BENEFITS OF ARTIFICIAL INTELLIGENCE (CHATGPT) IN EDUCATION AND LEARNING: IS CHAT GPT HELPFUL?

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Abstract

The utilization of artificial intelligence in the education sector has increased gradually over the years. Further inventions in computing and supporting technology have resulted in the creation of robots and chatbots that improve students' learning experiences from early childhood education all the way to higher education. Artificial intelligence in education, including the use of chatbots, has thus, been incorporated into instruction and administration. Accordingly, artificial intelligence (in the application of chatbot/robots (cobots) is routinely being utilized to teach typical tasks like pronunciation and spelling to children at lower levels of education. Notably, the interest to apply artificial intelligence in education is increasing by the day. Hence, this article delves into the benefits, challenges and disadvantages of utilization of artificial intelligence, and most notably, chatbots (ChatGPT) in education by getting responses from ChatGPT itself. Accordingly, the advantages of artificial intelligence in education include: provision of personalized learning, instant feedback and 24/7 availability amongst others. Hence, it is concluded that even though utilization of artificial intelligence (ChatGPT) can enhance learning, it should never replace human educators as chatbots work best when used in conjunction with human guidance and supervision, ensuring that learners receive a well-rounded and effective education.

Keywords: **chatGPT, chatbots, artificial intelligence, education, learning**

INTRODUCTION

Artificial Intelligence (AI) has in recent years become increasingly prevalent in various sectors including the education sub-sector. As a result, artificial intelligence applications are being utilised in higher education for computerised assessment, personalised learning or in smart education to support teaching staff. Consequently, AI teaching assistants help instructors save time responding to students' repetitive, simple questions in on-line discussion forums, thereby leaving instructors with more time to dedicate to higher-value work (Seo, et al, 2021; Goel & Polepeddi, 2016). Accordingly, they offer support that often results in enhanced leaning and reduced expenses. Consequently, the field of Artificial intelligence resulted in the development of artefacts that exhibit human-like intelligence complete with cognitive abilities, adaptability, and decision-making capabilities (Chassignol et al, 2018). These systems have been adopted extensively and used in education, in different forms. Notably, Artificial intelligence in education was initially in the form of computer related technologies but gradually moved to online and web-based intelligence systems, eventually transitioning to humanoid robots and chatbots that perform duties and functions as directed.

Artificial intelligence in education systems, thus, undertakes varied functions, including instruction and grading students (Boinett et al, 2022). Artificial intelligence, also, undoubtedly, helps educators become more effective in undertaking these tasks. Similarly, artificial intelligence systems adapt to students' individual learning needs and ultimately customise instruction based on their weaknesses and strengths. Moreover, tutoring artificial intelligence systems are able to "gauge a student's pre-existing knowledge and learning style to deliver targeted and customized instruction and support. Notably chat-bots which essentially are AI-powered software applications work by

assessing conversation contexts and mimicking people's communication and conversational interactions.

Chen et al (2020), contend that artificial intelligence Chat-bots assess a conversation's context and come up with responses they think are right contextually. Accordingly, since they've been taught using very large linguistic data sets, they can answer varied questions.

Subsequently, this paper determines other benefits of artificial intelligence in education by conducting a search on the ChapGPT chat-bot. The results are provided under the results section of this paper.

METHODODOLOGY

The introductory section of this work entails literature review on benefits and essence of artificial intelligence in education with special reference to ChatGPT. Thereafter a search is conducted on ChatGPT on the benefits and challenges of artificial intelligence (AI) in education and responses presented in the subsequent section.

RESULTS AND DISCUSSION

The following section provides ChatGPT's responses to the question: What are the benefits of chatGPT in education?

Benefits of ChatGPT (Artificial Intelligence) in education

Personalized Learning: ChatGPT can provide personalized learning experiences by tailoring content and explanations to the individual's needs and pace. It can adapt to the learner's level of understanding, offering challenging questions or simplifying concepts as necessary.

