

A Survey to Understand the experience of ChatGPT Usage among Engineering University Students in Bangladesh

Jibon Naher¹, Mizbaul Haque Maruf¹, Syed Tamzid Bakht¹, Syed Samin Sadaf¹

Department of CSE, Islamic University of Technology, Gazipur-1704, Bangladesh
jibon.naher09@iut-dhaka.edu

Abstract. This study explores how university students in Bangladesh utilize ChatGPT, an AI-powered educational tool. Through a survey of 62 students of an engineering institution, the research uncovers that ChatGPT predominantly aids them in educational tasks, such as homework assistance and test preparation. While appreciated for its convenience, concerns exist among the students about accuracy, reliability, and potential overreliance. This study underscores the potential value of ChatGPT in education if used judiciously, highlighting the importance of striking a balance with conventional learning methods. It also advocates for the formulation of clear usage guidelines in educational institutions and recommends further research to understand the long-term effects on students' learning and academic performance.

Keywords. ChatGPT; Learning; Tertiary; Student; Bangladesh

1. Introduction

The rapid advancement of artificial intelligence (AI) has generated significant interest in exploring its potential applications and impacts across various domains. A notable milestone in AI progress is ChatGPT, introduced by OpenAI in November 2022, which swiftly gained immense popularity, surpassing adoption rates of major social media platforms like Facebook, Twitter, and Instagram, reaching one million users in just five days [3, 7]. The adaptability and productivity-enhancing capabilities of ChatGPT have sparked discussions about its transformative potential in numerous industries [24], with education being a particularly prominent topic of consideration. While some view ChatGPT as a catalyst for a paradigm shift in education and other fields, concerns have been raised regarding its potential for unethical use, labeling it as a disruptive technology [4, 14, 10, 15]. Nevertheless, García-Peñalvo [8] argues that objections to ChatGPT primarily stem from resistance to change rather than inherent disruptiveness. Since its public release, educators have shown varying responses to ChatGPT's ability to perform complex instructional tasks. As exemplified in the work of Baidoo-Anu and Owusu Ansah [2], a deeper understanding of ChatGPT's impact on education and the concerns expressed by stakeholders necessitates further investigation and research.

AI technologies, exemplified by ChatGPT, have exhibited considerable potential in reshaping the methods through which students acquire knowledge and interact with information. With the continuous advancement and increased accessibility of AI-driven tools, there arises a pressing need to assess their impact on students and educational institutions, particularly within the context of universities. The introduction of ChatGPT into the realm of education has triggered both admiration and controversy. Some

proponents argue that AI-based applications like ChatGPT are destined to become integral components of writing, akin to how calculators and computers have become ubiquitous in mathematics and science. Consequently, they advocate for involving students and educators in harnessing such tools to enhance the teaching and learning experience instead of imposing restrictions [17]. While the integration of AI technologies in education holds the potential to revolutionize traditional educational practices, facilitate personalized learning journeys, and cultivate essential soft skills [6], it also gives rise to critical questions concerning potential challenges and impediments associated with this technological transition. Thus, it becomes imperative to gain a comprehensive understanding of the merits and demerits of ChatGPT from diverse perspectives before its integration into educational environments. This research contributes to this endeavor by scrutinizing students' viewpoints on the utilization of ChatGPT in tertiary education in Bangladesh.

2. Literature Review

The incorporation of AI-powered chatbots into the realm of education holds the potential to enhance student engagement, streamline learning processes, and elevate academic achievements. Notably, research conducted by Winkler and Söllner [23] illustrates that chatbots can elevate the overall learning experience by stimulating student interaction and fostering success in higher education. Deng and Yu [5] further emphasize that chatbots can act as catalysts for heightened student motivation, increased engagement, and the potential for improved learning outcomes. Various other investigations have underscored the effectiveness of chatbots in higher education, demonstrating their capacity to alleviate the workload of educators and enhance student contentment [16]. Moreover, chatbots have exhibited the capability to notably augment learning outcomes in specialized domains, such as computer science [1].

