

The Transformative Potential of ChatGPT in Higher Education: Exploring the Impact and Implications for India

Dr. Ranjana Mary Varghese,
Associate Dean,
Xavier Institute of Management & Entrepreneurship, Kochi

Abstract:- This paper explores the transformative potential of ChatGPT, an OpenAI chatbot and a large-scale neural network-based language model, in higher education and its impact and implications for India. ChatGPT, trained on vast amounts of text data using Natural Language Processing (NLP), has the ability to generate human-like text. It utilizes Reinforcement Learning with Human Feedback (RLHF) and can be implemented as a chatbot on various platforms. While ChatGPT has the potential to revolutionize learning and enhance student motivation and participation, there are concerns regarding its impact on critical thinking and assessment integrity. The paper also discusses the benefits and challenges of integrating ChatGPT in higher education, including automation of administrative tasks, personalized learning experiences, tutoring and support, innovation and research, and content generation. It emphasizes the need for ethical and responsible use of AI tools in education and suggests re-envisioning teaching and assessment approaches to adapt to the advancements in AI and machine learning. The paper concludes by highlighting the importance of a comprehensive transformation in the education system to embrace and integrate AI tools effectively.

Keywords:- chatGPT, AI, Higher Education, Learning.

I. INTRODUCTION

When an Open AI chatbot and a large scale neural network based language model came together, ChatGPT was born. The Generative Pre-trained Transformer as GPT is called is trained on vast amounts of text data to generate human-like text. On a technical front, an Artificial Intelligence program or algorithm uses a data set to recognize certain patterns, whereby they make conclusions and predictions when given enough information. Natural Language Processing (NLP) is used to generate human like text, though ChatGPT is unable to capture the complexes and nuances of human language. Further advancements in NLP and machine learning may improve the efficiency of chatGPT's human like conversations. Open AI, which is a research lab founded by Sam Altman and Elon Musk has generated this GPT-3 and hence can be called as the founder of ChatGPT.

II. HOW IS IT IMPLEMENTED

ChatGPT is trained on 570 gigabytes of text and has 175 billion which helps it perform tasks it was not explicitly trained for. Apart from being the largest language model ever trained, ChatGPT comes with additional Reinforcement Learning with Human Feedback (RLHF), which gives it a clear advantage over earlier tools. Chat GPT is often executed as a chatbot which can be opened through a different platforms like website, a smartphone app, or a messaging service (OpenAI, 2023). The text given to the bot gives a real-time response. Multiple users can be accommodated at the same time, but a heavy traffic can take the system down. The GPT-3 language model is used by Chat GPT, a potent chatbot, to deliver tailored and interactive help to users in a conversational mode. AI has the potential to change and revolutionize the learning of and how the students will approach education. ChatGPT can deliver prompt-based text in a few seconds AI technologies can enhance the motivation and also the participation of students in learning. This is an encouragement to autodidactic learners. This increases autonomy to learners whereby there is a personalized support, convenient and flexible learning, real-time feedback, self-assessment and reflection and many more.

III. VARIOUS FUNCTIONS OF CHATGPT

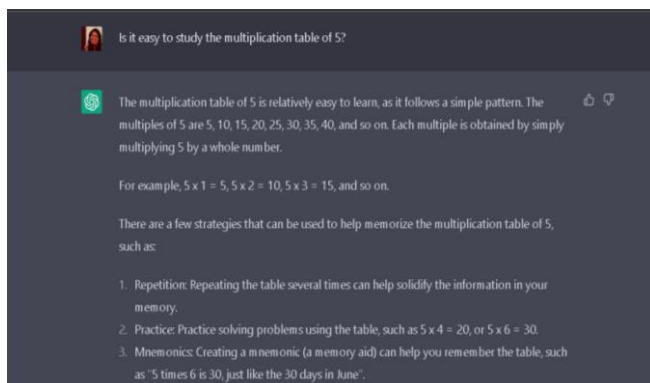
ChatGPT can even create jokes and narratives, write codes and make arguments and makes it very interesting and impressive for an individual as there conversation which is going on. ChatGPT or any other AI tool can change the learning atmosphere totally. Learning digitally requires a of "autodidactic" profile, characterized by a strong motivation to learn, the ability to find and effectively use digital resources, and a willingness to take ownership of one's own learning process of "autodidactic" profile, characterized by a strong motivation to learn, the ability to find and effectively use digital resources, and a willingness to take ownership of one's own learning process.



