CHATGPT AND ITS INFLUENCE ON EDUCATION SECTOR

Abstract

The development of highly sophisticated artificial intelligence technology in recent years has had a significant impact on numerous industries, including education sector. One particularly impressive piece of technology is Open AI's ChatGPT, a potent huge language model. For both students and teachers, this technology presents intriguing possibilities, such as personalised feedback, improved accessibility, interactive discussions, lesson preparation, evaluation, and novel approaches to teaching difficult ideas. However, ChatGPT offers other dangers to the conventional educational and research system, including the potential for cheating on online tests, the development of material that appears to be written by a person, weakened critical thinking abilities, and challenges analysing information produced by ChatGPT.

From the viewpoints of students and educators, this study shows the impact that ChatGPT has on the educational sector and the advantages and threat that ChatGPT poses to overall education. In addition, the researcher investigates how ChatGPT aids students in honing their programming abilities for programming learning. Researcher used ChatGPT to carry out a variety of coding-related investigations, including as code production from problem descriptions, algorithm pseudocode generation from texts, and code correction.

Keywords: ChatGPT, Education Sector.

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I. INTRODUCTION

Technology now plays a significant part in schooling. The epidemic gave way to the emergence of online education and edtech businesses, which prevented the achievement gap from growing despite the closure of schools. The tools accessible to students and teachers have been made more democratic by technological interventions, but this has also led to wider inequities and distractions in the classroom. Technology in the classroom is here to stay, for better or worse, and new solutions are always being provided. In 2022, the public was first given access to the generative AI Natural Language Processing (NLP) software ChatGPT by OpenAI, a corporation that does artificial intelligence research and development. Everyone with a device and internet access can use ChatGPT for free, making it broadly available, especially for students who are all digital natives.

ChatGPT is an "AI chatbot that simulates human communication by using natural language processing. The language model is capable of answering queries and writing a variety of written materials, such as articles, social media postings, essays, code, and emails". In order to receive, analyse, and create a response that mimics human natural language, ChatGPT uses generative coding. To interpret the incoming data and produce a response, the programme employs a transformer-based neural network with a sizable database. When a human user types a question or command into ChatGPT, the AI reads the text and responds based on the information in the neural network. In-depth discussions, self-admittance, and even essay writing are all capabilities of ChatGPT. Many in the education sector are concerned about how ChatGPT may impact ethics, effort, credibility, and the general future of learning and teaching even if it can be a useful tool because of its depth of information.

II. STATEMENT OF THE PROBLEM

A new AI tool created by OpenAI called ChatGPT is used in the education industry. With the rise in popularity of online learning, ChatGPT is an enhanced language model for creating content, responding to inquiries from students, and grading assignments. By enabling students to have personalised and adaptable learning experiences, ChatGPT has revolutionised the educational field. Based on the GPT-3.5 architecture, ChatGPT is a sophisticated language model. The sophisticated features of ChatGPT are utilised to develop a number of educational applications that can change students' conventional learning encounters and so improve accessibility and effectiveness. Natural language processing (NLP) talents in particular enable conversational engagement with pupils and rapid feedback and help. The advantages of ChatGPT include personalised instruction, language acquisition, support for teachers, real-time feedback, and more. However, there are numerous ChatGPT problems that must be proactively addressed to guarantee equitable and successful learning results. The researcher concluded that this study is important and made an effort to learn more about ChatGPT's difficulties and effects on the education sector.

III. OBJECTIVES OF THE STUDY

1. To understand the working mechanism of ChatGPT
2. To find out the challenges of ChatGPT
3. To analyze the Impact of ChatGPT on Education sector
4. To give suggestions

IV. HOW DOES CHATGPT WORK?

The Generative Pre-trained Transformer of ChatGPT uses specialist techniques to find patterns in data sequences. ChatGPT uses a neural network machine learning model, the GPT-3 language model, and the third iteration of the Generative Pre-trained Transformer. The transformer looks up a lot of information before coming up with a solution. ChatGPT produces text that resembles human speech using transformative neural networks, a subset of deep learning. The transformer predicts text, including the next word, sentence, or paragraph, using the training data's typical sequence. Prior to using more task-specific data, generic data are first used to begin the training process. ChatGPT first studied the basics of conversation through online text training before studying human language through transcript training.

