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The Role of ChatGPT AI in Student Learning Experience

Anggia Viorennita*, Laksmi Dewi, Cepi Riyana

Universitas Pendidikan Indonesia, Bandung, Indonesia

*Correspondence: E-mail: anggiaviorennita@upi.edu

ABSTRACT

Artificial Intelligence (AI) has received significant attention in the educational context, and one of the prominent forms of AI is ChatGPT (Generative Pre-trained Transformer). This study aims to conduct a literature review on the role of ChatGPT AI in student learning experiences. This literature review research focuses on the use of ChatGPT in supporting the learning process of students at various levels of education. The literature review method is used to collect, evaluate, and synthesize the latest literature that is relevant to the research topic. The results of the literature review show that the use of ChatGPT AI in education has grown rapidly in recent years. ChatGPT has been applied in a variety of educational contexts, including as a learning assistant, virtual tutor, assignment corrector, and interactive learning aid. Some of the benefits of using ChatGPT AI in education include increasing the accessibility of learning materials, providing fast and personalized feedback, and encouraging student engagement and learning motivation. However, some challenges need to be addressed, such as ethical concerns, data privacy concerns, and technology limitations. This study concludes that AI ChatGPT has great potential to change the way students learn by providing adaptive and personal assistance in the learning process. To support more effective learning experiences, practitioners and decision-makers in the education sector need to understand the potential and limitations of using ChatGPT.

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1. INTRODUCTION

Education is the main pillar in the formation of a superior and competitive generation (Sinkovics et al., 2014). Over the years, the teaching and learning process has undergone major transformations, driven by the rapid development of technology. One of the revolutionary innovations in the world of education is the emergence of Artificial Intelligence (AI) which has an extraordinary impact on student learning experiences.

Amidst the rapid development of AI technology, natural language models such as ChatGPT (Generative Pre-trained Transformer) have now become an effective means of providing help and support in the learning process. AI ChatGPT has revolutionized the way students learn by providing instant access to information, in-depth explanations, and a more personalized learning experience.

By taking a closer look at the role of ChatGPT AI in student learning experiences, one can understand the potential of this technology to shape a more inclusive, efficient, and innovative future of education. Starting with exploring how AI ChatGPT makes a meaningful contribution to opening doors for better and more useful learning for students in this modern era.

ChatGPT was developed with a "pre-training" technique that allows the model to learn from millions of text documents that exist on the internet before being trained to complete certain tasks (Shen et al., 2023). ChatGPT can be used to perform tasks related to natural languages, such as generating text that fits the given context, understanding the natural language spoken by the user, and extracting relevant information from the received text. In the world of education, ChatGPT can provide convenience to students in the teaching and learning process. ChatGPT can influence teaching towards the development of student learning thinking processes. In addition, ChatGPT can assist in self-study, where students can control and monitor their learning.

ChatGPT can also be a link between students and lecturers. In its use, lecturers need to equip, supervise and evaluate students to organize learning systems and use educational technology wisely and effectively. The presence of ChatGPT in learning can help improve the quality of learning and provide a better learning experience for students.

In the context of education, AI ChatGPT promises various potentials in supporting the student learning process. ChatGPT's ability to provide personalized and adaptive responses has attracted the attention of educators and education practitioners. As a learning assistant, ChatGPT can assist in answering questions, providing feedback on assignments, and providing learning materials that are relevant and according to individual needs. The use of AI technologies such as ChatGPT is expected to bring positive changes in the way of learning and teaching.

To investigate and analyze published studies, journals, articles, and other resources related to the use of AI ChatGPT in educational contexts, particularly in student learning experiences. The purpose of this literature review is to collate existing information from various sources and provide an in-depth understanding of the role of AI ChatGPT in helping students in the learning process.

By conducting a literature review, researchers can find out how ChatGPT AI has been used in student learning experiences in various contexts, such as in teaching, academic guidance, study support, or other reference sources.

2. METHODS

The research method used is the literature review method, the purpose of a literature review is to understand the development of research that has been carried out previously, identify knowledge gaps, and develop a theoretical basis for the research that will be carried out. In this literature review, we will explore several studies that describe the role and impact of ChatGPT AI in shaping a better learning experience for students.