Source: Statista, January 24, 2023

Fig1 Growth of Companies

Autodidactic learning, or self-directed learning is a way in which the learner learns on his own, without a trainer's guidance. (Candy, 1991)(Garrison, 1987). Self-Directed learning helps the learners to be effective in learning and also better social beings. This type of learning depend on the self-sufficiency and freedom of the student to drive their own process of learning, and is often categorized by the usage of open educational resources (OER) and other open educational practices (Caswell et al. 2008). Autodidactic learning permits students to take charge of their own knowledge and development, and to study at their own speed and in a way that is personalized to their specific wants and goals (Gureckis & Markant, 2012; Schweder & Raufelder, 2022) Accepting and reacting to idea in natural language is one of Chat GPT's primary characteristics.



Source: Self & ChatGPT

Fig2 An example of learning through ChatGPT

According to Jeff Maggioncalda, Chief of Coursera, ChatGPT is like a thought partner, but also cautions that sometimes, it gives information which is false, but that is where the critical thinking of the humans come into play. These AI chatbot seem to be grabbing the space which was occupied by the Edtech sector during the pandemic. The Edtech saw a huge rise during the pandemic, but many of them are undergoing corrections now with regard to the structure and the content.

Is ChatGPT going to be a Google Killer? Well, there are mixed opinions. While ChatGPT is able to generate human-like answers based on the input keyed in, the algorithm definitely has its flaws. People who use ChatGPT

will agree that it learns the relationship between the words in the input given and it finds out words which can make sense to it, from a statistical point of view as an answer to the input given. But, Google is not just a search engine- It's your email, your Maps, your calendar, your workspace, your storage and many more. ChatGPT may be a catalyst to improve the productivity in various domains, but it doesn't have the breadth and depth of what Google has. ChatGPT may be a threat to the subsidiary of Google called Deepmind. It's said that DeepMind is thinking of developing a chatbot called "Sparrow", which could be a dialogue agent which gives us useful, correct information. It depends upon the needs and preferences of the user to decide whether ChatGPT is an alternative to Google.

IV. HIGHER EDUCATION AND CHATGPT

Many Universities and colleges in India and abroad has barred the use of ChatGPT in their labs and have even issued notice which states that strict action will be taken if a student or faculty doesn't resort to originality in submissions. Some institutes has even told the students that they will have to redo the whole document any time and would take disciplinary steps if there is variances in the submissions. Editors of many journals have barred scholars in using the assistance of this AI chatbot in academic research.

Well, on one side, tools like ChatGPT gives the learner or the student an interactive answer, but it is definitely hindering with the acute and rational thinking of the student. Companies would be looking out for students who has the power and skill of thinking logically rather than being a machine who gathers the output given by such AI tools. A good understanding of concepts, critical thinking and an analytical mind is required to be the stars in the corporate world.

The biggest challenge to educators is in the way they need to changerground the way they measure the learning. There may be honesty issues where students might practice ChatGPT to do fraud on assignments or exams by generating answers to questions. Moreover, there are chances of precision issues as well, since ChatGPT's information is limited to global events that happened before 2021. Too much dependence on the AI tool will kill the problem solving and decision making skills of the students which may impact their ability to succeed in the workforce. Thinking beyond the horizons, based on existing parameters, is how a person builds up creativity. AI tools like ChatGPT can generate a long list of ideas, but only thinkers with creativity can identify the correct solution, within the opportunities. A solution creation which is future oriented will not be possible by AI, where it requires predictions of how people will respond to a specific incident or process. Since these AI tools are based on the data they draw on, they have built in biases which causes unethical decisions to be made. It is very important to assess what is unjust and set boundaries to the decisions made by AI tools. Ethics need to be a core skill when AI tools are used for education and

learning. It is no wonder then that this is being seen as a breakthrough model for content generation, though it lacks human interaction, which is typical of a machine-based model. While some publishers have banned the usage of the bot in the preparation of the manuscript, some others see its adoption as inevitable. Some legitimate usage of ChatGPT has led it to be a co-author in some research papers. Unless there is a check on the research papers by the publishers, there could be misinformation and junk science as there could be a lot of inaccurate information due to the data that is fed into the system.