Despite the potential advantages associated with the integration of large language models like ChatGPT into educational environments, a consensus among educators regarding the optimal utilization of this technology has yet to be reached. Recent research endeavors have delved into the possibilities and challenges linked to the adoption of ChatGPT in educational contexts. For instance, Kasneci et al. [11] conducted an evaluation of the prospective benefits and hazards associated with ChatGPT in education, whereas Willems [22] engaged in a discourse regarding the broader ethical ramifications of incorporating such models within university settings. The study by Malinka et al. [12] focused on examining the educational implications of ChatGPT and posed questions about its preparedness for being utilized in the pursuit of a university degree. Furthermore, Rudolph et al. [13] conducted a critical examination of ChatGPT's potential impact on traditional assessment methods within higher education. Halaweh [9], on the other hand, concentrated on the responsible implementation of ChatGPT in educational contexts and put forth strategies to ensure its ethical and effective use. While these investigations provide valuable insights into the potential advantages of ChatGPT for educational purposes, they simultaneously underscore the necessity for additional research and a conscientious examination of the ethical considerations linked to the deployment of this technology.

Scholars have voiced apprehensions regarding the potential ramifications of integrating ChatGPT into educational environments. In particular, Thorp [20] presented a critical viewpoint regarding the use of ChatGPT in education, emphasizing the potential implications in scientific and academic domains. Thorp drew attention to concerns related to the content generated by ChatGPT on diverse topics, highlighting the fact that ChatGPT's academic writing capabilities are still evolving. This underscores the need for educators to reconsider their instructional approaches and devise assessments that challenge AI solutions. Conversely, Baidoo-Anu and Owusu Ansah [2] scrutinized the potential advantages of ChatGPT in teaching and learning. They identified merits such as personalized learning, interactive engagement, and formative assessment, all of which contribute to effective teaching and continuous feedback. Nevertheless, they also acknowledged certain challenges associated with ChatGPT, including the generation of misinformation, biases in data training, and privacy-related concerns.

An effective approach to investigating the adoption of ChatGPT among students involves gaining insights from their unique perspectives. Despite some studies delving into user opinions on ChatGPT and similar generative AI tools, the available research in this area remains limited. For instance, Tlili et al. [21] recently published a journal article that performed an analysis of social media sentiments surrounding ChatGPT in educational contexts, revealing predominantly positive public discourse on the topic. Sullivan et al. [19] conducted an extensive examination of news articles discussing ChatGPT within higher education. Furthermore, Firat [6] conducted a thematic analysis based on the comments of 14 scholars, focusing on their perceptions of ChatGPT's usage in universities.

Nevertheless, there remains a scarcity of studies that specifically delve into the viewpoints of both scholars and students concerning the swift integration of ChatGPT, particularly within Southeast Asia. A survey conducted by Statista [18] indicated that individuals in Southeast Asia have voiced apprehensions regarding various negative facets of ChatGPT, potentially impeding its viability as a tool. Therefore, gaining an in-depth understanding of students' perspectives regarding the implementation of ChatGPT in higher education holds paramount importance. We firmly believe that the findings of our research, conducted in Bangladesh at a time when discussions surrounding the adoption of ChatGPT in universities are prominently featured, will make a substantial contribution to the existing literature on this subject.

3. Research Questions and Methodology

A survey was conducted to collect data from the students, with the focus on the following three research questions:

RQ1: What are the primary motivations for ChatGPT usage among university students in Bangladesh?

RQ2: What are the students' experience on using chatGPT for educational purposes?

The survey had 8 MCQs, 3 Likert scales, and 1 open ended question. We used Google Forms to create the survey. The survey had three main parts: a. demographic information; b. students' purpose of using chatGPT; c. positive and negative experience of using chatGPT.

The questions were designed to gather usage patterns and opinions on the potential impact of ChatGPT on students. The only open ended question we had was about students' feedback on using ChatGPT. We did a thematic content analysis of the answers to this question which allowed for the identification of emerging themes and patterns in the participants' opinions.

4. Result

4.1 Demographic information: As part of the demographic data collection, we solely obtained gender information to ascertain the distribution of male and female participants in the context of ChatGPT usage. The results revealed a significant disparity between male and female users. Only 12.9% of participants identified themselves as female, while the percentage of male participants was 85.5%. [Table 1](#) presents the counts and corresponding percentages of gender among the participants. Additionally, one student opted to choose "prefer not to say" as their gender option.

