THE IMPACT OF CHATGPT AND AI TOOLS ON THE ACADEMIC PERFORMANCE

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ABSTRACT

The use of ChatGPT and other AI tools in education has become increasingly wide these days, as preceptors seek to work the benefits of technology to ameliorate pupil literacy and academic performance. This review paper examines the being exploration on the influence of ChatGPT and AI tools on academic performance, with an emphasis on both the implicit benefits and challenges of these AI tools. The literature review indicates that while ChatGPT and other AI tools have the eventuality to enhance substantiated literacy, feedback and assessment, and commerce, they also encounter challenges similar as moral enterprises, lack of mortal commerce, and possible impulses. In a summary, this paper emphasizes the need for fresh empirical exploration to fully understand the impact of ChatGPT and AI tools on academic performance and provides recommendations for preceptors and policymakers on how to use these tools effectively and responsibly in educational surroundings.

Keywords: ChatGPT, AI, Education, substantiated literacy, Academic Performance.

INTRODUCTION

In the end of 2022, ChatGPT released by OpenAI company to the public and millions of people started using in the first month because of its unprecedent position of intelligence and density in addition to part of the community claiming it'll be the new Google hunt machine. preceptors were amazed by the exceptional capacities of ChatGPT to do in the education field. ChatGPT is a generative AI model and generative AI is a type of machine literacy algorithms that could learn from content similar as audio, image, and textbook to induce new content. So Generative AI models induce vestiges as an affair, for illustration ChatGPT can induce affair as a mortal- suchlike language. There are other generative AI models which concentrated on specific sphere like software engineering, similar law bus- completion, convert natural language to law, and restate law from a specific programming language to another one. Due to the capability of ChatGPT in generating mortal- suchlike language and answering numerous questions in a logical manner indeed if these questions asking to prepare an assignment, quiz questions or any other academic task. numerous academics started using ChatGPT and set up it useful to save their time in tutoring, assessment and exploration, so they can spend further time with scholars on other important conditioning Artificial intelligence (AI) has been considerably incorporated into a number of educational technology systems, including 1- Virtual tutor and 2- Voice sidekicks, like Google Assistant, Siri(Apple), and Cortana (Microsoft). 3- Smart Content creator. 4- Presentation Translator. 5- International courses including MOOCs, Udemy, Google AI, Alison, Khan Academy, edX, Udacity, Coursera, etc. 6- Automatic assessment. 7- substantiated literacy, using Ruangguru as an illustration, etc. 7- Games for learning, 8- Intelligent Tutoring Systems (ITS), or Intelligent Computer- backed Instruction (ICAI). The fashion of bluffing mortal study processes and creating machines that behave like people is known as artificial intelligence (AI). Due to the pivotal part that ChatGPT can play in education, one of the professors of University of Rhode located in South Africa, wrote an extensive guide (A guide to Conversational AI) about using ChatGPT in higher education and what are the best practice for students and educators. According to the mentioned companion, ChatGPT can be used in any sphere, including exploration

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papers, donations, and online material. also, preceptors and scholars should be set for the social consequences of AI use, including ChatGPT, as well as any potential effects on job displacement and other social issues. Students and preceptors must comprehend ChatGPT's and other AI tools capabilities and limitations, work together to hare best practices, integrate those tools into material courses, routinely evaluate the effectiveness of their use, and continue to probe the technology's eventuality in systems, exploration, and assiduity. still, the ideal of this paper is to explore the capabilities of ChatGPT and other AI tools in education. Our paper will be organized into preface about AI tools in education, Literature review, benefits of ChatGPT and AI tools in education, challenges, and limitations of AI tools in education, unborn directions of these tools also eventually the conclusion of this paper.

LITERATURE REVIEW

History AI Applications

The application of artificial intelligence (AI) in education has a brief history but has acquired fissionability speedily in recent times. Beforehand examples of artificial intelligence in education date reverse to the 1960s when Joseph Weizenbaum created ELIZA, a program that could pretend a discussion with a person, AI tools for language processing and conversational agents have existed. Since further, there have been multiple advancements in natural language processing and conversational AI, performing in the development of a variety of AI tools and chatbots. This early work established the root for the development of further sophisticated AI- powered educational tools and platforms that are now commonplace in present's classrooms. In the 1980s and 1990s, the proliferation of personal computers and the internet allowed for the development of further advanced educational software and online learning platforms. Prior to giving personalized instruction or conforming to the conditions of individual learners, these early efforts were primarily concentrated on delivering content and assessment. Beforehand in the twenty-first century, advancements in machine learning and natural language processing led to the creation of further sophisticated AI- driven educational tools. In recent times, artificial intelligence (AI) technologies have been increasingly utilized in education in a variety of ways including personalized learning, executive task automation, and indeed training and mentoring. These tools can help preceptors in analyzing student performance data, giving feedback, and giving personalized instruction. In addition, virtual sidekicks and chatbots powered by AI are used to give individualized support, answer queries, and help with administrative tasks for scholars. A large volume of data and computational ways are used to make predictions regarding the meaningful combination of words.