Trainers who are people conduct talks and grade the replies. The best solutions are selected with the aid of these reward models. By clicking the "thumbs up" or "thumbs down" icons next to the answer, people can upvote or downvote the chatbot's response to help it learn. To enhance and fine-tune upcoming dialogue, users can also offer additional written input. An example of generative AI is ChatGPT, a platform that allows users to provide instructions to receive artificial intelligence-generated human-like graphics, text, or videos. As users can ask questions of ChatGPT or seek explanation on its responses, it is comparable to the automated chat services available on customer care websites. The process through which ChatGPT evaluates requests and generates responses is referred to as "Generative Pre-trained Transformer," or GPT. employing machine learning to enhance.

V. USES OF CHATGPT

"ChatGPT is adaptable and can be used for purposes other simple verbal exchanges. Following are some things users have done with ChatGPT:

- Write software programmes.
- Create music.
- Emails in draught form.
- Provide an overview of presentations, podcasts, or articles.
- Plan out postings for social media.
- Come up with a title for an article.
- Resolve mathematical issues.
- Look for keywords to use in search engine optimisation.
- Produce content for websites, including articles, blog entries, and tests.
- Rephrase current information for a different platform, such as a presentation transcript for a blog post.
- Create product descriptions.
- Participate in video games.
- Assist with employment searches, including writing cover letters and resumes.
- Pose fact-based inquiries.
- Simplify the description of difficult subjects.

ChatGPT can remember different queries, unlike other chatbots, allowing the discussion to flow more naturally.

VI. CHALLENGES FACED BY CHATGPT

1. **Privacy and Security:** Data about the user may be gathered and stored by ChatGPT. Concerns about security and privacy are raised by this. Standards for data collection and storage should be followed by ChatGPT. Additionally, ChatGPT ought to inform users of the data being gathered and its intended uses.

2. **Accuracy:** Inaccurate or incomplete information may be provided by ChatGPT as well, which could cause miscommunication or confusion among teachers and students.

3. **Potential Bias:** ChatGPT may replicate biases from the data it was trained on, just like any other AI system. As a result, biased content is produced, which has negative effects on both teaching and learning. The model should be trained using a variety of data sets, and the developer should make sure that biases are actively countered.

4. **More Dependence on Technology:** The potential for over-reliance on technology is increased by the speed at which ChatGPT can process and develop ideas. This reduces the ability to think critically, be creative, solve problems, etc. as a result of the fact that it offers students a quick remedy for their problems, lowering their ability to freely think and produce.

5. **Implementation Cost:** It's possible that many schools lack the money necessary to employ ChatGPT to assist the pupil. ChatGPT's educational market could be expensive.

   In a nutshell there are good reasons to be concerned when looking at ChatGPT's problems in the educational field, such as a lack of originality, a chance for plagiarism, and an excessive reliance on technology. Since these issues can be avoided with the correct teaching, teachers should be aware of them and promote safe and effective research when utilising ChatGPT. AI occasionally fails to employ critical reasoning to arrive at the correct solutions. ChatGPT users should think about the immense possibilities that lies ahead rather than just the challenges.

