ChatGPT as a Tool for Academic Excellence:A Study in Telangana

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***Abstract*—There are substantial concerns about the recent launch of ChatGPT which raised serious questions regarding academic veracity in higher education. Though, some observers have pointed out that ChatGPT and other generative AI technologies can enhance student learning. Because of this, educators need to adapt their teaching and assessment strategies to reflect the new realities of living, working, and learning in a world where artificial intelligence is prevalent. In this regard, this research work uses a sample of 100 students from various Under Graduate (UG) disciplines of Telangana State to assess the Contribution of Chat GPT in academic excellence among students with special reference to Higher Education. The data shows student replies and discussions across various (UG) disciplines, with a primary focus on issues related to academic integrity and chances for creative assessment design. Furthermore, there hasn't been widespread discussion of ChatGPT's potential to increase engagement and achievement for underprivileged students. In the same way, student perspectives have not received enough attention in media reports. The article examines these patterns as well as how AI technologies affect university student learning.**

***Index Terms*—ChatGPT, Academic excellence, AI, student learning, Higher Education**

I. INTRODUCTION

In the modern world, technology is essential to education. The COVID epidemic brought forth a number of technological platforms for easy learning, as well as the emergence of online teaching and learning. Among those technologies, Chat GPT has been popular recently and is employed globally to address a wide range of issues in various fields. It was developed by Open AI, an artificial intelligence (AI) company with its headquarters in San Francisco. ChatGPT was created by a team of entrepreneurs and researchers, among them Sam Altman and, early on, Elon Musk. The project began in 2015, and the chatbot was publicly released on November 30, 2022. Since then, it has quickly become well-known for providing thorough and prompt answers to a wide range of issues pertaining to various fields. "Generative Pre-trained Transformer" is the full name of GPT in ChatGPT. The generative model will, as its name implies, create text; pre-training refers to the vast quantity of data it has; and transformer refers to the AI model's design. It is a neural network machine learning model, the third generation of Generative Pre-trained Transformers, and the GPT-3 language model [1]. Because of the way it is made, it produces answers that people would rather learn about. It responds to inquiries in a conversational manner with logical responses. It's essentially the same as using any other virtual assistant, including Google Assistant. It can be used to write, summarize, generate, and construct stories, poetry, codes, debug codes, answer arithmetic problems, and finish assignment questions [2].

The present study focuses on opinions of the students of Telangana state of various UG disciplines on Impact of Chat GPT on higher education. The objectives of this study are,

1. To perform exploratory data analysis on survey data with respect to Contribution of Chat GPT in Academic Excellence in Telangana
2. To find whether the students' opinion on “Chat GPT can substitute other printing and electronic academic information in future” is independent of various UG courses.
3. To test whether the opinions on “Can Chat GPT can surpass personal teaching at colleges” are independent of various UG disciplines.

II. REVIEW OF LITERATURE

It is essential to know ChatGPT's impact on education and promptly address any potential risks, given its continued popularity and close consideration from the students [3, 4]. In [5] the findings highlight the need for careful implementation, teacher development, and ongoing evaluation in order to maximize ChatGPT's benefits and uphold moral principles in the classroom. The study highlights the potential of ChatGPT as a helpful tool for undergraduate education, but it also highlights how important it is to maintain critical thinking skills and interpersonal communication skills while studying. According to [6] research indicates that new evaluation forms should emphasize creativity and critical thinking in the classroom, which AI cannot replace. In [7] the findings emphasize how crucial it is for educators to have sufficient training on how to use the tool, and they also state that for the tool to be used successfully, teachers must be comfortable with it. [8] conducted a study to provide a comprehensive examination of the morally and responsibly used ChatGPT in the classroom. The study also discovered that using ChatGPT in the classroom necessitates respecting students' privacy, acting fairly and without discrimination, and using ChatGPT in a transparent manner. The work in [9] aims to investigate the significance of ChatGPT in scholarly writing, as well as its impact on academic integrity and human creativity. Further, in [10] found that how ChatGPT affects creativity which in turn affects academic success. Now a days in order to take relevant imitations that help students proper funding must be provided by the schools to stop depending on ChatGPT thereby encouraging their own ideas. [11] has discussed the drawbacks on usage of AI tools which lacks higher level thinking among students , which would lead to an inability to interpret the data.

