

Unlocking the opportunities and challenges of using ChatGPT tools for educational services: A narrative literature review

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Abstract: The OpenAI-created ChatGPT, which uses artificial intelligence (AI), is widely used in several industries, including education. Likewise, the roll-out of ChatGPT has shown how this AI technology may supplement, and in certain situations even replace, human labor in certain job-related activities and duties. This narrative literature review unlocks the opportunities and challenges of using ChatGPT tools for educational services, considering the related articles discussed in this article. This narrative literature review employed an integrated study of existing literature to identify research gaps, summarize a body of literature, and form conclusions about a subject. It has been found that ChatGPT can be helpful but should be introduced into the classroom carefully and, therefore, not a replacement for learning, as with any new tools. Teachers and students must consider equity, ethics, and plagiarism if they incorporate AI technology into their outputs. It is critical to see ChatGPT as an adjunct tool that improves and enriches the learning process rather than as a substitute for conventional teaching approaches. This technology can improve teaching and learning while creating new educational opportunities when used ethically and under close supervision.

Keywords: Artificial Intelligence, ChatGPT, Education, Generative Pre-trained Transformer, OpenAI

1. Introduction

Artificial intelligence (AI) and machine learning have changed the scientific research setting in the last few years. Among these, chatbot technology has advanced significantly in recent years, particularly with the emergence of ChatGPT as a prominent artificial intelligence language model (Ray, 2023). The OpenAI-created ChatGPT, which uses artificial intelligence (AI), is widely used in several industries, including education. Students can learn about concepts and theories by creating content with this technology. State of the Art (SOA) technologies, such as Deep Learning (DL), Natural Language Processing (NLP), and Machine Learning (ML), are the foundation of ChatGPT. ML is an extension of a family of ML-NLP models called Large Language Models (LLMs). It can automate the grading of exams and assignments, freeing up instructors' time to focus on teaching. This technology may tailor student's education to their needs, encouraging greater concentration and critical thinking. ChatGPT is an excellent resource for language learning because it can translate text between languages. It might offer glossaries of vocabulary terms and definitions, giving pupils tools to help them improve their language skills. One of the significant classroom applications of ChatGPT is personalized learning possibilities. This could entail developing instructional materials and content specific to each student's interests, abilities, and learning objectives (Javaid et al.,

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2023).

ChatGPT is a technological innovation that has the potential to significantly alter, interfere with, and disrupt the higher education industry. It does this by enhancing accessibility and student interactions and providing personalized, tailored learning with immediate feedback. Using such technologies requires addressing and resolving issues related to academic dishonesty, plagiarism, and ethical and privacy concerns (Chukwuere, 2023). It is important to note that the learning, knowledge, skills, and perspectives that students should acquire to achieve their successful and fulfilling life cycles as people, members of society, and workers are all included in outcomes-based education (OBE) (Genelza, 2022).

ChatGPT technology is at the forefront of technological innovation and can completely transform higher education institutions by giving lecturers and students personalized and timely responses. This technology can have significant advantages, including improved accessibility and higher student engagement. The organization Educause, which advocates for the use of technology in higher education, recently released a report in which they suggest that ChatGPT can act as a "game changer" or disruptor, causing a profound shift in the ways that instructors employ pedagogy and the ways that students learn (Veletsianos et al., 2023).

Furthermore, using ChatGPT in higher education raises many ethical and privacy issues, including data collection, academic dishonesty, and student information handling. Institutions must take proactive steps to address these concerns by creating and implementing suitable policies and guidelines that will validate the ethical use of chatbots (Hew, Huang, Du & Jia, 2023). With this, students can use ChatGPT to write research paper summaries and abstracts, discover pertinent research sources, and verify articles for plagiarism. With the trend in education toward greater personalization, ChatGPT has the potential to be a valuable tool for curriculum customization to meet the needs of students and prepare future workers for interacting with AI-based technologies. Students should, however, critically evaluate the criticism ChatGPT offers them on their work and decide which is most beneficial to their learning. Students should not be too dependent on using the tool without checking the product it produces; hence, this could be a challenge for them.

