



Article

The Impact of using Chat-Generative Pre-Trained Transformer on students

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Abstract

The integration of artificial intelligence (AI) tools in education has garnered significant attention, with Chat Generative Pre-Trained Transformers (ChatGPT) emerging as a potential aid in enhancing student learning experiences. This study investigates the impact of ChatGPT on students across various higher education institutions using a mixed-methods research design. Quantitative data were collected through online surveys, complemented by qualitative interviews to gain deeper insights into students' experiences. A total of 405 undergraduate students from state universities and colleges (48.59%), local colleges (31.71%), and private institutions (19.7%) participated. Results revealed an overall positive perception, with a high average weighted mean of 3.85, indicating that ChatGPT supports students in understanding complex concepts, improving writing and critical thinking skills, increasing engagement, and facilitating collaborative learning. Notably, male students reported a significantly higher impact than females ($t = -4.38, p < .001$), and students from state universities experienced a greater positive effect compared to their counterparts in local and private institutions ($F = 3.23, p = .044$). These findings suggest that ChatGPT plays a constructive role in enhancing academic performance and learner engagement, although concerns regarding overreliance, accuracy, and academic integrity remain. The study offers valuable insights for educators, developers, and policymakers aiming to integrate AI technologies responsibly into educational settings.

Keywords: Academic Performance, Artificial Intelligence, ChatGPT, Educational Technology, Gender Difference, Higher Education, Learning Impact

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Introduction

The rapid advancements in artificial intelligence (AI) and natural language processing (NLP) technologies have recently reshaped various aspects of human interaction and problem-solving. One of the most notable advancements is the Generative Pre-trained Transformer (GPT) models, like OpenAI's ChatGPT, which are impressive because they can create clear and relevant text responses in many different areas. These advancements have significantly impacted industries ranging from customer service to education, with ChatGPT being particularly noted for its ability to engage in human-like conversations. Despite the extensive use of these models, questions about their effectiveness and implications for specific applications, especially in educational contexts, remain largely unexplored (Schei et al., 2024).

The educational potential of AI-powered chatbots like ChatGPT has attracted the interest of numerous educational institutions looking to improve students' learning experiences. These chatbots employ machine learning algorithms to analyze natural language inputs and provide personalized, real-time responses, creating more interactive learning environments (Krstić et al., 2022). By simulating human-like interactions, ChatGPT offers educators the possibility of enhancing traditional pedagogical methods while addressing students' diverse needs and learning preferences (Baidoo-Anu et al., 2023). As the educational sector increasingly integrates AI technologies, understanding how these tools impact student outcomes and engagement is crucial.

While the potential of chatbots in education is vast, various platforms offer different features suited to distinct needs. For instance, OpenAI's ChatGPT excels at producing context-aware conversational responses, enabling effective communication in applications like virtual assistants, content creation, and educational support (Saravanan et al., 2021). Platforms such as Rasa, an open-source conversational AI framework, focus on creating customized AI assistants capable of handling more nuanced, contextual dialogues (Boytssov et al., 2020). These platforms offer powerful solutions across industries, but their effectiveness in education warrants deeper examination, particularly regarding their influence on student learning.

ChatGPT has become integral to various sectors, including customer support, healthcare, legal services, and education. In these domains, ChatGPT streamlines processes, improves communication, and enhances user experiences. Whether assisting students with homework, generating creative content, or providing technical support, the deployment of ChatGPT and similar models has marked a significant shift in how industries interact with consumers and clients (Vaswani et al., 2021). Despite the success of these models, their integration into education, particularly regarding

student outcomes, has not been sufficiently researched, indicating that there must be empirical studies focusing on their effectiveness in academic settings.

While AI-powered chatbots like ChatGPT demonstrate significant potential to transform educational experiences, it is crucial to acknowledge their limitations. These systems are not infallible and may occasionally provide incorrect or contextually irrelevant responses, which could hinder their effectiveness in learning environments. Furthermore, ethical concerns surrounding AI, including data privacy issues, algorithmic bias, and the responsible deployment of AI technologies, must be addressed (Verma, 2016). These concerns highlight the necessity for thoughtful integration of AI systems in educational contexts, ensuring their use does not inadvertently undermine the learning experience or introduce unintended consequences.

