



The Use of Artificial Intelligence (Ai) In Education: Review Of Opportunities And Challenges of Chatgpt As A Learning Companion

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Abstract

This article examines the opportunities and challenges of using Artificial Intelligence (AI), especially ChatGPT, as a learning companion in education. This article is written using a qualitative approach and library research type. Research), this article refers to research reports obtained from Google Scholar as the main data source. The study results show that ChatGPT has great potential to support education through various opportunities, such as creating assessment instruments, virtual personal tutoring, creating research outlines, and brainstorming ideas. However, the use of ChatGPT also presents significant challenges, including the risk of eliminating academic integrity, producing inaccurate information, and the potential for dependence on technology that can hinder the development of students' critical skills and creativity. This study concludes that although ChatGPT offers a variety of benefits, clear supervision and usage guidelines are needed so that this technology can be used effectively and ethically in education.

Keywords: *Artificial Intelligence, Educational Technology, ChatGPT*

Introduction

Human life today is highly dependent on artificial intelligence technology, or AI. AI is used in many fields, including industry, business, health, government, and education. Artificial intelligence technology can improve human life in many ways; one is the ability to make decisions quickly and accurately based on data, which can help reduce human error and speed up response times in critical situations. In addition, AI can increase efficiency in many industries. Businesses, for example, can use AI to analyze sales data and find trends that can help make better decisions. (Misnawati Misnawati, 2023)

Artificial intelligence technology in the health sector can help doctors diagnose diseases more accurately and provide better patient care. Although artificial intelligence technology has many advantages, there are also disadvantages. One of the biggest threats is data security because AI-generated data is very sensitive and can be used for unethical purposes if it falls into the wrong hands. In addition, artificial intelligence (AI) can replace human jobs. This can cause job losses and threaten the survival of many people if not regulated wisely. (Misnawati Misnawati, 2023, p. 55)

In education, the influence of AI can drive educational progress and innovation (Zhai, 2022). One of the developing AI tools that can be used for educational purposes is ChatGPT (Generative Pre-trained Transformer). ChatGPT is an AI chatbot developed by an American AI company called OpenAI. ChatGPT users increased

significantly by more than one million in just one week after its launch on November 30, 2022 (Steve, 2022). ChatGPT is a *Large Language Model* (LLM) that can generate contextually appropriate responses and engage in conversation naturally. (Deng & Lin, 2023) Currently, there are three versions of ChatGPT: ChatGPT (free version), ChatGPT Plus (premium version), and GPT-4 (enhanced version)

In educational settings, ChatGPT can help design assessments, create essays, and translate languages. It also allows users to ask and answer questions, summarize texts, and interact with them like humans. (Baidoo-Anu & Owusu Ansah, 2023) Baidoo-Anu and Ansah stated that this model can show some creativity in writing almost any topic, from a single paragraph to a complete research article, and the responses given can be considered convincing or almost convincing. The presence of ChatGPT, according to Atlas, in universities is very useful in helping when someone experiences a dead end in thinking because the language is considered to be offered according to easy to understand; ChatGPT can be applied in various contexts, including helping in writing, translating languages, research, and administration. Thus, ChatGPT has the potential to be a useful tool for education and research (Atlas, 2023). However, there are some concerns among educators about the misuse of ChatGPT in learning, as surveyed by study.com in January 2023 of 1,000 students and 100 teachers about the perception of ChatGPT in schools. The survey explained that Professors (educators) in colleges said 72% were concerned about their students using ChatGPT to cheat, but only 58% of teachers said the same. About 34% of teachers and educators want ChatGPT banned in colleges or schools. However, 66% of them support ChatGPT access.

Meanwhile, 72% of students support banning ChatGPT on their campus networks. Most students said they use ChatGPT to complete assignments or homework assigned by their teachers; 48% use it to complete quizzes or tests from home, 53% to create essays or writing, and 22% to outline their writing. (Study.com., 2023)

Although it has several advantages that can be applied in education, many researchers argue that ChatGPT has significant weaknesses (Gordijn & Have, 2023). A study by Mogali found that ChatGPT only sometimes provided accurate information when asked about anatomist facts in its latest version. Therefore, it can be seen that this artificial intelligence tool has advantages and disadvantages (Mogali, 2023).