2. Literature review

2.1. Getting to know ChatGPT

OpenAI's ChatGPT is an AI-powered chatbot. A language processing model trained on vast amounts of data to generate writing that mimics human writing is called a "Generative Pre-trained Transformer (GPT)." ChatGPT is an artificial intelligence (AI) natural language processing system that can answer queries. Because of this, it generates information more conversationally, absorbs information from those conversations, and can deliver increasingly customized responses. When delivering information and directions to users, ChatGPT acts human. This technology can compose essays and emails, translate papers and code, and create poetry, among other things. Unlike previous chatbots, ChatGPT can react immediately, resulting in more vibrant and diverse conversations on nearly any topic (Dwivedi, Kshetri, Hughes, Slade, Jeyaraj, Kar & Wright, 2023; Zhai, 2023).

ChatGPT is a cutting-edge tool that answers questions about almost anything present in the modern digital world based on the dataset it was trained on. These days, ChatGPT is inventive in producing rational, coherent, relevant, and fluid responses that resemble typing the content we see on the screen. Educators can use ChatGPT in their courses to customize the learning experience for their students. However, text completion, translation, and summarization tools can improve pupils' writing skills. The features of ChatGPT can be utilized to detect bias in content and address issues with instructional materials. Given the increasing demand for up-to-date instructional resources, ChatGPT can help the state develop and execute an unbiased and equitable curriculum. If done right, this could serve as a buffer to relieve some of the strain on an overburdened educational system (Mbakwe, Lourentzou, Celi, Mechanic & Dagan, 2023; Mhlanga, 2023).

The potential of ChatGPT to enhance students' learning experiences has led to a great deal of interest in

its usage in education. This approach can provide fast feedback, tailor responses to each student's needs, and help students grasp challenging ideas by giving them short, personalized responses. This makes it a potentially useful tool that encourages student engagement and cognitive development by adjusting to their learning style and providing ongoing assistance with gaining knowledge (Sánchez, 2023).

Numerous investigations have attempted to investigate the possible effects of artificial intelligence, particularly with the well-known ChatGPT educational technology. Numerous AI-related educational applications were examined, including chatbots, adaptive testing, personalized learning experiences, and predictive analytics. Consequently, it exhibits remarkable promise for enhancing learning effectiveness and offering tailored educational assistance to educators and learners alike. However, it is essential to consider the risks and constraints brought about by these technologies, including data protection, cultural differences, language competency, and related ethical considerations (Wang, Lund, Marengo, Pagano, Mannuru, Teel & Pange, 2023).

An increasing interest in education has been sparked by its influence over the past year. This creative tool has positioned itself as a revolutionary technology changing how educational settings teach, support, and encourage learners. To enhance educational agents' teaching and learning process, educational institutions are reconsidering how to integrate this technology into their didactic models (García-Peñalvo, 2023). Instructors and the educational setting must be aware of students' strengths and weaknesses for them to comprehend an individualized learning area (Genelza, 2023).

An artificial intelligence (AI) chatbot called ChatGPT 3.5 has been operational since November 2022. It would be an understatement to claim that it has the power to transform educational systems completely. Though its precise impact on the industry is still unknown, it is evident that the chatbot is both a threat and a game-changer. There are supporters and detractors of ChatGPT. Advocates believe it is the "magic bullet" solution to several global education problems, while skeptics have attempted to ban it from schools. In response to the critics' claim that the chatbot hinders learning, it is reasonable to state that it has disrupted and will continue to disrupt the most established teaching strategies that have been in use for decades (such as writing and editing essays). The question may make you uncomfortable: Could ChatGPT replace or augment teachers, given the 69 million primary and secondary educators needed worldwide? The roll-out of ChatGPT has shown how the technology may supplement, and in certain situations even replace, human labor in certain job-related activities and duties. Will educators, who are seen to be a significant factor in determining a student's learning, well-being, and future success, be an exception? Could the chatbot finish duties that teachers presently complete on its own? What are the hazards involved, if any? How can educators use ChatGPT to increase the effectiveness of particular assignments and their practice? (Wilichowski & Cobo, 2023).