It is necessary to identify and eliminate one of the potential gap that exists in assessing ChatGPT's impact on academic success is a lack of studies that exactly evaluate its helpfulness in various educational contexts and disciplines. For this purpose to get a thorough picture of ChatGPT's performance, we asked input from students from various colleges under different disciplines and areas in a variety of academic environments.

The goal of this research is to understand and explore the growing role of advanced AI language models like ChatGPT in shaping the future of education and academic excellence. This study looks at how ChatGPT and similar tools may influence teaching, academic support, and research in the coming years, and what advantages and challenges they might bring. To do this, the study focuses on the views of students in Telangana State about using ChatGPT to improve their academic performance. It also examines how students feel about using AI technology in different undergraduate courses.

III. METHODOLOGY

A random sample of 100 students of Telangana State of Various disciplines in UG courses (B.Com, B.Sc & BBA) were communicated with the questionnaire in google form and gathered their opinions or responses about usage of ChatGpt in various aspects like in academics. The data from the survey was subjected to an exploratory analysis to determine the ways in which different Telangana state UG students are utilizing ChatGPT. Further, to determine if students' perspectives on "Can Chat GPT surpass personal teaching at colleges" are independent of different UG disciplines, and to ascertain whether their views on "Can Chat GPT substitute other printing and electronic academic information in future" are independent of different UG courses, a Chi Square test is carried out. The $2\times n$ contingency table for which χ^2 is to be calculated is given below:

Table 1 2xn Contingency Table

B/A	A_1	A_2	...	A_r	...	A_n	Total
B_1	f_1	f_2	...	f_r	...	f_n	N_1
B_2	f_1^1	f_2^1	...	f_r^1	...	f_n^1	N_2

Under the hypothesis of independence of attributes, we have

$$E(f_r) = \frac{N_1(f_r + fr^1)}{N_2 + N_2}, \quad E(f_r^1) = \frac{N_2(f_r + fr^1)}{N_2 + N_2}$$

$$\chi^2 = \sum_{i=1}^{n} \left[\frac{\{f_r - E(f_r)\}^2}{E(f_r)} + \frac{\{f_r^1 - E(f_r^1)\}^2}{E(f_r^1)} \right]$$

$$= \sum_{r=1}^{n} \left[\frac{(N_1+N_2)}{N_1(f_r+f_r^1)} \left\{ f_r - \frac{N_1(f_r+f_r^1)}{N_1+N_2} \right\}^2 + \frac{(N_1+N_2)}{N_2(f_r+f_r^1)} \left\{ f_r^1 - \frac{N_2(f_r+f_r^1)}{N_1+N_2} \right\}^2 \right]$$

$$= \sum_{r=1}^{n} \left[\frac{(N_2 f_r - N_1 f_r^1)^2}{N_1(N_1+N_2)(f_r+f_r^1)} + \frac{(N_1 f_r^1 - N_2 f_r)^2}{N_2(N_1+N_2)(f_r+f_r^1)} \right]$$

$$= \sum_{r=1}^{n} \frac{(N_2 f_r - N_1 f_r^1)^2}{(N_1+N_2)(f_r+f_r^1)} \left(\frac{1}{N_1} + \frac{1}{N_2} \right)$$

$$= \sum_{r=1}^{n} \left[\frac{N_1 N_2}{f_r + f_r^1} \left(\frac{f_r}{N_1} - \frac{f_r^1}{N_2} \right)^2 \right]$$

Here $N_1+N_2 = N = 100$, $n=3$ (UG Courses)

IV. RESULTS & DISCUSSION

This section deals with the detailed data analysis and the results obtained. For the acquired responses from the various students of UG courses (Sample of 100 students) in Telangana, the data is analyzed and the results are as follows.