This article is based on secondary sources in scientific journals on using artificial intelligence in education. This article discusses the opportunities and challenges of using ChatGPT in education and research. This article begins by highlighting the main opportunities ChatGPT can offer, followed by the threats arising from using ChatGPT.

Method

This article was written using a qualitative approach with a **library research** type. Research). The main focus of this study is to explore the opportunities and challenges of using Artificial Intelligence (AI), especially ChatGPT, as a learning companion in education. The data sources used in this study are limited to published research reports accessed through the Google Scholar platform. These reports were selected based on their relevance to the topic discussed and their credibility as academic sources. Data collection was carried out systematically through several stages. First, the researcher searched the literature using certain keywords, such as *ChatGPT in education*, *AI in personalized learning*, and *challenges of AI in education*. The search results were filtered to

ensure only relevant reports from reputable journals were used. Furthermore, important information from the selected literature was recorded in a structured manner to support the analysis process.

The collected data was analyzed using the content analysis method. *Analysis*). The analysis stage includes classifying information based on main themes, such as the benefits of ChatGPT in personalizing learning, possible ethical challenges, and its impact on the educational process. Researchers also critically evaluate the findings from the research report to explore the practical and ethical implications of implementing ChatGPT as a learning companion. Overall, this research was conducted through structured stages, starting from topic identification, data collection from research reports obtained through Google Scholar, recording relevant information, and in-depth data analysis.

Findings and Discussion

1. ChatGPT Opportunities in Learning

a. Creating Assessment Instruments

Evaluation is one of the components of the learning process; in the evaluation, there is one criterion called assessment. Assessment is an instrument to ensure the quality of learning. With ChatGPT, teachers can create questions innovatively and flexibly as a learning assessment with the help of chatGPT in real-time as one of the evaluation materials. Zhai (Zhai, 2023) argues that teachers can create learning questions/assessment items using ChatGPT to save time and adjust the quality of questions to the standards instructed in making questions. With the capabilities of ChatGPT, teachers can develop open questions that are in line with learning objectives and success criteria for the lessons taught (Baidoo-Anu & Owusu Ansah, 2023)

Given that most teachers spend much time creating quizzes, daily tests, and final exams, ChatGPT allows educators to make it easier to create assessment instruments with the help of ChatGPT. ChatGPT can also offer an automatic feedback-based assessment system to help educators evaluate and improve student learning outcomes. ChatGPT can be used to evaluate student work semi-automatically by identifying the weaknesses and strengths of the assigned tasks (Kasneci et al., 2023).

ChatGPT offers several innovative features that can improve pedagogical practices. According to Rudolph et al. (Rudolph et al., 2023), with the help of ChatGPT, educators can design teaching techniques creatively by adopting a flipped classroom *approach. Learning*. This method allows students to learn both in class and online, encouraging them to learn independently. (Irna Sjafei, 2022)

Atlas states that ChatGPT can help teachers develop quizzes, tests, and syllabi, enable them to create lesson plans, presentations, and other resources, and evaluate student work. This may encourage teachers to modify and edit these materials in more creative and engaging ways to meet students' learning needs because they have more time to reflect and develop new teaching techniques and creativity (Atlas, 2023).

The interactive communication platform provided by ChatGPT allows teachers to create more engaging classroom activities. Herft (Herft, 2023) noted that teachers can use ChatGPT to generate visual aids, such as slides or worksheets, that clearly outline a lesson's learning objectives and success criteria. This is because instructional materials presented by *chatbots* are more likely to engage

students in class. In addition, questions and prompts generated by ChatGPT can encourage student engagement with varying levels of knowledge and skills and stimulate their problem-solving and critical-thinking skills (Kasneci et al., 2023), which are essential for 21st-century education. These emerging artificial intelligence tools play a significant role in promoting classroom interaction.