3. RESULTS AND DISCUSSION

ChatGPT is the sibling model of InstructGPT, which is trained to follow instructions in a command and provide detailed responses (OpenAI, 2022). ChatGPT is a natural language processing tool driven by AI technology that allows you to have human-like conversations and more with chatbots. This language model can answer questions and help you with tasks, such as writing emails, essays, and code (see <https://www.zdnet.com/article/what-is-chatgpt-and-why-does-it-matter-heres-everything-you-need-to-know/>).

ChatGPT, the text-generating AI chatbot from OpenAI, has taken the world by storm. ChatGPT is capable of writing essays, code, and more with short text commands, increasing productivity (see <https://techcrunch.com/2023/07/24/chatgpt-everything-you-need-to-know-about-the-open-ai-powered-chatbot/>). After all, AI tools are not going away and have indeed evolved dramatically since their launch a few months ago. Big brands are experimenting with it, using AI to generate advertising and marketing copy.

OpenAI is investing heavily in it. ChatGPT was recently supplemented by GPT-4, the newest language writing model from the OpenAI labs. Paying ChatGPT users have access to GPT-4, which can write more naturally and smoothly than models that previously supported ChatGPT. In addition to GPT-4, OpenAI recently connected ChatGPT to the internet with a plugin available in alpha for users and developers on the waiting list.

The literature discussed on ChatGPT:

- (i) Based on [Maulana et al., \(2023\)](#), The widespread use of ChatGPT OpenAI among students has made students nowadays not pay attention to academic ethics in making assignments, papers, and scientific papers. The use of ChatGPT technology should pay attention to academic ethics, so that there are no violations of academic ethics, such as plagiarism which is detrimental to many parties. On this basis, the researcher uses a literature study, describes relevant research results, and draws conclusions about the use of ChatGPT by students in the educational realm from the point of view of academic ethics. Utilization of ChatGPT can be used in making writing and other tasks quickly and effectively. But we need to underline that the use of OpenAI ChatGPT must be accompanied by an understanding of the use of OpenAI ChatGPT wisely and wisely, not to violate academic ethics and students should not be complacent with the use of OpenAI ChatGPT, which causes students' critical reasoning power and creativity to decrease due to dependence on the use of OpenAI ChatGPT. In conclusion, students must prioritize critical, creative thinking, and collaborate in developing knowledge properly, in addition to prioritizing academic ethics in making assignments, papers, and scientific papers.
- (ii) Based on [Setiawan and Luthifiyani \(2023\)](#), ChatGPT OpenAI is an artificial intelligence-based machine technology that is trained to be able to imitate human conversations using Natural Language Processing (NLP) technology. ChatGPT can be used to produce quite scientific articles or even books with prompts formulated at the beginning with good and effective techniques. So that the opportunities for innovation using this

technology are wide open for education in Indonesia, one of which is in improving student's writing skills in schools/campuses to achieve the six competencies needed in the Era of Education 4.0. The six competencies are critical thinking, collaboration, communication, creativity, character education, and citizenship. The results of experiments carried out using ChatGPT can produce a writing totaling 693 words and these results can still be developed further for the next assignment for students. The total time needed to complete this experiment is approximately 7 minutes, including the time to document the ChatGPT processing results, but does not include the time to formulate two good and effective prompts before the experiment is carried out.