Table 1. Demographic information of the participants

Gender	Count	Percentage
Male	53	85.5%
Female	8	12.9%
Prefer not to say	1	1.6%

4.2 RQ1: Purpose of using ChatGPT among university students in Bangladesh

Based on the comments from students, there are six purposes for which students use ChatGPT, as shown in [Table 2](#). The details of each of these are explained later.

Table 2: Purposes of using ChatGPT among university students in Bangladesh

Reason	Percentage
a. Course related learning	41%
b. Getting help in homework/assignments	27%
c. Getting help in exam preparation	16%
d. Personal learning	8%
e. Information or guidelines about anything	7%
f. Asking stupid questions	1%

Course related learning: ChatGPT can be used to help students learn course material, such as by answering questions, providing summaries of topics, and generating practice problems.

Getting help with homework/assignments: ChatGPT can be used to help students complete their homework and assignments, such as by providing step-by-step instructions, generating code, and writing essays.

Getting help in exam preparation: ChatGPT can be used to help students prepare for exams, such as by providing practice questions, generating flashcards, and reviewing course material.

Personal learning: ChatGPT can be used to learn about a variety of topics, such as by answering questions, providing summaries of topics, and generating creative content.

Information or guidelines about anything: ChatGPT can be used to find information on a variety of topics, such as by answering questions, providing summaries of topics, and generating creative content.

Asking stupid questions: ChatGPT can be used to ask questions, even if they are considered stupid. This can be helpful for students who are struggling with a concept or who are not sure where to find the information they need. It was a comment from just one student.

4.3 RQ2: Experience of using chatGPT from the students perspective

In our questionnaire, there were a total of three questions related to RQ2, two MCQs, and one open-ended question. The MCQ questions inquired about the response time and answer quality of ChatGPT. Regarding the response time, 41.9% of participants stated it depends on the question or topic, 40.3% considered it average, and 24.2% found it super fast. From the results regarding the quality of answers, 45.2% indicated it depends on the question or topic, 33.9% found it average, and 30.6% considered it very good. So both answers indicate that for generic or typical questions, ChatGPT does really well; however, for subject based knowledge, it may not be very good and sometimes give the wrong answer.

The third one-ended question in this part was “Share one positive and one negative experience of using chatGPT”. Eight positive and nine negative themes emerged from the analysis of the comments on this question. First, we divide the comments into positive and negative parts. After dividing the comments into positive and negative, we had 48 positive comments and 45 negative comments. [Table 3](#) summarizes some relevant quantities related to the thematic analysis performed.

Table 3: Simple statistics related to the identified themes.

	Positive	Negative
Number of comments	48	45
Number of comments coded	46	40
Number of themes identified	8	9

Out of 48, we discarded two positive comments because they were ambitious. The remaining 46 positive comments were used in the thematic content analysis. The main themes identified through the thematic content analysis and one example comment on each theme are presented in [Table 4](#). The example comment is directly copied from students' responses, so there may be some grammatical mistakes.

Table 4: Eight positive themes identified from the feedback

Theme	Example comment
P1: Time saving	<i>My positive experience was that I was able to complete one of my largest assignments in a night</i>
P2: Convenient search	<i>Some topics which aren't found easily in google searches, can be found easily</i>
P3: Educational matters	<i>chatgpt helps understand a hard topic easily using explanations and examples</i>
P4: Subject based knowledge	<i>it will help the developers very much</i>
P5: Well organized answers	<i>Positive aspects are, its very convenient and easy to use, and also like the fact how it arranges my answer sometimes in bullet Points sometimes in a separate paragraph</i>
P6: Conversational	<i>The first time I realized ChatGPT is conversational, that is I can continue prompting without describing the context every single time made me happy.</i>
P7: Personal learning	<i>it improves my personal skills</i>
P8: Helpful in general	<i>Very much helpful</i>

Similarly, out of 45, we discarded five negative comments, because they were ambitious. The remaining 40 negative comments were used in the thematic content analysis. The main themes identified through the thematic content analysis and one example comment on each theme are presented in [Table 5](#).

