. At the same time, teachers must act not only as users of technology but also as moral guides, guiding students in understanding the social, legal, and ethical impacts of AI use.

By balancing technological innovation and ethical commitment, Civic education in the digital age can produce citizens who are not only technologically proficient but also possess integrity, critical thinking skills, and a sense of responsibility. This step is crucial to ensuring that AI development truly supports the realization of a just, civilized digital society aligned with the vision of Society 5.0.

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