VII. IMPACT OF CHATGPT ON EDUCATION SECTOR

In practically every business, including education, artificial intelligence (AI) is becoming more and more prevalent in recent years. AI tools are becoming crucial for educational institutions, whether it be for personalised learning, automated grading, intelligent tutoring systems, or virtual learning assistants. They offer priceless assistance that results in cost savings and better learning outcomes. With both optimism and caution, many are arguing whether AI technology is appropriate for the education sector. Because they are confident that the tool will enhance their learning and teaching, students and teachers feel upbeat. On the other hand, other experts recommend against using ChatGPT since it could lead to cheating and make educational inequality worse. It's important to talk about ChatGPT's main applications and how they can interfere with current educational practises or pose a threat to various market leaders in the education and ed-tech sectors.

1. ChatGPT can improve individualised learning, to start. By using the technology, teachers may produce lesson plans and customised materials in a matter of minutes as opposed to hours. Students' learning experiences can be made more interesting and productive by

teachers. ChatGPT can compete with online tutoring service providers like Chegg, Think Academy, or Tutor.com because of its capacity to give one-on-one education for learners and provide real-time answers to inquiries. Being able to study at their own pace and concentrate on their weak areas will be advantageous for students.

2. As it evaluates the output of the learners, ChatGPT may offer focused and customised feedback. By understanding strengths and shortcomings that were challenging to recognise and correct, students can close educational disparities. In order to find common errors students make in their coursework, several online education companies, like Coursera, already use AI. Using ChatGPT to generate content, teachers can also design unique examinations and evaluations. For certain businesses, like Chegg or Course Hero, which charge for homework assistance, the tool's adaptability and quasi-free nature may jeopardise their business model.

3. Through customised questions and feedback on their answers, the AI chatbot helps pupils improve their reading comprehension skills. The tool can strengthen analytical and critical thinking skills when utilised properly.

4. Another crucial component of ChatGPT is its support for students learning languages. The tool allows students to practise their vocabulary and pronunciation, translate phrases, and provide real-time translations in addition to helping them comprehend grammar. Learners can take the role of well-known language learning programmes like Duolingo, Babbel, or Mondly by utilising it extensively and using it in more sophisticated ways.

5. The most significant use of ChatGPT is its potential as a writing assistant: "It enables professors and students to develop content ideas that motivate them to write essays on any subject. Additionally, they can assist with the development of many draughts of a single essay and make suggestions for regions that could be improved in terms of grammar, clarity, or succinctness. As a result, the application enables users to get beyond a block on writing and produce fresh viewpoints on a subject of their choice. Business and ethical ramifications are huge. Content creators using ChatGPT may reconsider paying steep membership fees for AI copywriting platforms like Jasper or Copy.ai. Quillbox and Grammarly, two writing tools, may have competition.

6. The ethics implication is the most crucial one. The Atlantic's Stephen Marche claims that "The College Essay is Dead" because "ChatGPT imperils the future of the most crucial tool in educational assessment: writing essays and its learning implications for skill attainment." According to a study by Study.com, 89% of students who are 18 years of age and above acknowledged to utilising ChatGPT for their homework. The AI chatbot can entirely or partially create their essays, which prompts concerns about plagiarism. By employing ChatGPT, at least one student cheating has already been discovered by 26% of K–12 teachers.

7. Plagiarism is a serious problem in academics, along with cheating. Another issue is ChatGPT's propensity for passing tests in numerous disciplines. The Wharton Business School, the US Medical Licencing Exam, and four courses at the University of Minnesota's law school have all seen the AI bot succeed on exams. AI technologies are capable of passing the tests in history, the arts, microbiology, physics, and maths. Academic dishonesty is a problem as well, as ChatGPT is capable of producing scientific works that

could pass a first academic review. Due to the potential harm to research, this worries specialists.

8. Aside from plagiarism and cheating, ChatGPT is an excellent research assistant with good "research skills" and the capacity to summarise large texts or articles. If the AI tool is coupled with Bing or Office 365 Copilot, it will gain strength and experience an increase in utilisation. It is possible to reduce the amount of time that students and teachers spend reading, studying, and comprehending difficult academic literature. Teachers and students who struggle with attention problems like ADHD can benefit from this as well. It might be harmful to rely too heavily on technology, though. Researchers should still teach students to independently evaluate and analyse information, experts advise, and critical thinking and research skills should not be supplanted by AI in research.

