

THE IMPACT OF AI ON STUDENTS' INDEPENDENCY IN LEARNING: A SYSTEMATIC REVIEW

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Abstrak

Penelitian ini bertujuan untuk meneliti dampak integrasi AI terhadap pembelajaran mandiri siswa melalui tinjauan sistematis literatur ilmiah yang relevan. Penelitian ini mensintesis temuan dari artikel jurnal yang ditinjau sejawat yang berfokus pada studi yang membahas penggunaan aplikasi berbasis AI dalam lingkungan pendidikan dan pengaruhnya terhadap pembelajaran mandiri siswa. Proses tinjauan sistematis melibatkan identifikasi, pemilihan, dan analisis studi empiris dan teoretis dari basis data akademik yang bereputasi. Hasil menunjukkan bahwa integrasi AI memberikan kontribusi positif terhadap pembelajaran mandiri siswa dengan memfasilitasi pengajaran yang dipersonalisasi, mendorong pembelajaran mandiri, meningkatkan motivasi belajar, dan memungkinkan akses fleksibel ke sumber belajar. Selain itu, program berbasis AI seperti sistem bimbingan cerdas, sistem umpan balik otomatis, dan platform pembelajaran adaptif mendorong siswa untuk lebih bertanggung jawab atas proses pembelajaran mereka sendiri. Namun, beberapa tantangan juga diidentifikasi, termasuk ketergantungan yang berlebihan pada teknologi, literasi digital yang terbatas, dan kekhawatiran etis terkait privasi data dan integritas akademik. Secara keseluruhan, temuan ini menyoroti bahwa integrasi AI yang efektif dapat mendukung pengembangan pembelajaran mandiri siswa bila disertai dengan strategi pedagogis yang tepat dan dukungan literasi digital. Studi ini memberikan wawasan bagi pendidik, peneliti, dan pembuat kebijakan dalam memahami peran AI dalam mendorong pembelajaran otonom dalam konteks pendidikan modern.

Kata kunci: Kecerdasan Buatan, integrasi AI, pembelajaran mandiri, pembelajaran terarah, tinjauan sistematis, teknologi pendidikan.

Abstract

This study aims to examine the impact of AI integration on students' independent learning through a systematic review of relevant scholarly literature. The research synthesizes findings from peer-reviewed journal articles focusing on studies that discuss the use of AI-based applications in educational settings and their influence on students' self-directed or independent learning. The systematic review process involves identifying, selecting, and analyzing empirical and theoretical studies from reputable academic databases. The results indicate that AI integration contributes positively to students' independent learning by facilitating personalized instruction, promoting self-regulated learning, increasing learning motivation, and enabling flexible access to learning resources. Furthermore, AI-powered tools such as intelligent tutoring systems, automated feedback systems, and adaptive learning platforms encourage students to take greater responsibility for their own learning processes. However, several challenges are also identified, including overreliance on technology, limited digital literacy, and ethical concerns related to data privacy and academic integrity. Overall, the findings highlight that the effective integration of AI can support the development of students' independent learning when accompanied by appropriate pedagogical strategies and digital literacy support. This study provides insights for educators, researchers, and policymakers in understanding the role of AI in fostering autonomous learning in modern educational contexts.

Keywords: Artificial Intelligence, AI integration, independent learning, self-directed learning, systematic review, educational technology.

INTRODUCTION

The development of digital technology in this modern era has brought significant changes to various areas of life, including education. According to Roll & Wylie (2022), one of the rapidly developing

technologies currently widely used in education and the learning process is Artificial Intelligence (AI). Basically, the function of AI is to assist humans in processing information, completing work automatically, increasing efficiency, and supporting faster and more accurate decision-making (Chen, Chen, & Xie, 2022). According to Tlili et al (2021), the presence of various AI-based applications, such as learning chatbots, automated assessment systems, and academic writing assistants, has changed the way students obtain, manage, and utilize information in the learning process.

In the context of higher education, the use of AI is increasingly widespread due to its ability to provide fast access to information, personalized learning, and flexible academic support (Almasri & Al-Nuaimi, 2024). According to Holmes et al. (2021), individuals can utilize AI to search for scientific references, understand complex concepts, assist in the academic writing process, and obtain instant feedback on assignments. According to Crompton et al. (2020) and Yang et al. (2024), this condition opens up great opportunities for students to develop independency in learning, namely the ability of a person to organize and manage their own learning process without relying entirely on the help of others, such as teachers or lecturers.

Individuals with learning independence are able to determine learning goals, choose learning strategies, and evaluate their own learning outcomes in the digital era. According to Kim et al. (2022), individuals with a high level of learning independence tend to be able to determine learning goals, choose appropriate learning strategies, and take responsibility for their learning process and outcomes. Furthermore, according to Shidiq (2023), AI has the potential to be a tool that supports the development of skills and thinking without always relying on lecturers as the primary source of knowledge.

However, according to Zhai et al. (2021), the use of AI in learning can also have negative impacts. AI can increase efficiency and help students understand learning materials more easily. However, there are concerns that the use of AI could impact students' critical thinking skills, creativity, and learning independence, as they tend to rely on technology to complete academic assignments (Akgun & Greenhow, 2022). Therefore, it is important to understand the true impact of AI use on students' learning independence.