3. Methodology

This research article employed a narrative literature review as a qualitative methodology. To identify research gaps, summarize a body of literature, and form conclusions about a subject, an integrated study of existing literature is employed in narrative literature reviews. Your ability to demonstrate how new research fits into the overall research landscape depends on your comprehension of the present state of the literature. A literature review is a research piece published in a reputable, peer-reviewed publication. Based on previously published research, a literature review's objective reporting of the state of knowledge on a subject is its primary goal. A literature review gives the reader a thorough summary and assists in putting the information in context (Green, Johnson & Adams, 2006).

4. Discussions

Considering the findings that were found after reading the selected articles, these are the following statements and reliable information that need to be highlighted in this article:

4.1. ChatGPT Tools as Opportunities and Challenges for Educational Services

Compared to Google's response, ChatGPT offers a more comprehensive explanation that includes visual examples and everyday hazards. Once more, ChatGPT's invasion of educational institutions worldwide shocked them. ChatGPT has the potential to be the most outstanding teacher and learner together. Additionally, just as they did with math calculators in the past, teachers and students may be able to expand their capabilities and opportunities using technology like artificial intelligence (AI). An artificial intelligence chatbot might give students quick responses to often-asked questions, acting as a reasoning-based learning aid. This assistance might be helpful for students as they continue their studies outside of the classroom. AI-powered learning assistants can guide and support students' learning by improving search and providing personalized recommendations on content and other learning resources (Rathore, 2023).

A significant advantage of ChatGPT is that it can improve the accessibility of learning opportunities for students who are non-native speakers of the teaching language or who have disabilities. Instant translation, speech recognition, and a host of additional capabilities that can help students access information and participate more actively in the learning process are all made possible by ChatGPT. Teachers may be able to focus their energies on other pedagogical activities by using ChatGPT to lessen the workload allotted to them. These could involve developing and improving curricula, providing mentorship opportunities, and encouraging significant contacts among students. By implementing automated teaching methods, teachers may maximize their efficiency and productivity, leading to better results for students and teachers (Chukwuere, 2023).

In addition, there are many advantages of using artificial intelligence in education. Artificial intelligence (AI) can personalize learning by adjusting lessons to each student's needs, giving prompt feedback, and providing direction. Students can be engaged, have their questions answered, and be kept motivated with chatbots such as ChatGPT. AI may also gather and evaluate student performance data, giving teachers the information they need to decide on curriculum upgrades and instructional strategies. Artificial intelligence has enormous educational benefits with the potential to transform the teaching and learning process altogether. Notwithstanding drawbacks like prejudice and restrictions on tailored instruction, artificial intelligence (AI) is a helpful tool teachers should consider. Artificial Intelligence (AI) in education has the potential to boost student achievement, improve learning outcomes, and improve the educational experience. Although there are obstacles to overcome, AI has the potential to transform education completely. The difficulties are instructors' fear of losing their jobs, bias in AI models, a lack of personalization, and the possibility of mistakes. If biased data is used to train AI models, these algorithms may not be able to accommodate each learner's unique learning demands. Errors in AI feedback or recommendations may affect the results of learning. Concerns exist over AI taking the role of human teachers as well. These issues must be resolved if artificial intelligence improves learning outcomes and assists students. AI must be used ethically and with great care to reduce bias, enhance personalization, reduce errors, and work in tandem with human teachers rather than as a substitute (Greene-Harper, 2023).

Furthermore, teachers who neglect ChatGPT do so at their peril. It is a turning point in the evolution of AI. It will profoundly impact education, much like Google did in 1998. Thus, serious discussion about the advantages, difficulties, and ramifications for students and institutions is necessary. It will have an irreversible impact on the future. Teachers must begin actively interacting with it (Connolly, 2023). As stated, it may also cause education to focus more on big problems and critical thinking. It can summarize ideas, information, and arguments, making it a valuable tool for formative assessment, especially when teachers are pressed for time. It is imperative to emphasize that this is an assistive tool; its fundamental benefit is that it can change the shape and structure of the text while preserving and stabilizing its content. Teachers need to be aware of this and draw attention to the fact that it is only one source of information.