ChatGPT and Related Generative AI Advantages for Advancing Teaching and Learning

Chen and collaborators demonstrated that a conversational agent (ChatGPT) grounded on a generative model could give substantiated calculation training to students, resulting in enhanced learning outcomes. The study demonstrated that the conversational agent was able to tailor explanations to students' misconceptions and adapt to their position of comprehension.

Essay Grading Automation: ChatGPT can be tutored to grade student essays, allowing preceptors further time to concentrate on other aspects of instruction. Kim and colleagues demonstrated that a generative model (ChatGPT) trained on a dataset of human-graded essays could accurately grade high school student essays with a correlation of 0.86 with mortal grades. The study demonstrated that the model could identify crucial characteristics of well- written essays and give feedback similar to that of human evaluators.

Translation: ChatGPT can be used to restate educational materials into multiple languages, making them accessible to a larger audience. Johnson and colleagues demonstrated that a generative model (ChatGPT) trained

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on a dataset of bilingual sentence dyads could translate exactly between languages, attaining state- of- the- art results on several translation marks. The research demonstrated that the model could comprehend the meaning of sentences in one language and produce accurate restatements in another.

Interactive Learning: ChatGPT can be used to construct interactive learning surroundings in which students can converse with a virtual instructor who can answer scholars' queries and explain a variety of contents. This can be especially salutary for scholars who are struggling with a particular content or who require additional backing outside of the classroom. In addition, exploration indicates that non-native speakers of national languages and students with learning and language disabilities (i.e., writing difficulties) will profit the most from these natural language models.

Adaptive Learning: ChatGPT can be used to construct adaptive learning systems that modify their tutoring styles grounded on a student's performance and progress. A study demonstrated that an adaptive learning system grounded on a generative model (ChatGPT) could give further effective support for students learning programming, performing in enhanced programming assessment performance. The study demonstrated that the model could comprehend students' knowledge and acclimate the position of difficulty of the problems it generated consequently.

ChatGPT has the potential to support and advance the work of preceptors, students, and researchers, according to some. Some educators have formerly begun assessing the efficacity of ChatGPT by integrating it into their educational activities (e.g., research, tutoring, assessment) and have discovered that by automating certain tasks and processes, ChatGPT can free up time for other important activities, such as spending more time with students. Other AI- powered programs, similar as Grammarly, Ecree, PaperRater, and TurnItIn, give instructors with the capability to perform administrative tasks, similar as checking for plagiarism, rating and grading student work, and providing students with feedback on enhancement areas. AI has significantly reduced the paperwork and workload of instructors, especially in the performance of various administrative functions, allowing them to concentrate on their core accreditation, instruction, dispersion of content and materials in agreement with the institution's or country's curriculum.

Challenges of ChatGPT and AI tools.

AI is a promising but technologically constrained field. The obstacles would be more complex and intricate, particularly if they were connected to an educational operation. This review identifies three distinct categories of challenges technique, educators and students, and social ethics. While the use of ChatGPT and other generative AI models in education may have numerous potential benefits, there are also some downsides to consider. These disadvantages are substantiated by research.

Lack of Understanding: The incapability of generative models to comprehend environment and circumstance can result in inappropriate or inapplicable responses. A study verified that a generative model- grounded training system was unable of providing explanations that were acclimatized to scholars' misconceptions.

Absence of mortal contact: Students who interacted with a virtual instructor that displayed humanlike affective behavior had a superior learning outcome than those who interacted with a virtual instructor that lacked this behavior, according to a study byD'Mello and associates.

Data Dependent: A study demonstrated that a generative model- grounded question- answering system performed poorly when the training data was inapplicable to the task at hand. On the other hand, failures in introductory tasks have also been extensively shared.

Bias in Training Data: A generative model trained on a large corpus of internet- sourced textbook displayed gender bias in its language generation.

ChatGPT has a problem with visions. It generates further foreign visions- statements that cannot be independently verified from the source- from its parametric memory across all tasks, as it lacks access to external knowledge bases.

Insufficient capacity to personalize instruction: ChatGPT and other generative AI models can give general information and backing, but they may be unable to personalize instruction to meet the specific conditions of each student.

Privacy and Security: There are also privacy and data security concerns regarding the use of ChatGPT and other generative AI models in education

Another great challenge is the reconceptualization of the part of educators. Teachers' stations towards AI have a significant influence on the effectiveness of using AI in education. preceptors may swing from total resistance to overreliance. The former could arise from inadequate, inappropriate, inapplicable, or outdated professional development. The latter may be due to preceptors' unrealistic expectations. These teachers may concentrate too much on emerging AI technologies rather than learning itself.

Benefits of ChatGPT and AI tools in education

This section focuses on ChatGPT's operation in education, particularly how it can help both preceptors and students. The possible advantages and limitations of ChatGPT in the educational environment can be clarified by separating these places.

1- Chat GPT for teachers and researchers

Teachers can use large language models to produce substantiated learning experiences for their students. These models can analyze student's writing and responses, and give acclimatized feedback and suggest accoutrements that align with the student's specific learning requirements.