Several previous studies have discussed the use of AI in education, such as its use to improve academic writing skills, adaptive learning, and language skills development. However, research specifically examining the relationship between AI use and student learning independence is still relatively limited and scattered across various literature sources. Therefore, a comprehensive study that integrates various existing research findings is needed to provide a more systematic understanding of the impact of AI on student learning independence.

Based on this description, this research was conducted in the form of a literature study to examine various studies related to AI in learning and its impact on students' learning independence.

RESEARCH METHOD

This study employs a systematic literature review to examine and synthesize previous research on the impact of AI on students' learning independence. A systematic review method is used to identify, evaluate, and analyze relevant empirical studies in a structured and transparent manner. The approach allows researchers to summarize existing evidence and identify patterns, trends, and gaps in the literature related to AI and students' learning independence.

The review follows standard procedures commonly used in systematic reviews, including identification, screening, eligibility assessment, and inclusion of relevant studies. The data for this study are obtained from reputable academic databases to ensure the quality and credibility of the selected studies. The databases including Google Scholar and SCOPUS. These databases were chosen because they contain peer-reviewed journal articles relevant to language education and educational technology.

The selected studies were analyzed using thematic analysis. The analysis involved several steps: Classifying the selected studies based on research objectives, participants, methods, and findings, identifying common themes related to the effects of blended learning on writing ability, comparing and synthesizing findings across studies to identify patterns and differences, and summarizing the results to

draw conclusions about the impact of AI on students' learning independence. The findings are then presented in the form of descriptive synthesis and summary tables to provide a clearer overview of the reviewed studies.

FINDINGS AND DISCUSSION

Findings

Based on an analysis of various literature discussing the use of artificial intelligence in higher education, it was found that the use of Artificial Intelligence (AI) has a significant impact on the development of student learning independence. AI in the educational context typically takes the form of applications such as adaptive learning systems, academic chatbots, AI-based writing applications, and digital learning platforms capable of providing automated feedback to students.

Literature research shows that AI can enhance student learning independence through several key aspects. First, AI allows students to access learning resources more broadly and flexibly. With AI-based applications, students can receive instant explanations, practice examples, and corrections without having to rely on lecturers. This encourages students to be more active in seeking information and managing their learning process independently.

AI also helps students reflect on their learning outcomes. Many AI applications can provide automatic feedback. This feedback helps students identify mistakes and correct them independently. This way, the learning process is no longer entirely dependent on lecturer evaluations but can be continuously driven by students themselves.

Furthermore, the use of AI also facilitates customizable learning. AI systems are able to adapt to student preferences. Students with varying abilities can learn at their own pace. This strengthens students' ability to develop the most effective learning strategies for themselves.

However, some literature also indicates the potential negative impact of AI use on independent learning. If not used wisely, AI can lead to student dependence on technology. Some students tend to use AI to obtain instant answers. This situation undoubtedly impacts the development of critical thinking and problem-solving skills.

Discussion

Basically, AI plays a significant role in supporting student independent learning in the digital age. From a self-directed learning perspective, students are required to organize their own learning systems. AI can be a powerful tool in supporting this process by providing rapid access to information, immediate feedback, and a variety of learning resources.

Furthermore, the use of AI also aligns with the recommendation that knowledge be actively constructed by students. With the help of AI, students can explore various sources of knowledge, test their understanding through exercises, and receive immediate feedback. This process allows students to construct knowledge more independently and reflectively.

Nevertheless, the role of lecturers remains crucial in guiding the appropriate use of AI. Lecturers need to provide guidance on how to use AI as a learning support tool, not as a substitute for thinking. Learning strategies that emphasize analysis, evaluation, and reflection need to be implemented so that students don't rely solely on the results provided by AI.

Furthermore, the literature emphasizes the importance of digital literacy in the use of AI. Students need to be able to evaluate information generated by AI, as most AI output is not always accurate or relevant to the learning situation. Therefore, the integration of AI into learning must be accompanied by strengthening critical thinking skills and ethical use of technology.

The results of this study demonstrate that AI can bring significant benefits when used appropriately and purposefully. AI can be a tool that helps students manage their learning process independently, increases access to knowledge sources, and accelerates the feedback process in learning. However, the use of AI still requires supervision and guidance from lecturers to ensure the technology truly supports the development of students' thinking skills and independent learning.

CONCLUSION

Based on literature research from various previous studies, the use of AI in the learning process has a positive impact on increasing student learning independence. AI also encourages students to develop independent learning skills through broader information exploration. Students can search for references, develop ideas, and correct errors in academic assignments more effectively with the help of AI-based systems. This can certainly enhance digital literacy skills, which are highly needed in the modern education era.

However, this study suggests that the use of AI in education should be controlled. Uncontrolled use of AI can lead to technological dependency, potentially diminishing students' analytical skills and creativity if overused. Therefore, a wise strategy for AI use and guidance from lecturers are needed to ensure this technology can be utilized wisely without degrading critical thinking skills.

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