The usage of Chat GPT in among various student disciplines is given in Figure 1.

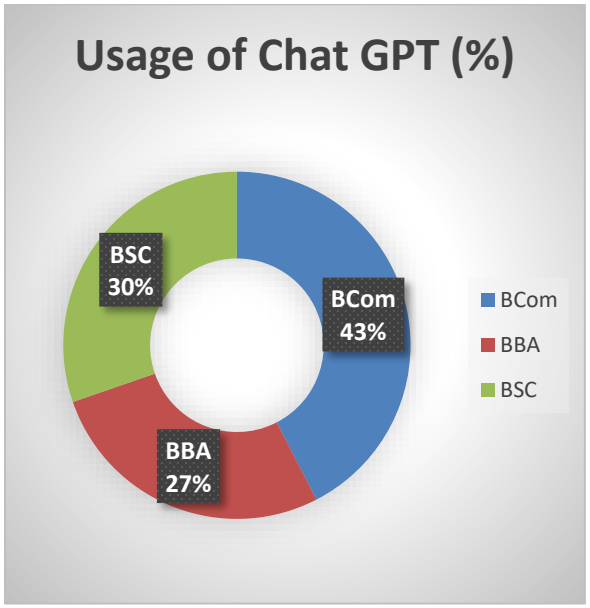

Figure 1. Usage of ChatGPT among Students in Telangana

The student's perspective regarding the knowledge excellence with the help of ChatGPT is illustrated in figure 2.

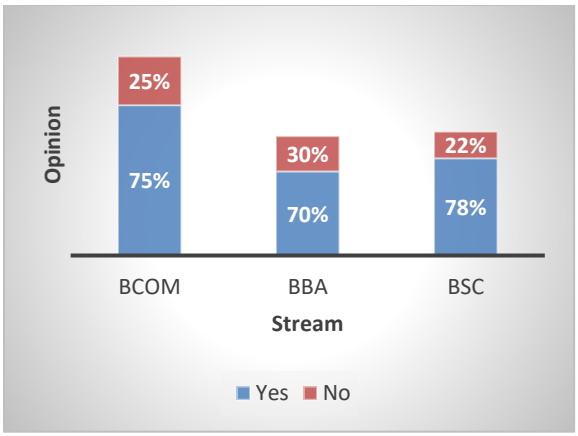

Figure 2. Can ChatGPT information will excel students' knowledge?

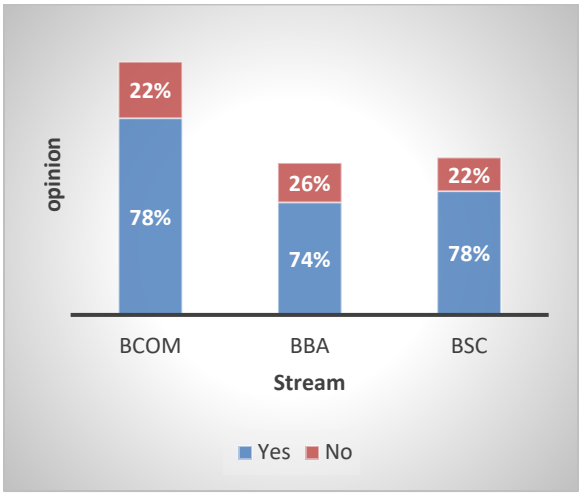

Figure 3. Can Chat GPT can substitute other printing and electronic academic information in future

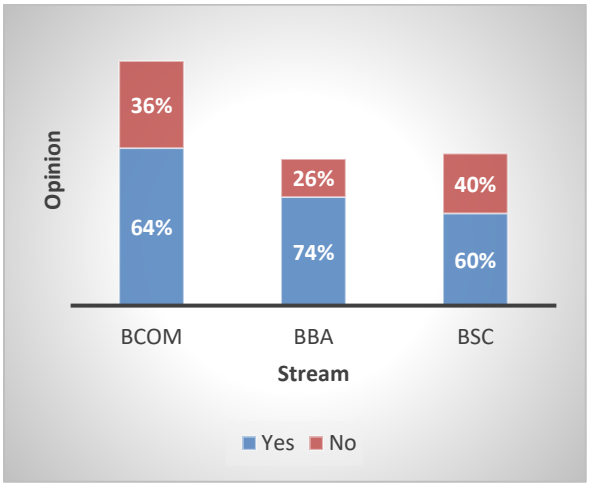

Figure 4. Are AI tools like Chat GPT can surpass personal teaching at colleges

After performing the Chi Square test for independence of attributes for 2x3 contingency table for the two objectives, the results are detailed as follows.