24/7 Availability: ChatGPT is available round the clock, allowing learners to access information and assistance whenever they need it, even outside of traditional classroom hours.

Accessible Learning: It can help make learning more accessible to people with disabilities, providing text-based interactions that are easier to navigate for individuals with visual or hearing impairments.

Instant Feedback: ChatGPT can offer immediate feedback on assignments, quizzes, and questions, helping learners understand their mistakes and correct them promptly.

Vast Knowledge Base: It has access to a vast amount of information, enabling learners to access a wide range of topics and subjects. It can provide explanations, definitions, and examples on a wide array of subjects.

Language Learning: ChatGPT can assist in language learning by providing grammar corrections, suggesting synonyms, explaining idiomatic expressions,and engaging in conversations to improve language skills.

Study Assistance: It can help students with research by summarizing articles, generating citations, or suggesting additional readings and resources.

Concept Reinforcement: ChatGPT can reinforce difficult concepts through discussion and practice problems, helping learners gain a deeper Understanding.

Conversational Learning: It can engage learners in conversational interactions, promoting active learning and critical thinking. This approach can be particularly helpful for developing communication skills.

Collaborative Learning: ChatGPT can facilitate collaborative learning by helping students work together on group projects or problem-solving tasks.

Reduced Anxiety: For shy or introverted learners, ChatGPT can provide a low pressure environment for asking questions and seeking help, reducing anxiety associated with classroom participation.

*Exposure to Diverse Perspectives***:** ChatGPT can introduce learners to different viewpoints and perspectives on various subjects, encouraging open-mindedness and critical thinking.

*Flexibility***:** It can adapt to different learning styles and preferences, whether a learner prefers reading, listening, or interactive discussions.

*Cost-Effective***:** Using ChatGPT can be cost-effective, as it eliminates the need for hiring additional human tutors or educators.

*Scalability***:** ChatGPT can scale to accommodate a large number of learners simultaneously, making it suitable for both individual and group learning Environments.

Disadvantages of ChatGPT in education according to ChatGPT

While ChatGPT has numerous advantages, it also comes with several disadvantages and limitation, as follows:

*Lack of Critical Thinking***:** ChatGPT does not possess true understanding or critical thinking capabilities. It generates responses based on patterns in the data it was trained on, and these responses may not always be accurate or well-reasoned.

*Limited Context Awareness***:** ChatGPT can sometimes produce responses that are contextually inappropriate or nonsensical, as it doesn't have a deep understanding of the conversation's broader context.

*Vulnerability to Bias***:** The model can inadvertently perpetuate biases present in the training data, leading to biased or discriminatory responses. Efforts to mitigate bias may not be entirely effective.

*Inability to Verify Information***:** ChatGPT can provide information,but it does not have the ability to verify the accuracy of that information. Users should critically evaluate the information provided.

*Limited Subject Knowledge***:** While it has access to a wide range of information, its knowledge is not up-to-date, and it may lack expertise in specialized or niche subjects.

*Risk of Misinformation***:** Users may unknowingly spread misinformation if they rely solely on ChatGPT for information, especially on controversial or rapidly evolving topics.

*Privacy Concerns***:** Conversations with ChatGPT may be recorded and stored, potentially raising privacy concerns if sensitive or personal information is shared.

*Lack of Emotional Intelligence***:** ChatGPT lacks emotional intelligence and empathy, making it less suitable for providing emotional support or counselling.

*Overreliance on Technology***:** Excessive use of AI like ChatGPT may discourage human interaction and critical thinking skills, leading to overreliance on technology for problem-solving.

*Unpredictable Responses***:** The model may produce unexpected or inappropriate responses, which can be problematic in educational or professional settings.

*No Real-World Experience***:** ChatGPT has no real-world experience, which means it cannot provide practical advice based on personal experiences.

*Resource Intensive***:** Implementing and maintaining ChatGPT can be resource-intensive, requiring significant computational power and expertise.