In specific, teachers and researchers in the education sector may find ChatGPT to be a useful tool. this have some limitations in its operation, below are some pros and cons of using ChatGPT for speakers

Advantages

- External resource of knowledge.
- b- Creating and assessing assessments.
- c- Grammar and writing of course materials.
- d- Syllabus Design.
- e- Helping in writing research outlines

ChatGPT can help to introduce the lecture in an attractive way for students, for instance, we asked ChatGPT to tell a story related to computer wisdom that can help explain the concepts of research methodology, the answer was as follow:

"Once upon a time, there was a young computer scientist named Alice who wanted to work out a problem with slow computer performance. She was determined to find a result and make computers faster and more effective.

Alice started by conducting a literature review on the subject of computer performance. She read papers, books, and research papers to gather information about the current state of computer performance, including the rearmost research and advances in the field.

Next, she wrote down her research aim, which was to produce a new algorithm that could improve computer performance. This aim was the overall goal of her project and gave a clear motivation for her work.

Eventually, she wrote down her research objectives. She wanted to identify the causes of slow performance, estimate the impact of various factors, and propose results to improve the speed and effectiveness of computers."

Limitations:

There are also possible issues that need to be considered when deciding whether to use it in a teaching framework.

- Lack of interpretability and possible for bias.
- b- unexpected brittleness in relatively simple tasks.
- c- Problems in referencing.
- d- Limited capability to understand intent.

2- Chat GPT for Students

For rapid responses to common inquiries and backing with their academic work, students may find ChatGPT to be a useful tool. still, it might not always give the utmost correct or complete answers because to its limitations in recognizing context and sphere-specific information. Below are some advantages and limitations or issues in ChatGPT.

Advantages:

- Help with homework: ChatGPT can be used to help students in working Drills.
- Enhancing writing skills: A student can type in a sentence and ask ChatGPT to correct it for them to see how it can be bettered.
- Feedback: Students can get feedback from ChatGPT so that they work in enhance their assignments before submitting.
- Conducting research: Students can use ChatGPT to make research figure and guide them through research steps.
- Fast access to information: ChatGPT provides a wide range of topics in real time.
- Individualized learning: Students can conform questions to their interests and indeed ask follow- up questions so ChatGPT will claw deeper into that interest.

Limitations

- Decrease the Creativity: depending on ChatGPT may reduce the time of critical thinking.
- Accuracy limitations: ChatGPT isn't 100 accurate because its data is pulled from the internet.
- Possible bias: ChatGPT is trained in data, and if that data is biased, so is the machine.
- Lack of original thoughts: All collected data are preliminarily mentioned in an composition, book, or any available materials, hence, new studies or experimental results won't be set up in ChatGPT.
- Cancelling Homework Benefits: Some publications have declared, maybe a bit precociously, that ChatGPT has killed homework altogether.

Threats

The potential for ChatGPT to complicate pre-existing biases in language and perpetuate societal inequalities is a concern that can be eased through applicable training and monitoring measures. Potential for Misinformation ChatGPT has the potential to disseminate misinformation if its training datasets are biased or inaccurate, or if its

programming prioritizes engagement at the expense of accuracy. The implicit violation of privacy may occur if ChatGPT is utilized to gather and scrutinize sensitive particular data without carrying the necessary consent. It's imperative to admit the prospective advantages and downsides of ChatGPT and to persist in overseeing and controlling its progression and operation to guarantee that it caters to the optimal weal of society

CONCLUSION

ChatGPT has the implicit to serve different purposes, to be utilized across multiple disciplines, multifaceted operations, encompassing a different range of objectives. Capability to integrated into client service systems, thereby enabling the provision of round- the- clock assistance and addressing generally asked queries. Function as a personal assistant, furnishing support to users in various tasks similar as organizing appointments, establishing prompts, and transmitting messages. In the education field to facilitate online learning by tailoring instructional approaches to individual learners, addressing student inquiries, and furnishing evaluations of academic tasks. Automated feedback on essays and assignments can also be eased through ChatGPT's operation. Support as a feasible tool for internal health support, offering a secure platform for individualities to express their feelings and admit guidance and resources. Support healthcare interpreters in patient diagnosis and treatment. also, it has the implicit to furnish patients with material details regarding their healthcare conditions and implicit courses of treatment. To conduct data analysis and furnish precious insights, thereby facilitating businesses in making well-informed opinions. likewise, it has the capability streamline monotonous conditioning, similar as inputting information and communicating with clients. To induce interactive games and experiences, in addition to chatbots designed for virtual sidekicks or social media platforms, thereby serving as a source of entertainment. In research studies the Chat GPT can grease the analysis of substantial textual data and the product of valuable insights. also, it has the implicit to serve as a tool for condensing research papers or suggesting avenues for future investigation, recapitulating extensive texts, including scholarly papers and newspapers. For employment in creative applications, specifically in the generation of ideas for art, music, and storytelling. To perform language restatement services, enabling the conversion of written text from one language to another. To conduct sentiment analysis on textual data, enabling the identification of the polarity of the text as either positive, negative, or neutral. The ChatGPT possesses the capacity to give profitable issues as well as implicit downsides in the forthcoming times.

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