b. Offering Virtual Private Tutoring

Unlike traditional tutoring methods, ChatGPT is a potential tool that can be used as an ideal personal tutor for students. (Mhlanga, 2023) and Qadir stated that students can receive individual feedback and answers by asking ChatGPT, which can offer virtual tutoring services (Qadir, 2022). In this case, students can easily ask for ChatGPT help whenever they need it for assignments, homework, projects, and even math exercises. This approach can empower students to become independent learners. Likewise, ChatGPT can discuss various topics and answer students' questions (Baidoo-Anu & Owusu Ansah, 2023). However, to make the most of ChatGPT assistance, educational institutions need to develop clear guidelines and introduce them to students so that they explicitly know how to use them efficiently and responsibly. ChatGPT can improve the quality of learning by providing structured answers and the ability to solve problems quickly. (Merentek et al., 2023)

c. Creating a Research Outline

Researchers can give instructions to ChatGPT and ask it to create an outline for an article or other form of writing. According to Zen, ChatGPT can help the writing process by creating an initial draft and suggesting a title. ChatGPT can also help compile sections about the methods used in the study, justify sample sizes, and provide an overview of the data analysis techniques. This method is used to format and edit language, rewrite difficult sentences to make them easier, and even summarise the entire text in sequence to write a proper abstract. Although the results may only sometimes be satisfactory, this method saves time. (Zen Munawar et al., 2023)

(Kasneci et al., 2023) Argue that this model is useful for students to help organize their ideas in research and writing. In this case, students can easily ask for instructions so ChatGPT can generate outlines directly. However, some content may need to be adjusted by researchers or students to use the outline. Some researchers have started using it to create outlines in writing (Qadir, 2022; Zhai, 2023). In addition, ChatGPT can quickly create outlines of research articles, allowing researchers to quickly and accurately understand the main points (Kasneci et al., 2023)

d. Brainstorming

ChatGPT plays an important role in research, especially in helping to generate ideas for writing. Some researchers have started using ChatGPT to write research articles. (King & chatGPT, 2023) Zhai conducted experiments using ChatGPT to generate ideas and wrote a comprehensive paper titled ' *ChatGPT User Experience: Implications for Education*'. He noted that he only slightly edited and reorganized his paper. (Zhai, 2022) ChatGPT has shown an excellent ability to organize and structure the components of the article (Zhai, 2022, p. 9).

Therefore, this AI-developed tool has a great ability to help researchers generate ideas for creating research articles. However, it needs to be underlined for researchers to adjust and verify the ideas generated by ChatGPT to avoid errors or erroneous information. (Mogali, 2023) . Nailus and Cahyo stated that ChatGPT

can inspire teachers to design creative and innovative learning. Teachers can ask questions about certain subjects and utilize ChatGPT's creativity to generate interesting ideas (Nailus & Cahyo Hasanudin, 2023)

2. ChatGPT Threats in Education

a. Eliminating Academic Integrity

Academic integrity is honesty in all aspects of academics. The heterogeneous environment includes the teaching and learning process, abilities, values, and the discovery of new knowledge. The behaviour of cheating, plagiarizing written works, or document fraud for institutions are the most common examples of academic integrity. All educational activities depend on academic integrity. One form of violation of academic integrity is academic dishonesty. (Agus Ardinansyah et al., 2018)

The use of ChatGPT can eliminate academic integrity because ChatGPT can generate output based on various requests submitted by users (for example, students); its use can be exploited unethically by violating *academic integrity standards* such as cases of plagiarism in the creation of articles, writings, or essays (Kleebayoon & Wiwanitkit, 2023) in addition, the sources used in the chatbot need to be verified for their truth (Thurzo et al., 2023). Thus, if a student fails to produce a credible reference source in accounting for his writing, he has committed an academic violation and dishonesty detrimental to their long-term academic success. Nailus and Hasanudin stated that ChatGPT, in presenting academic integrity, cannot clearly distinguish between facts and opinions, which means one has to be careful when using it to provide information. (Nailus & Cahyo Hasanudin, 2023)

With the advent of artificial intelligence-generated *tools such as* ChatGPT, grading student work may become a problem as ChatGPT can lead to biased evaluation. To date, researchers have argued that the text output generated by ChatGPT and humans is difficult to distinguish (Else, 2023). Mhlanga argues that with ChatGPT's capabilities, students can produce essays quickly; this is a concern for teachers because of the possibility of students using it for their assignments, so students cannot think critically (Mhlanga, 2023). With the help of this AI in doing assignments, homework, or projects, students are more likely to get higher grades than their peers who use their critical thinking skills. A study on "*What Can ChatGPT Do? Analyzing Early Reactions to the Innovative AI Chatbot on Twitter*" by Taecharungroj (Taecharungroj, 2023, p. 6) noted that one ChatGPT user reported that students who used ChatGPT in writing school essays got an A+, while another found that students who used ChatGPT passed a practice bar exam with a score of 70% (35/50). This non-objective assessment will hurt students' emotions and dishonesty, so using ChatGPT should be considered to avoid biased evaluations.

