



Utilization of Artificial Intelligence in Modern Education

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Abstract: *This study explores the use of artificial intelligence (AI) in the field of education, focusing on its impact on learning quality, administrative effectiveness, and personalized student experiences. Using a descriptive qualitative approach through literature review, this research identifies how AI is applied through platforms such as ChatGPT, Perplexity, and Gemini to assist students in completing assignments, finding references, and understanding learning materials. The findings highlight both the benefits and challenges of AI, including increased efficiency and accessibility, as well as issues such as overdependence, plagiarism, and data privacy concerns. The study concludes that the use of AI in education should be guided wisely to ensure it becomes a positive force in teaching and learning.*

Keywords: *Artificial Inteligence, Education, Technology*

Introduction

AI is a computer system that uses algorithms like humans, besides that AI can learn by itself to always be able to adapt to new data. AI in the world of education is its ability to provide personalization and also distance learning while accessing sources of information that cannot be obtained in printed books without being hampered by location or limited facilities. AI is a system created to solve problems that occur, so that AI's ability to solve problems is better than humans, because AI is designed to help humans solve problems that exceed human capabilities (Aktavia Putri Irena, 2023). In the context of education, AI can be used to improve the quality of services for students, for example, the information system that we use can provide course schedules, lecture room locations, and administrative requirements. AI has the ability to analyze very large data about the education system to find patterns, trends, and areas that need attention.

One of the technological innovations that is currently popular and often used by students is artificial intelligence or what is commonly referred to as (Artificial intelligence). According to John McCarthy, Artificial Intelligence is a science and technique in creating intelligent machines, especially in creating intelligent computer programs or applications. Artificial Intelligence is a step to create computers, robots, applications or programs that work intelligently, like humans (McCarthy, 2007). Artificial intelligence has changed many aspects of life including in the world of education. The term intelligence refers to the ability to acquire and apply skills and knowledge in solving existing problems (N. Aliff, 2019). AI in the world of education as a tool to support the development of knowledge in learning. Higher education is one of the industries that is greatly affected. AI is widely used in the form of virtual intelligence by education systems around the world, especially by higher education institutions during the pandemic (Senel & Can, 2021).

The goal of AI development is to create machines or computer programs that can learn, adapt, and execute complex tasks without direct human guidance (Suharmawan, 2023), (Smarsly & Dragos, 2024). While Canva is a graphic design platform that allows users to create various types of design materials easily and quickly. Compared to complex graphic design software, Canva is designed to be accessible and usable by a wide range of people, including those without a graphic design background. (Isnaini, 2021), (Mustapha & Gupta, 2024). AI in the world of education aims to create teaching materials and methods to suit students' needs. Schools in the current era must take advantage of the birth of technologies that make the work of teachers or students easier (Tjahyanti. 2022).

AI expands access to education allowing students from various regions to do online with equal quality, AI helps lecturers in optimizing administrative tasks such as assessment, data processing, so that there is more time to interact with students. For example, when students have difficulty understanding a course concept, Artificial Intelligence tutors can provide additional explanations or exercises specifically designed to make it easier for students to understand it. Conversely, students who master the concept can move on to the next course without having to wait for the progress of the subject. This helps students feel more interested in learning and increases their chances of academic success. In the world of education, artificial intelligence is used to personalize each student's learning. This AI system helps create a learning profile for each student, allowing learning materials to be tailored to the abilities, learning styles, and experiences of each student. The implementation of AI technology in the field of education makes it easier for educators in

various matters, especially in administrative fields such as determining final grades based on weighting and assessment, creating more active learning, and making it easier for teachers and students in learning and teaching activities. The existence of AI plays a very important role in the world because it creates convenience and flexibility in the teaching and learning process, this convenience and flexibility can be felt by teachers.

Methodology

The method used in this study is a literature review which provides data from various previous sources. The author looks for data or literature materials from journals or articles and also references from books so that they can be used as a strong foundation in the content or discussion. In this study there is a lot of data that explains how Artificial Intelligence (AI) influences the world of education today.