*Continual Learning***:** ChatGPT does not learn from individual interactions, so it may not adapt to the specific needs of a learner over time.

*Language Limitations***:** It may not be equally proficient in all languages, and its performance can vary depending on the language it is interacting in.

*Security Risks***:** There is a risk of malicious use of ChatGPT for generating harmful or unethical content, such as fake news, spam, or scams.

Challenges and Considerations according to chatGPT

Using ChatGPT and similar AI-powered chatbots comes with several challenges and considerations as follows:

*Accuracy and Reliability***:** ChatGPT's responses are generated based on patterns in its training data, which means it may not always provide accurate or reliable information. Verification of responses is necessary, especially for critical or sensitive queries.

*Bias and Fairness***:** AI models like ChatGPT can inherit biases present in the training data, leading to potentially biased or discriminatory responses. Efforts to reduce bias may not eliminate it entirely, requiring ongoing monitoring and adjustment.

*Contextual Understanding***:** ChatGPT may struggle with understanding context or maintaining context over a conversation, leading to responses that are irrelevant or nonsensical in the context of the discussion.

*Privacy Concerns***:** Conversations with ChatGPT may be recorded and stored, raising privacy concerns if sensitive or personal information is shared. Data security and privacy protections are essential.

*Emotional Intelligence***:** ChatGPT lacks emotional intelligence and empathy, making it unsuitable for providing emotional support or counseling. Users seeking emotional assistance may not receive the appropriate care.

*Language Limitations***:** Its performance can vary depending on the language it is interacting in. It may be less proficient in languages with limited training data.

Misinformation: Users may unknowingly spread misinformation if they rely solely on ChatGPT for information. It is important to promote critical thinking and verification of information.

*Overreliance on Technology***:** Excessive use of AI chatbots may discourage human interaction and critical thinking skills, leading to overreliance on technology for problem-solving.

*Limited Problem-Solving Abilities***:** ChatGPT is not capable of true problem-solving or creative thinking. It can only provide responses based on existing knowledge.

*Complex Queries***:** Handling complex or multifaceted queries can be challenging for ChatGPT, as it may provide incomplete or inaccurate answers.

*User Frustration***:** Users can become frustrated if they receive repetitive or unhelpful responses, leading to a poor user experience.

*Maintenance of User Engagement***:** Keeping users engaged in lengthy or complex conversations can be difficult, especially if ChatGPT cannot provide meaningful responses.

*Scalability***:** While ChatGPT can handle a large number of users, it may require substantial computational resources, making it challenging for smaller organizations with limited budgets.

*Quality Control***:** Ensuring consistent and high-quality responses across various interactions can be challenging, requiring ongoing monitoring and maintenance.

*Ethical Use***:** Organizations must use ChatGPT ethically, avoiding harmful or unethical uses, such as spreading fake news or engaging in malicious activities.

*Legal and Regulatory Compliance***:** Compliance with data protection and privacy laws, as well as other relevant regulations, is crucial when using AI chatbots that handle user data.

CONCLUSION

It is important to note that ChatGPT is a tool that can enhance the learning experience but is not a replacement for human educators. It works best when used in conjunction with human guidance and supervision, ensuring that learners receive a well-rounded and effective education. Additionally, concerns about the accuracy and potential biases in the information it provides should always be considered when using ChatGPT for learning purposes

To maximize the benefits of ChatGPT while mitigating its disadvantages, it's essential to use it as a tool rather than a definitive source of information, to be critical of the responses it generates, and to complement its use with human oversight and guidance, especially in critical or sensitive contexts. To mitigate the challenges, institutions and organizations should carefully plan their implementation of ChatGPT, provide clear guidelines for its use, invest in ongoing monitoring and maintenance, and offer alternatives for users who require more complex or personalized assistance. Additionally, educating users about the capabilities and limitations of ChatGPT can help manage expectations and ensure a positive user experience.

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