If teachers or students use ChatGPT to answer questions, they can produce dishonest learning assessments. ChatGPT cannot distinguish between facts and opinions, so users must be careful with the information they receive. In addition, using ChatGPT can also reduce emotional interactions between teachers and students, which can affect the integrity of the learning process. Therefore, teachers need to monitor their students' use of ChatGPT and help them find appropriate and accurate sources of information. Therefore, the use of ChatGPT in learning must be carefully monitored not to produce incorrect assessments. (Pontjowulan, 2023)

b. Inaccurate Information

With the limitations of ChatGPT, the information generated needs to be clarified so that students and teachers do not risk using misleading information. Many researchers have shown that the information generated by ChatGPT answers with incorrect information data. (Baidoo-Anu & Owusu Ansah, 2023) Some examples of these errors include creating articles that never existed and generating inaccurate responses. This can harm students or teachers when they use this information for work, which can lead to misunderstandings. Qadir argues that false information can be generated using ChatGPT for several reasons, including the requests or inputs suggested by the user, the data quality, and the application's limitations. In this case, it is important for teachers and students to critically analyze the answers generated by the artificial intelligence application to ensure the effectiveness and efficiency of using ChatGPT (Qadir, 2022).

According to a study conducted by Zen Munawar et al., who wrote about the benefits of ChatGPT artificial intelligence in helping write scientific papers, there is information provided by ChatGPT that has not been confirmed for various reasons. *First*, the text generated by ChatGPT has been proven effective in rewriting complex sentences. However, a specific evaluation of the quality of the content generated by ChatGPT needs to be conducted. *Second*, ChatGPT can be used in scientific writing, but it should be noted that using chatbots for scientific writing can raise ethical issues and must be properly regulated. In addition, this chatbot can be used to create automatic drafts, article summaries, and language translations, but this also needs to be balanced with awareness of the potential ethical issues that will occur. *Finally*, ChatGPT in scientific writing can make scientific writing easier, faster, and more enjoyable. However, this must be revised because scientific writing requires human expertise and careful supervision to ensure accuracy, cohesion, and credibility before publication. (Zen Munawar et al., 2023)

Thus, using ChatGPT or chatbots in scientific writing still requires human supervision and intervention to ensure the quality and accuracy of the content. Inaccurate information in the text can be found in statements regarding the effectiveness of ChatGPT without specific evaluation of the quality of the content produced, the use of chatbots in scientific writing without considering ethical issues, and statements that the use of ChatGPT can make scientific writing easier, faster, and more enjoyable.

c. Dependence on Artificial Intelligence

The use of ChatGPT in learning can be a problem given the ease of using ChatGPT in solving problems, such as working on assignments that are close to the deadline, the use of ChatGPT as a means to complete their tasks well and quickly without using analytical thinking skills. Using ChatGPT can hurt the development of students' skills, including critical thinking, problem-solving, imagination and research skills.

These skills play a key role in academic success, so using ChatGPT can result in negative consequences for students, such as a lack of innovation and creative thinking. (Shiri, 2023) As in the research conducted by Alya Resti Saraswati et al. on the Influence of the Use of ChatGPT in Higher Education on the Level of Student Laziness in Thinking and Doing Assignments. His research showed that ChatGPT influenced the level of student laziness in doing assignments, but this influence was not statistically significant. This study provides an understanding of

how the use of ChatGPT in the context of higher education can affect student behaviour and motivation. Other factors also play a role in determining student laziness in doing assignments. Thus, the use of ChatGPT in higher education can affect student behaviour. (Saraswati & Karmina, 2023)

Conclusion

The use of ChatGPT in education shows that this artificial intelligence tool has great potential to provide opportunities for students, educators, and researchers. These opportunities are beneficial in creating assessment instruments, offering virtual personal tutoring, creating research outlines, and brainstorming. On the other hand, this artificial intelligence tool has challenges; these challenges can eliminate academic integrity, inaccurate information, and dependence on artificial intelligence, which can result in limited development of important life skills. Therefore, these problems must be addressed to make this artificial intelligence tool effective in education and research.

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