- (iii) Based on [Baskara and Mukarto \(2023\)](#), Recent developments in natural language processing have led to the creation of large language models, such as ChatGPT, which can generate lookalike text Man. The research explores the potential implications of ChatGPT for language learning in higher education. It first provides an overview of ChatGPT and discusses its capabilities and limitations. For example, ChatGPT can produce coherent and fluid text on a variety of topics but may have difficulty understanding more complex or abstract ideas. It then considers how ChatGPT could be integrated into language courses and programs in higher education and the potential benefits and challenges. For example, ChatGPT can provide personalized language instruction or produce authentic language materials to engage students. However, using ChatGPT in language learning may also raise concerns about the possible replacement of human language teachers and the ethical implications of using machine learning systems to generate texts. Suggestions for future research on the use of ChatGPT in language learning in higher education, such as studying the effectiveness of ChatGPT-assisted language teaching and exploring the pedagogical implications of using the grand language model in language classes.
- (iv) Based on [Serdianus and Saputra \(2023\)](#), this study aims to provide an alternative solution to the problems that are often faced by teachers in preparing lesson plans, both in the form of lesson plans and assessment instruments. The problems that often arise are lesson planning that is not contextual, only using lesson plans that are already on the internet, and lack of time in preparing learning tools. This can be solved using AI ChatGPT. Through a quantitative approach with the library research method, the researcher collects data about ChatGPT and then analyzes it with two prompts. The results of the study show that ChatGPT can produce lesson plans and assessment instruments in less than 10 minutes. The first prompt only took about 5 minutes, while the second took less than 2 minutes.
- (v) Based on [Quintans-Júnior et al. \(2023\)](#), AI and its resources are invaluable in science, but cannot replace researchers' critical and reflective thinking, their critical and reflective abilities, or their ability to interpret results, discuss their findings on the best available basis, and communicate with readers. ChatGPT relies on pre-existing content and lacks human analytical capabilities, such as the ability to weigh values and leverage experience to make technical and scientific decisions in today's context. While important, researchers must recognize that technology is not perfect, with creators admitting flaws such as incorrect or unreasonable answers, bias in training data, and the production of insecure content. Therefore, we need simplicity and rationality when using text-generating AI8, particularly in science, where communicating the best evidence is a fundamental condition for decision-makers. During disease outbreaks, AI can facilitate the spread of "fake news" by producing scientifically plausible texts while supporting erroneous, harmful, and counterproductive hypotheses. wrong, dangerous, and

counterproductive hypothesis. Infodemics have become common during the COVID-19 pandemic, and ChatGPT can serve as an automated tool for disinformation campaigns. However, this technology can help researchers to prepare scientific papers or other scientific or technical products that can save lives at an unprecedented rate.

- (vi) Based on [Kim and Kim \(2022\)](#), as a result of the unprecedented coronavirus crisis, there have been major changes in education as a result of the closing K-12 schools and universities around the world to promote health and safety. Online learning was adopted almost overnight by alternative methods, leading to a full discussion on the use of AI in education much faster than expected. However, as usual, the success of implementing new learning technologies is closely related to the attitude of the teacher who leads the learning. Nevertheless, teachers' perceptions of the use of AI have been investigated by only a few scholars due to their lack of experience in teaching the use of AI in the classroom. Most teachers have no particular idea of what the tools adopted by AI will look like. In this regard, this study brings great significance to the field in revealing overall positive perceptions of STEM teachers regarding this innovative AI-based scaffolding and opportunities for future improvement. In addition, the results of teachers' experience using the system and considerations for its implementation from this research can be used as a basis for developing guidelines for integrating AI into the school curriculum in the future, particularly in STEM education.
- (vii) Based on TL and MQ, the findings of this study provide insight into the benefits and drawbacks of implementing chatbots in higher education institutions that are actively recruiting international students with English-taught programs, exchange programs, courses, internships, etc. The main conclusion from this study is that higher education institutions such as colleges and universities should choose to implement chatbots on their websites to facilitate common inquiries that would take a long time, for example waiting for a representative to answer the phone and/or waiting for an email reply. When students live in other time zones, students benefit greatly from chatbots as they are available 24/7, besides, having all the necessary information for international students under one roof, students can quickly navigate a variety of information that is relevant to them in a few clicks by using a chatbot. On the other hand, the findings show that while chatbots are indeed very helpful for international students, there are some drawbacks to be aware of. The main drawbacks introduced by this research include a lack of human assistance in cases where the chatbot is unable to answer complex and/or personal questions or cases where students prefer human contact. In addition, chatbots require round-the-clock maintenance to keep them up to date by displaying the correct information. some drawbacks must be considered. The main drawbacks introduced by this research include a lack of human assistance in cases where the chatbot is unable to answer complex and/or personal questions or cases where students prefer human contact. In addition, chatbots require round-the-clock maintenance to keep them up to date by displaying the correct information. There are some drawbacks to be aware of. The main drawbacks introduced by this research include a lack of human assistance in cases where the chatbot is unable to answer complex and/or personal questions or cases where students prefer human contact. In addition, chatbots require round-the-clock maintenance to keep them up to date by displaying the correct information.
- (viii) Based on [Hwang and Chang \(2021\)](#), this research shows that although education researchers have started to pay attention to research on chatbots in the field of education, most studies still use pre- and post-tests and questionnaires to evaluate their