Result and Discussion

How to use AI in the World of Education

In recent years, artificial intelligence (AI) technology has developed rapidly and has been applied in various fields, including education. The use of AI in education has shown potential to improve the quality of learning, increase efficiency, and provide a better learning experience for students. AI that is currently functioning includes the following types: Expert Systems, designed to simulate human problem-solving behavior, Machine Learning, which is "the ability of a computer to automatically refine its methods and improve its results as it acquires more data" (Afrizal Zein.2023). Artificial Intelligence (AI) in education is used to personalize each student's learning. This AI system helps create learning profiles, allowing learning materials to be tailored to the abilities, learning styles, and experiences of each student. The learning process that causes learning to run better is the role of artificial intelligence technology. Because the orientation of learning is completely student-centered (student-based learning). In addition to being active, the presence of an artificial intelligence system makes learning more interesting (Chassignol, Khoroshavin, Klimova, and Bilyatdinova, 2018).

In the world of lectures, AI is also often used in various fields, in the field of administration AI is used to speed up payments, data storage, and convey information. In the academic field, AI can also help lecturers create adaptive learning materials, making the curriculum more flexible and responsive to changing student needs. In addition, AI can automatically assess assignments and support the assessment process by providing detailed feedback, saving valuable time for students and lecturers. In this way, AI learning has the potential to revolutionize education and empower students to reach their maximum potential.

Students often use it to help them find references and do assignments. Many AI platforms are available on the internet, many of which are free and easy to use. One of the most well-known and frequently used AI is Chat GPT. Since its inception, Chat GPT has stolen a lot of attention, as many as 66% of respondents use Chat GPT as an AI that helps them with their assignments. Not only Chat GPT, 48% of respondents also stated that they use Perplexity in their assignments and learning process. These two AI platforms are the most widely used by respondents. This can be said to be reasonable, because these two AIs

are indeed very helpful in the learning process and completing college assignments. Chat GPT can facilitate word processing and search for the desired keywords for a topic being searched for. Likewise, Perplexity makes it easier for students to search for articles or journals related to the learning process and assignments they are working on. On the other hand, Google also released an AI called Gemini, as many as 40% use Gemini to help their learning process and assignments. As many as 32% of respondents also stated that they used Grammarly in the learning process and completing college assignments, and 18% of respondents used Claude to help them. Also, several students admitted to using other AI platforms in their learning process and completing assignments, such as Quillbot, and Copilot. From the data we have obtained, it can be concluded that respondents do not use just one AI platform. Respondents use several AIs in the learning process and completing assignments. Technology is essentially there to help human work, as is AI. AI is present as a technology that is eagerly awaited by humans, because it really makes things easier. (Bukhori, Giyaatsusshidqi, Agustina, Huda.2024).

Libraries as institutions that store and provide access to knowledge, utilize AI technology to improve operational efficiency and provide the best service to visitors. AI development can optimize book collection management, provide appropriate book recommendations, and increase visitor interaction with the library. (Ghofran 2023).

In the context of the academic and educational world, the use of GPT Chat can contribute to increasing the effectiveness of learning by providing access to broader and easier-to-understand information and materials (Arifdarma, 2023).

Positive and Negative Impacts of Using AI in the World of Education

The application of new technology naturally has positive and negative impacts on teachers, students and other learners in the field of education and of course has positive impacts. The use of artificial intelligence is a hot topic in the field of education.

Several research findings show the positive impact of AI in various aspects of higher education. (Slimi, 2021)

1) Impact of Education Quality

The use of AI helps learners communicate better and connect with the outside world. In addition, AI technologies such as the Internet of Things and Cloud play a role in the development and innovation of curriculum and higher education. Dimeli & Kostas (2025) concluded ChatGPT offers practical opportunities but emphasized the importance of policy support and teacher training.

2) Impact on the Learning and Teaching Process.