In addition to the previously mentioned applications, ChatGPT has further potential uses in higher education. It can revolutionize the learning and teaching process by offering the following:

- **Brainstorming and Writing Help:** ChatGPT can be trained to understand assignment requirements and provide suggestions and corrections to enhance the clarity and coherence of writing. This feature is especially beneficial for non-native speakers and students who struggle with writing. It can generate ideas, provide feedback on written work, and improve overall writing skills.
- **Professional Communication:** ChatGPT can generate professional documents such as emails and reports. It can simulate real-life scenarios for training and practice, helping professionals refine their communication skills. Feedback on tone and style can be provided, ensuring effective professional communication.
- **Individualized Learning:** ChatGPT can generate exercises, quizzes, and personalized learning plans based on the student's learning style and progress. It offers tailored educational materials, promoting individualized learning experiences. Students can generate flashcards and other resources specific to their learning needs, facilitating a personalized and efficient learning process.

These applications of ChatGPT have the potential to transform the way students learn, educators teach, and professionals communicate. By leveraging the capabilities of ChatGPT, higher education can embrace innovative approaches to enhance learning outcomes and improve various aspects of academic and professional life.

V. CONCLUSION

Though on one hand ChatGPT may be a threat to education, with stories from around the world where educational institutions are banning this AI, there could be some ways in which this powerful natural language processing tool that can be used to benefit higher education in India in several ways. Listing down a few of them

- (a) **Automation of administrative tasks:** Routine repetitive tasks can be automated by ChatGPT. This can help the staff use their time productively for other important tasks.
- (b) **Tailored learning:** Personalized learning experiences can be created, where the content can be tailored to the individual student needs. This will create a more engaging and effective learning experience.

- (c) **Tutoring and support:** ChatGPT can be used to provide students with personalized tutoring and support. It can help students with homework, answer questions, and provide feedback on their work.
- (d) **Innovation and Research:** Researchers can use this bot to process the large volume of data, generate conclusions and ideas which will speed up the research process and also can nurture innovation.
- (e) **Content Generation:** Educators can generate content for teaching purpose like articles, reports etc which can save time allowing the teachers to focus on more important tasks like teaching and research

➤ Way Forward

Age of Machine Learning and AI as taken its step forward. We cannot stop the advent of these AI tools and these are here to stay. If the opportunities of AI are captured in its right sense, embraced and integrated and adopted as complimentary tools, education will land up teaching obsolete and ineffective skills. The knowledge base and ability of this bot needs to be increased and its ability to respond and understand the context need to be improved.

The way in which assessment and learnings are done should be re-envisioned. The tasks and evaluations should be creatively redesigned to reduce the potential for AI generated submissions. Educators should move from conventional teaching to being learning facilitators. Universities need to redefine the learning outcomes in such a way that they complement the developments in AI and machine learning. More emphasis should be given to the skills of the students. Recruiters should also be able to capture the skills of the candidates which will be complementary to these technological advancements.

AI and Machine learning calls for a revolutionary change in education where the whole system has to go for a 360-degree transformation. It's important to note that the use of ChatGPT in higher education should be implemented with caution, and with appropriate safeguards to ensure that it is being used ethically and responsibly.

REFERENCES

- [1]. Firat, M. (2023). How Chat GPT Can Transform Autodidactic Experiences and Open Education?.
- [2]. Candy, P. (1991). *Self-direction for lifelong learning*. San Francisco: Jossey-Bass.
- [3]. Garrison, D. R. (1987). *Self-direction and distance learning: Facilitating self-directed learning beyond the institutional setting*. *International Journal of Lifelong Education*, 6, 309 – 318
- [4]. Caswell, T., Henson, S., Jensen, M., Wiley, D.: *Open Content and Open Educational Resources: Enabling universal education*. *The International Review Of Research In Open and Distance* , 9, 1, (2008) 1-11
- [5]. Gureckis TM, Markant DB. *Self-Directed Learning: A Cognitive and Computational Perspective*. *Perspect Psychol Sci*. 2012 Sep;7(5):464-81.
- [6]. Varghese, R.M.(2023), *Is ChatGPT a Game changer for Higher Education in India?*, *University News*, 61(9)

- [7]. Schweder, S., & Raufelder, D. (2022). Adolescents' expectancy–value profiles in school context: The impact of self-directed learning intervals. *Journal of Adolescence*, 94(4), 569-586.