Table 2 – Responses of Students on whether ChatGPT can substitute other printing and electronic academic information in future

Opinion / Stream	Bcom	BBA	BSc	Total
YES	35	20	22	77
NO	10	07	06	23
Total	45	27	28	N=100

The contingency table below i.e., Table 3 provides the following information: the observed cell totals, (the expected cell totals) and [the chi-square statistic for each cell].

Table 3 – Results on using Chi Square statistic for Table 2

	BCOM	BBA	BSc	ROW TOTALS
YES	35 (34.65) [0.00]	20 (20.79) [0.03]	22 (21.56) [0.01]	77
NO	10 (10.35) [0.01]	7 (6.21) [1.10]	6 (6.44) [0.03]	23
COLUMN TOTALS	45	27	28	100 (Grand Total)

The calculated chi-square statistic at 0.05 Level of significance is 0.1849 and the p-value is 0. 911681.Therefore the result is certainly not substantial at $p<0.05$ i.e., Hence we conclude that the student's opinion is independent of the various UG disciplines

Table 4 – Responses of Students on "AI tools like Chat GPT can surpass personal teaching at colleges"

Opinion / Stream	Bcom	BBA	BSc	Total
YES	29	20	17	66
NO	16	07	11	34
Total	45	27	28	N=100

Table 5 - Results on using Chi Square statistic for Table 4

	BCOM	BBA	BSc	ROW TOTALS
YES	29 (29.70) [0.02]	20 (17.82) [0.27]	17 (18.48)[0.12]	66
NO	16 (15.30) [0.03]	7 (9.18) [0.52]	11 (9.52) [0.23]	34
COLUMN TOTALS	45	27	28	100(Grand Total)

For the Table 5, calculated chi-square statistic at 0.05 Level of significance is 1.1815 and the p-value is 0.553907. Therefore, the result is not significant at $p<0.05$ i.e., Hence in this also we conclude that the student's opinion is independent of the various UG disciplines

V. CONCLUSION

There are certainly ways to improve student learning and access, even though the introduction of ChatGPT and its consequences for higher education have generated a lot of criticism. Through this effort, the perspectives of students from different UG disciplines in Telangana State on ChatGPT were brought to light. The feedback mostly centred on issues related to

academic integrity and creative assessment design. The literature review also showed that there hasn't been much student input in the discussion up to this point and that AI technologies have the ability to improve participation and achievement for students from various backgrounds.

From Figure 1, the usage of ChatGPT is highest among B.Com Students i.e., (43%) then followed by B.Sc Students (30%). Further, Figure 2 explains that almost more than 70% of the students accept that the ChatGPT would excel student knowledge. Also from Figure 3, it is clear that more 75% of students in various UG disciplines opine that Chat GPT can substitute other printing and electronic academic information in future. In addition to this, nearly above 60% students in Telangana state have an impression that AI tools like Chat GPT can surpass personal teaching at colleges.

Further, we carried out Chi Square test to assess the independence of student's opinions on various courses on ChatGPT. And we concluded that, the student's views on usage and future of ChatGPT is independent of the various UG disciplines.

The findings of this study can also be expanded upon by future the researchers in various ways like considering the continuous variables like amount of time among various age groups being spent using ChatGPT for information extraction and so on. Future studies should look into how academic staff members perceive about ChatGPT, how much of it is utilized as a teaching tool, and how tasks like assessment have been changed to reduce the possibility of unethical student use.

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