AI plays a vital role in the learning and teaching process. The use of algorithms and neural networks helps create better and more efficient recognition and teaching mechanisms. In addition, AI can help develop emotional awareness for more efficient learning. Merino-Campos (2025) found that the integration of AI in higher learning adaptively increases student engagement and administrative efficiency.

3) Impact on Assessment.

AI is also influencing the assessment process in higher education. The use of AI in assessment validates academic credits to a high degree. In addition, AI helps analyze

assessment variables and strengthen interventions for better graduate attributes.

4) Impact on Ethics and Future Careers in Higher Education. The Use of AI in

Higher education raises important ethical considerations. The implementation of AI must be based on ethical principles and be responsible to ensure its benefits to society and humanity as a whole.

In the context of the academic and educational world, the use of GPT Chat can contribute to increasing the effectiveness of learning by providing access to broader and easier-to-understand information and materials (Arifdarma, 2023).

Facilitating interactive learning environments through specialized tools such as Smart Sparrow that enhance learner engagement with educational content (Karsenti, 2019). On the other hand, the use of AI also has several negative impacts that need to be watched out for, such as in the administration sector where data theft and loss of privacy often occur. The integration of AI in education, including automated assessment systems and intelligent tutors, can improve the efficiency and personalization of learning (Wangdi Yangbari, 2023). Negative impacts of using AI:

1. There is an impact of dependence on AI

Students who are accustomed to using AI when doing assignments and in the learning process will continue to rely on AI so that it can hinder students' ability to think critically (Ma'wa, 2024).

2. Can reduce creativity

Students will experience decreased creativity in the learning process because AI can provide detailed information that makes students rely too much on it without looking for other sources.

3. Causes a feeling of laziness:

Students will tend to be lazy to type. do assignments because AI becomes an alternative tool for students in doing assignments. AI provides answers and information in a short time and in depth so that students often procrastinate and even do the SKS culture (All-Night Cramming System).

4. Can reduce social interaction.

In this situation, students are said to be more enthusiastic about interacting with AI than with humans because interactions with humans over time will feel saturated and boring (Fadhillah & Lestari, 2024). This happens because the topic of conversation or discussion about academic assignments between students looks very monotonous so that there is no enthusiastic reaction among the students.

5. There is a risk of data hacking.

Ethics of using AI users are required to include an email in order to ask various questions.

6. potential for cheating and plagiarisme

According to Akib (2017) plagiarism or commonly called plagiarisme, is the act of copying or taking over someone else's work to give the impression that the work is one's own composition or opinion. However, plagiarism is a serious problem in academia, threatening the integrity of students and the reputation of educational institutions. Plagiarism often occurs because students are lazy to modify the answers they get from AI, using GPT-3 for assessment in college is a risk of plagiarisme. AI-

based essay writing systems are designed to generate essays based on certain parameters or instructions. As a result, it is possible that students can abuse this system to cheat on their assignments by submitting essays that are not their own work (Dehouche, 2021). Gill et al (2023) highlighted the potential of ChatGPT as an online tutor but cautioned against the risks of ‘hallucination’ and automated plagiarism.

7. Lack of privacy

AI makes it easier to store personal data, but there is a possibility of personal data being leaked, thereby compromising privacy. Before being distributed, AI must be non-discriminatory and not violate the privacy of each individual (Michael Reskiantio Pabubung, 2021).

The use of AI, such as ChatGPT, has a significant impact on student behavior with the potential to increase laziness and reduce independence in decision making. Sayed Fayaz Ahmad's research (2023).