ChatGPT may eventually replace search engines since they give students accurate and trustworthy information. According to the report, ChatGPT offers students a place to look for answers to theoretical inquiries and develop ideas for application-based queries. It also allows teachers to discuss and assess generated comments during workshops and incorporate technology into the classroom. According to the study, when students utilize ChatGPT unethically, it can result in unlearning and human unintelligence. Instructors may also find this problematic because ChatGPT interferes with their ability to assess learning results and distinguish between fastidious and automaton-dependent students (Alafnan, Dishari, Jovic & Lomidze, 2023).

Hence, teachers are responsible for teaching students how to utilize technology appropriately. For instance, teachers may warn students that a Google search on a specific topic may have unintentional prejudices related to gender, culture, and ethnicity. Any effective education program that teaches people how to use technology responsibly includes these factors. It is important to remember that we cannot simply import this technology and assume it will function as we want it to. An iterative approach to design, development, and on-site research is required. Many people, particularly students, will already be well ahead of you. The rules and frameworks that need to be implemented around technological developments will begin to take shape if we can harness that dynamic by getting groups of people to work together and test it. Centers for educational research, such as our teachers and administration, have a great potential to work with schools on this.

As a cutting-edge and promising technology to improve student-teacher engagement and the overall learning experience, ChatGPT has become a popular choice in education. The application of ChatGPT in education has a vast potential to revolutionize educational and instructional methods as its capabilities are explored and comprehended. When appropriately applied, this artificial intelligence technology dramatically enhances students' academic performance and motivates pupils by requiring them to use information and communication technologies. Nevertheless, it is imperative to remember that using it poses several difficulties, which educators must be aware of to prevent improper use. In light of this, adequate training for educators and learners can help them utilize the program appropriately and prevent abuse in the classroom. This technology can improve teaching and learning while creating new educational opportunities when used ethically and under close supervision. In this way, even if artificial intelligence is nothing new, ChatGPT's introduction has sparked discussion in the field of education, raising concerns about established tasks, methods, and assessment. As a result, it is critical to keep investigating these tools' potential and effects, considering scientific and didactic factors, and advocating for the moral and responsible incorporation of artificial intelligence into education (Montenegro-Rueda, Fernández-Cerero, Fernández-Batanero & López-Meneses, 2023).

As ChatGPT offers advantages, it also poses difficulties for educators and learners. It may be alluring for students to use ChatGPT to create assignment submissions, but doing so would not advance their academic or professional development. Their dependence on artificial intelligence might eventually cause them to lose interest in their classes. Conversely, educators may have to grade assignments that are generated by robots. Instructors are also urged to modify the format and style of their take-home exams and rubrics by including components that call for students to contribute data and information based on a scenario to finish the case and make explicit recommendations. Finding reliable and precise data necessitates sorting through these findings, which takes an extended amount of time. The other option offered by ChatGPT is the ability to generate a straightforward result as often as the user desires. Additionally, ChatGPT offers a place where students may review various examples and get ready for submissions. ChatGPT may allow educators to incorporate technology into the classroom and give students examples to consider and assess during workshops (AlAfnan et al., 2023).

With all the research articles mentioned and highlighted in this review, introducing ChatGPT into learning environments opens up possibilities with its difficulties. The promise of individualized instruction, daily availability, and extra assistance is a lighthouse for transforming education. Because of ChatGPT's adaptability, it can accommodate different learning styles and speeds, promoting a more individualized and inclusive approach to education. This flexibility also goes into how readily available information is, allowing students to get help or clarification whenever they need it outside of regular class times. Additionally, ChatGPT acts as an extra resource to reinforce concepts in the classroom by providing explanations, examples, and direct interaction.

However, these opportunities come with complex impediments that require careful analysis and calculated countermeasures. The most important of these difficulties is ensuring that the data supplied by ChatGPT is accurate and dependable. Even with their enhanced capabilities, AI models might produce erroneous or deceptive results, which could impede rather than facilitate learning. Furthermore, issues with biases in the AI model and the content it produces need to be carefully addressed in order to avoid spreading disinformation or social biases in educational contexts. When integrating AI into education, ethical issues are crucial. Priority issues include protecting students' data confidentiality, following legal requirements, and guaranteeing fair access. Another big problem with AI is that it lacks emotional

intelligence. Emotional connection and complex interaction aspects that AI might find difficult to understand or react to appropriately are essential to education.