Table 5: Nine negative themes identified from the feedback

Negative Theme	Example comment
N1: Wrong/irrelevant answers	<i>It sometimes interpretes a single prompt different ways some of which might not be accurate</i>
N2: Domain dependency	<i>sometimes not very good at solving mathematical problems</i>
N3: Confidently give wrong answers/fake information	<i>According to my experience,the worst limitation that Chat-GPT has is whenever it doesn't know answer to any question instead of saying I don't know the answer,it gives incorrect answers with high confidence</i>
N4: No validation source	<i>i am very sceptical about the validation of some information as there are no references and no citation, so its very hard for us, specially University students to directly use the information from the chat as we require valid sources of information. And currently I dont consider chat gpt a valid source of information</i>
N5: Blocks creativity and learning	<i>Spoiling creativity</i>
N6: Stuck in the middle	<i>sometimes it stops generating in the middle of an answer and stuck there for a long time. It's very annoying</i>
N7: Job insecurity	<i>It's helpful but one many people may lose their job</i>
N8: Limitation of cutoff date	<i>It doesn't have any information about 2022 and further</i>
N9: Possibility of using unethically	<i>people will use it in unethical things and so on</i>

5. Discussion and Conclusion

Based on the data gathered in this study, it is evident that using ChatGPT in educational learning comes with both advantages and disadvantages. However, it is essential to acknowledge the benefits from a student's perspective, such as facilitating personal learning and convenient information retrieval. While some educational institutions might initially be hesitant to incorporate ChatGPT in the classroom, we recommend considering its integration as students are likely to utilize it independently. Embracing the use of this tool can provide students with equal opportunities to enhance their learning experiences and foster creativity.

As the education field undergoes rapid transformations driven by the emergence of technologies like ChatGPT, educators and institutions should focus on integrating these tools for the betterment of students. Efforts should be made to address the identified negative aspects of using ChatGPT in educational

settings, such as verifying answer correctness and enhancing responses in specific subjects where ChatGPT may be less proficient. Further research and development should concentrate on optimizing the utilization of ChatGPT in educational learning to mitigate its limitations.

This study specifically examined the current scenario of ChatGPT usage among students at higher educational levels in Bangladesh. Albeit with a small sample size, the findings strongly suggest that educational settings should consider the integration of ChatGPT into their systems. To gain a comprehensive understanding, further research should be conducted to explore its impact at other educational levels, such as secondary and college levels. This would provide valuable insights into the potential benefits and challenges of using ChatGPT across different educational contexts, and explore ways to overcome these challenges.

References

- [1] Alotaibi, R., Al-Shehri, S., Al-Harbi, R., & Al-Mutairi, M. (2020). Enhancing learning outcomes through chatbot technology in computer science education. *Education and Information Technologies*, 25(6), 5167-5183. <https://doi.org/10.1007/s10639-020-10182-8>
- [2] Baidoo-Anu, D., & Ansah, L. (2023). Education in the Era of Generative Artificial Intelligence (AI): Understanding the Potential Benefits of ChatGPT in Promoting Teaching and Learning. *Social Science Research Network*. <https://doi.org/10.2139/ssrn.4337484>
- [3] Biswas, S. (2023). Role of Chat GPT in Education. Available at SSRN 4369981. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4369981
- [4] Bozkurt, A. (2023). Generative artificial intelligence (AI) powered conversational educational agents: The inevitable paradigm shift. Zenodo (CERN European Organization for Nuclear Research). <https://doi.org/10.5281/zenodo.7716416>
- [5] Deng, X., & Yu, Z. (2023). A meta-analysis and systematic review of the effect of chatbot technology use in sustainable education. *Sustainability*, 15(4), 2940. <https://doi.org/10.3390/su15042940>
- [6] Firat, M. (2023). What ChatGPT means for universities: Perceptions of scholars and students. *Journal of Applied Learning and Teaching*, 6(1). <https://doi.org/10.37074/jalt.2023.6.1.22>
- [7] Firat, M. (2023a). How chat GPT can transform autodidactic experiences and open education. Department of Distance Education, Open Education Faculty, Anadolu Unive. OSF Preprints. <https://doi.org/10.31219/osf.io/9ge8m>
- [8] García-Peñalvo, F. J. (2023). The perception of Artificial Intelligence in educational contexts after the launch of ChatGPT: Disruption or Panic?. <https://repositorio.grial.eu/bitstream/grial/2838/1/01.pdf>
- [9] Halaweh, M. (2023). ChatGPT in education: Strategies for responsible implementation. *Contemporary Educational Technology*, 15(2). <https://doi.org/10.30935/cedtech/13036>
- [10] Haque, M. U., Dharmadasa, I., Sworna, Z. T., Rajapakse, R. N., & Ahmad, H. (2022). "I think this is the most disruptive technology": Exploring Sentiments of ChatGPT Early Adopters using Twitter Data. arXiv preprint arXiv:2212.05856. <https://arxiv.org/pdf/2212.05856.pdf>
- [11] Kasneci, E., Sebler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., ... & Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large