Table 1. Charesteritics of The Articles Analyzed

Author's name	Year	Countrys	Research purposes	Participa nt	Design and data collection methods	Findings	Implications
Diantama, S.	2024	Indonesia	This study aims to analyze real-world situations and identify the use of Artificial Intelligence (AI) in the field of education. A deep and comprehensive qualitative approach is applied, which led the researcher to choose this method.	Chat GPT users	Qualitative with a literature study approach	Although ChatGPT offers various benefits for assessment in higher education, there are several major challenges it may face. One of the key issues is the risk of plagiarism when using GPT-3 in academic evaluation contexts.	The use of ChatGPT brings significant changes in teaching, enhances teaching skills, supports student assessment, and reduces administrative workload. Additionally, the projected growth of the AI hardware and service market shows great potential in the future. Overall, the development and application of ChatGPT and AI technology promise various benefits that can improve efficiency and quality in the era

							of Education 4.0.
Aprilia, L.R., Istifaroh, A.L., & Prayitno, S.	2024	Indonesia	To analyze the effectiveness of using Gemini AI for teachers.	Gemini AI useds	Qualitative research using data collection techniques through library research.	Schools can utilize applications or platforms that optimize teachers' tasks, such as developing teaching materials. Gemini AI has superior capabilities in assisting teachers to create effective learning materials. It demonstrates its ability to generate relevant and high-quality content, understand, and respond to the specific needs of teachers in lesson planning. This advantage shows Gemini AI's potential to help teachers produce more engaging and effective teaching materials.	The study reveals the significant advantages of Gemini AI. As an advanced AI platform with various features, it can assist teachers in tasks such as designing lesson plans. Gemini AI can create more creative and innovative modules, thereby improving the quality of instructional materials.
Maharani,	2024	Indonesia	To Brainfor	Brainfr	Direct field	Teachers have	The collaboration

<p>D., Anggraeni, D., & Nofitri, R.</p>			<p>teachers in creating presentation slides that follow a logical sequence, proper procedures, and align with the current curriculum.</p>	<p>Islamic School (Elementary) and Brainfor Kindergarten (Preschool/PAUD)</p>	<p>assistance through socialization and training sessions.</p>	<p>successfully utilized ChatGPT to generate ideas and content for presentations, and Canva to design and visually organize the slides. They have mastered practical steps in using both technologies— from choosing templates, adding content, to editing presentations based on specific needs.</p>	<p>among teachers has improved the quality of learning and supported professional development. Thus, this community service activity not only enhanced technical skills but also laid the foundation for sustainable educational development at Brainfor Islamic School Kisaran.</p>
<p>Rochim, A</p>	<p>2024</p>	<p>Indonesia</p>	<p>To explore understanding of artificial intelligence (AI) and the risks associated with its use in the context of education.</p>	<p>Students at SMA PUI Gegesik Cirebon, West Java</p>	<p>The approach used is a literature study by analyzing relevant scientific articles.</p>	<p>The study shows that there are several risks related to the dependency on AI in education, including the potential for errors and inaccuracies in AI systems, moral issues, and psychological impacts.</p>	<p>It is important to pay attention to the accessibility of AI technology so that technological gaps do not hinder equal access to education.</p>
<p>Andini, M., Rose, FD, Lewis, J., Rizkilmy, JR, & Sinurat, DR</p>	<p>2024</p>	<p>Indonesia</p>	<p>To explore the understanding of artificial intelligence and the risks associated with it in the context of education.</p>	<p>Students from International University Batam, Batam City, Indonesia</p>	<p>Quantitative research using regression analysis. The study involved 413 students from various universities in Batam City who filled out questionnaires</p>	<p>The findings support the hypothesis that the use of ChatGPT tends to lead to an increase in student laziness when completing assignments.</p>	<p>The implications of this study highlight the need to reassess the use of ChatGPT in education, emphasizing the importance of fostering student independence and</p>

					distributed via Google Forms through social media platforms like WhatsApp and Telegram.		critical thinking.
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Conclusion

The use of AI in education has a significant role in shaping modern learning processes. It supports administrative tasks, allows personalized learning, and offers broader access to information. However, challenges such as decreased creativity, ethical concerns, and data privacy risks must be addressed with careful supervision and policies. Future research can focus on developing AI tools that support critical thinking and student independence, while educators are encouraged to integrate AI with pedagogical strategies that balance technology with human values.

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