It is essential to take a holistic approach to overcoming these obstacles. In order to ensure reliability, ethical considerations, and emotional support when needed, human oversight plays a critical role in monitoring and supervising ChatGPT exchanges. Curating content and giving ChatGPT access to pre-approved resources reduces biases and preserves accuracy and relevance. Furthermore, responsible AI use in education is facilitated by establishing explicit ethical principles and the ongoing review and update of such rules.

5. Recommendations

There is much potential for transforming student and teacher education through ChatGPT within educational contexts. Because of its assistance functions, interactive nature, adaptability, and accessibility, it is a priceless tool in today's educational environment. To fully realize its potential, though, its application necessitates striking a careful balance between innovation and moral considerations. Adopting ChatGPT in the classroom is a revolutionary step toward building learning environments that are effective, individualized, and inclusive for every student.

With this, these are the following recommendations for using ChatGPT: Adapt ChatGPT's interactions to every student's distinctive requirements and educational preferences. Create algorithms that evaluate student answers to present instructional content in a personalized manner. Adaptive tests, focused comments, and resource suggestions based on the student's speed and interests are a few examples of this customization. To assist various learners, such as those with linguistic or particular education problems, use ChatGPT. Use text-to-speech, service translations, and customized instruction to support users with different language backgrounds and learning styles.

Perhaps there could be no better way for educators to improve the educational experience than by incorporating ChatGPT into the classroom. Using ChatGPT, teachers may create interactive lesson plans, expedite lesson planning, and offer students real-time support with their questions. With this integration in place, educators may design customized learning experiences that support a range of learning preferences and increase understanding and engagement among students. At the same time, ChatGPT is a 24/7 platform that students may use to get individualized help, clarifications, and extra assistance outside class. Its conversational interface promotes involvement, teamwork, and a welcoming environment for enquiring about or delving into complex subjects. To obtain the maximum benefit from ChatGPT while protecting information security and reducing stereotypes in instructional materials, instructors and students must, however, ensure that they have a clear awareness of ethical standards for ethical and accountable utilization.

6. Conclusion

The use of any technology raises questions about academic dishonesty. In theory, students can use ChatGPT if they can access computers during an exam or paper-pen activities. ChatGPT can readily respond to exam questions due to how it synthesizes information. Avoiding multiple-choice tests can alleviate that worry, but open-ended exams might be more challenging to grade, particularly in larger classes. Set clear expectations for the class and encourage participation from the students. It can be more difficult for students to plagiarize when assignments and papers are broken up into smaller pieces that come together gradually, especially if you give regular feedback that students must incorporate into their work. Assisting learners with difficulty with the subject matter is equally crucial (Oppenheimer, 2023). ChatGPT should be introduced into the classroom carefully but not as a replacement for learning, as with any new tool. Teachers need to think about equity, ethics, and cheating like they would if they incorporated other technology into their lessons. Nonetheless, when used properly, ChatGPT can be a helpful and, according to some professionals in psychology, a revolutionary tool for preparing students for their careers in the future.

Teachers can use ChatGPT to create lessons and teaching resources tailored to each student's needs and abilities based on current trends. The ability for students to work at their own pace and focus on the areas where they most need assistance creates a more productive and successful learning environment. ChatGPT may be a very beneficial tool for teachers and students. Educators can reduce time spent on many tasks by utilizing this technology. ChatGPT will develop into an effective tool in the future for improving the experience of both teachers and students (Javaid et al., 2023). Enhancing student control over what is taught

in class and producing positive academic outcomes are the results of teaching the curriculum subject and being proficient in the language used for instruction. These factors increase the learner's exposure to and opportunity to understand the instruction material (Genelza, 2022).

It is critical to see ChatGPT as an adjunct tool that improves and enriches the learning process rather than as a substitute for conventional teaching techniques. To promote critical thinking abilities, avoid over-reliance on technology, and preserve the fundamentals of human connection in education, it is imperative to strike this balance between AI integration and human direction. ChatGPT can revolutionize education by addressing these issues intelligently and methodically, offering students a more vibrant and welcoming learning environment worldwide.

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