effectiveness. Only a few studies have started to pay attention to student behavior in the learning process; for example, Fryer et al. (2017) designed an experiment combined with a chatbot system, conducted a 12-week experiment for students in a foreign language class, and observed and monitored learning behavior students in language courses. Fryer's study found that speaking assignments delivered with chatbots significantly improved students' speaking performance, and also verified the benefits of chatbot systems in education. On the other hand, it was found that the only strategy adopted in chatbot-based educational studies was "guided learning", which is a direct approach in which students are asked to practice or search for data using application programs to complete learning sheets or to carry out learning tasks requested by the teacher. Other learning strategies, such as peer assessment, video sharing, synchronous sharing, problem-based learning, computers such as Mindtools (eg concept mapping), project-based learning, and inquiry-based learning, generally aim to engage students in peer-to-peer interaction and higher-order thinking. This implies that there is room to improve chatbot-based learning designs in future research. The main contribution of this literature review is the finding that there is scope for the development of chatbot applications in educational research; for example, some topics and applications that are rarely discussed can be a reference for thinking about the direction of chatbot research going forward. In addition, current research rarely addresses chatbots in K-12 domains or topics, and there is little empirical research on educational issues (eg, advanced thinking and learner learning behavior). On the other hand, chatbot research on language education is most frequently cited, indicating that the demand in this area is greater and more immediate; Therefore, the application of these characteristics of language education can be used as a reference for publications about the use of chatbots in education in the future. Overall, this study found that research on chatbots in education is still in its early stages of development and continues to develop; These results indicate that research on chatbots in education has great development potential and deserves to be invested more by researchers in the field of educational technology. In addition, it is suggested that in the future, the performance of teachers and students can be analyzed from various angles, including the graphical analysis of learning behavior presented by chatbots in the education system, and the application of chatbots to improve student learning processes and learning effectiveness.

- (ix) Based on Suciati Suciati, Abdurrahman Faridi, Januarius Mujiyanto, and Yudhi Arifani, AI applications are currently used in various fields, including language education. Speaking is a skill that is considered complex for students. By utilizing the application of AI in teaching speaking, students are expected to be more helpful. The purpose of this research is to find out the perceptions, problems, and alternatives expected by students regarding the use of AI in learning to speak. This research method is descriptive and qualitative by utilizing questionnaires, interviews, observation, and documentation in collecting data. Research data shows that (1) there are 30.8% of students strongly agree, 38.5% agree and 30.8% think neutral regarding the importance of AI in helping Speaking learning; (2) the problems or challenges that students feel are the lack of social interaction, dependence on technology, difficulties in adjusting to various situations, lack of proper feedback, lack of emotion in learning, and availability of materials; (3) the alternative expected by students in teaching speaking by utilizing AI is the existence of material in AI with material in the Semester Learning Plan (RPS) or the existence of a speaking book that contains material using AI. This research can contribute to lecturers, students, and future researchers to design teaching methods/strategies/techniques and

books that integrate speaking materials and AI applications. as well as material availability.

- (x) Based on Okonkwo and Ade-Ibijola (2021), the introduction of Artificial Intelligence technology allows the integration of the Chatbot system into various aspects of education. This technology is increasingly being used for educational purposes. Chatbot technology has the potential to provide fast and personalized service to everyone in the sector, including institutional employees and students. This paper presents a systematic review of previous studies on the use of chatbots in education. A systematic review approach was used to analyze 53 articles from a recognized digital database. The results of the review provide a comprehensive understanding of previous research related to the use of Chatbots in education, including information about existing studies, benefits, and challenges, as well as future research areas regarding the implementation of Chatbot technology in education. These findings shed light on the current state of knowledge about Chatbot applications in education and identify the benefits and challenges of using Chatbots in education. In addition, future educational fields that might benefit from these modern AI technologies are identified and described as recommended by the literature. Finally, the research findings are discussed in terms of their implications.

4. CONCLUSION

AI ChatGPT has brought positive changes to the student learning experience by providing personalized support, interactive teaching, and greater accessibility of information. Various studies have shown that AI ChatGPT can increase student engagement, help them overcome learning difficulties, and provide immediate feedback on their work. From several research reviews, it can also be seen that AI and chatbots are already popular in the field of education. As the development of AI technology continues, it is hoped that the use of ChatGPT AI in education will become more widespread and well-integrated into the modern education system.

5. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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