9. Another caution regarding using ChatGPT as a research assistant is that it has limitations on data accuracy, source citation, and even offers biassed search results based on previous user interactions. Even though it generates academic documents, ChatGPT only sporadically offers accurate and current information; papers made using it have been proved to be factually incorrect. Education specialists worry that the widespread use of this technology by students on campuses would result in a lowering of academic standards since teachers will be compelled to differentiate between what is human and what is not in their students' assignments in real time.

VIII. DRAWBACKS OF CHATGPT

1. **It is Unable to Fully Grasp the Intricacy of Human Language:** Input-based word generation is how ChatGPT has been trained. Responses could therefore come off as superficial and lacking in genuine insight.

2. **Unawareness of Information and Occurrences:** After 2021. The content for the training data finishes in 2021. Based on the data that it uses, ChatGPT may present false information. It's also possible for ChatGPT to respond incorrectly if it doesn't fully comprehend the question. Feedback is advised when a response is erroneous since ChatGPT is still being taught.

3. **Responses may Come Off as Artificial and Mechanical:** ChatGPT may misuse terms like the or and since it anticipates the next word. Due to this, information must still be reviewed and edited by humans in order to make it read more naturally and sound more like human writing**.**

4. **It has a Summary but no Source Citations:** ChatGPT does not offer interpretation or analysis of any data or statistics. Despite offering a number of data, ChatGPT does not really explain what they imply or how they relate to the issue.

5. **It is Unable to Comprehend Irony and Sarcasm. The Foundation of ChatGPT is a Text Data Set.**

6. **It can be Unable to Change its Focus from the Incorrect Portion of a Query:** For instance, ChatGPT will respond "What about a cat?" if you ask it, "Does a horse make a good pet based on its size?" Instead of providing information regarding keeping the

animal as a pet, ChatGPT might only concentrate on the animal's size. Because ChatGPT is not divergent, it cannot change its response to address several questions in one.

IX. SUGGESTIONS

1. CHATGPT represent significant advances in the field of artificial intelligence and have the potential to significantly affect the education sector in countries that are still in the early stages of development. However, it is crucial to approach this technology with utmost caution and to thoroughly examine all of its advantages, disadvantages, and potential ethical ramifications.

2. The use of CHATGPT and other AI technologies in educational contexts has the potential to have a number of positive effects, including improved student learning outcomes and increased access to information.

3. These benefits must be weighed against the technology's potential downsides, which include a lack of data privacy, unequal access to technology, and the need for instructors to upgrade their competencies. In conclusion, it is crucial to develop and deploy this technology in a responsible and educated manner even if artificial intelligence has the ability to totally revolutionise the educational system in poor countries.

4. To fully comprehend the impact of CHATGPT and other AI technologies on the education sector in developing countries, more research is needed. This is essential to ensuring that the benefits of new technologies are maximised and their drawbacks are minimised. The ultimate goal should be to utilise AI's capabilities to create more equitable and effective educational opportunities for all education sectors.

X. CONCLUSION

ChatGPT, a ground-breaking technological innovation, has drastically altered the way to communicate with machines and one another. It is the ideal tool for numerous applications due to its adaptability, scalability, and effectiveness. It can produce human-like responses to user questions thanks to its natural language processing abilities. Even though ChatGPT has a number of flaws, including the potential for discrimination, a dearth of emotional intelligence, and a limited knowledge base, these can be reduced with careful training data selection and extra programming. Academics, cyber security, customer service, and software development are just a few of the areas that have benefited greatly from ChatGPT. Researchers are just beginning to look at its potential applications, but it has huge potential to boost output, efficacy, and user satisfaction. Over the upcoming years, ChatGPT will develop and expand, and may anticipate even more remarkable outcomes.

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