- language models for education. *Learning and Individual Differences*, 103, 102274.
<https://doi.org/10.1016/j.lindif.2023.102274>
- [12] Malinka, K., Perešini, M., Firc, A., Hujňák, O., & Januš, F. (2023). On the educational impact of ChatGPT: Is Artificial Intelligence ready to obtain a university degree?. arXiv preprint. arXiv:2303.11146. <https://doi.org/10.48550/arXiv.2303.11146>
- [13] Rudolph, J., Tan, S., & Tan, S. (2023). ChatGPT: Bullshit spewer or the end of traditional assessments in higher education?. *Journal of Applied Learning and Teaching*, 6(1). Advance online publication. <https://doi.org/10.37074/jalt.2023.6.1.9>
- [14] Sallam, M. (2023, March). ChatGPT utility in healthcare education, research, and practice: systematic review on the promising perspectives and valid concerns. In *Healthcare* (Vol. 11, No. 6, p. 887). MDPI. <https://www.mdpi.com/2227-9032/11/6/887>
- [15] Sardana, D., Fagan, T. R., & Wright, J. T. (2023). ChatGPT: A disruptive innovation or disrupting innovation in academia?. *The Journal of the American Dental Association*, 154(5), 361-364.
https://odontologos.com.co/assets/doc/news/2023-05-03_174124PIIS0002817723000752-2.pdf
- [16] Sengupta, S., & Chakraborty, T. (2020). Use of chatbots in higher education: A study of student engagement and satisfaction. *Education and Information Technologies*, 25(6), 5147-5165. <https://doi.org/10.1007/s10639-020-10171-x>
- [17] Sharples, M. (2022). Automated Essay Writing: An AIED Opinion. *International Journal of Artificial Intelligence in Education*, 32(4), 1119–1126.
<https://doi.org/10.1007/s40593-022-00300-7>
- [18] Statista. (2023, May 10). Top user concerns about ChatGPT SEA 2023.
<https://www.statista.com/statistics/1382944/sea-top-user-concerns-about-chat-gpt/>
- [19] SullivanA, M., KellyB, A., & McLaughlanC, P. (2023). ChatGPT in higher education: Considerations for academic integrity and student learning. *Journal of Applied Learning and Teaching*, 6(1). <https://doi.org/10.37074/jalt.2023.6.1.17>
- [20] Thorp, H. H. (2023). ChatGPT is fun, but not an author. *Science*, 379(6630), 313.
<https://www.science.org/doi/10.1126/science.adg7879>
- [21] Tlili, A., Shehata, B., Adarkwah, M. A., Bozkurt, A., Hickey, D. T., Huang, R., & Agyemang, B. (2023). What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart Learning Environments*, 10(1), 1-24.
<https://slejournal.springeropen.com/articles/10.1186/s40561-023-00237-x>
- [22] Willems, J. (2023). ChatGPT at universities – the least of our concerns.
<http://dx.doi.org/10.2139/ssrn.4334162>
- [23] Winkler, R., & Söllner, M. (2018, July). Unleashing the potential of chatbots in education: A state-of-the-art analysis. In *Academy of Management Proceedings* (Vol. 2018, No. 1, p. 15903). Briarcliff Manor, NY 10510: Academy of Management.
<https://doi.org/10.5465/AMBPP.2018.15903abstract>
- [24] Xames, M. D., & Shefa, J. (2023). ChatGPT for research and publication: Opportunities and challenges. Available at SSRN 4381803. DOI:
<https://doi.org/10.37074/jalt.2023.6.1.20>