Despite growing interest in AI chatbots in education, there remains a significant gap in empirical research exploring their effects on student learning outcomes and engagement. While several studies have demonstrated the potential of AI tools in education, few have rigorously examined the impact of ChatGPT specifically. It is crucial to assess how these technologies affect student performance and engagement to optimize their use in educational settings (Anderson et al., 2021). Evaluating student interactions with ChatGPT through both qualitative and quantitative methods will offer helpful ideas about how these tools can be effectively integrated into educational curricula.

This study seeks to bridge this research gap by evaluating the impact of ChatGPT on student learning outcomes and engagement in educational settings. Specifically, it explores the potential benefits and challenges of using ChatGPT for educational purposes, with a focus on student performance, user satisfaction, and overall educational experience. The study will employ a mixed-methods approach, gathering quantitative data on student performance and user feedback to provide a comprehensive understanding of ChatGPT's role in education. Additionally, the findings will inform educators, policymakers, and educational technologists on best incorporating AI tools into the curriculum.

The ultimate goal of this research is to add to the larger discussion about artificial intelligence's place in education and how it might improve student learning. Through this study, we aim to provide evidence-based recommendations for integrating AI-powered chatbots into educational practices, helping educators and institutions make informed decisions about the future of teaching and learning in the AI age.

Methodology

This study utilized a mixed-methods research design to comprehensively explore the impact of Chat Generative Pre-Trained Transformer (ChatGPT) on students' academic experiences. By integrating both quantitative and qualitative approaches, the study aimed to gather strong information about how students learn, feel, and perform when using ChatGPT.

Participants and Sampling procedures

Participants consisted of undergraduates from various academic disciplines across state universities and colleges, local colleges, and private higher education institutions in the province of Bulacan, Philippines. Although the study initially applied a purposeful sampling strategy to ensure institutional and disciplinary diversity, the actual method of data collection—through an online Google Form—aligns more closely with a convenience sampling approach. This strategy enabled broader access and participation but also introduced potential limitations in representativeness due to voluntary self-selection.

Research Instrument Development and Validation

The researcher created a structured questionnaire to gather information on four main topics: (1) demographic profile, (2) how often and why people use ChatGPT, (3) a 10-item Likert scale measuring the perceived academic impact of ChatGPT, and (4) open-ended questions about challenges and suggestions for improvement.

The researcher conducted a two-step validation process to establish the validity and reliability of the instrument.

1. Content and face validation were carried out by three academic experts in research, education, and educational technology. Their insights were used to refine the questionnaire items' clarity, structure, and relevance.
2. A pilot study was then conducted with 15 undergraduates from a state university and a local college not included in the main study sample. Feedback from the pilot respondents led to minor modifications in item phrasing for better clarity and coherence.

To assess the internal consistency of the Likert-scale items, Cronbach's alpha was computed using pilot data, resulting in a high-reliability coefficient of 0.973, which exceeds the acceptable threshold of 0.70.

Data Collection and Analysis

Quantitative data were collected electronically through the finalized questionnaire distributed via Google Forms. Descriptive statistics, including means, standard deviations, and frequency distributions, were employed to analyze general usage trends and ChatGPT perceptions. Researchers conducted inferential statistical tests, specifically independent samples t-tests and Welch's ANOVA, to assess differences in perceived impact based on gender and type of institution.

The study utilized Jamovi, a free and open-source statistical software platform for statistical analysis. Jamovi was selected for its accessibility, ease of use, and powerful statistical capabilities comparable to commercial alternatives like SPSS. The software provided an efficient and transparent means for performing both descriptive and inferential statistical analyses.

Qualitative data gathered through open-ended survey responses and semi-structured interviews were subjected to thematic analysis. Transcripts were coded manually to identify recurring themes and insights related to students' learning experiences, benefits, and concerns regarding ChatGPT. This qualitative component served to contextualize and enrich the quantitative findings.

Ethical Considerations

This study adhered to ethical standards for research involving human participants. Prior to data collection, informed consent was obtained from all respondents. Anonymity and confidentiality were ensured throughout the study, and participation was strictly voluntary. Pilot respondents were told their data would only be used for instrument validation and not in the final analysis.

Results and Discussion

A total of 318 respondents participated in the survey, providing valuable insights into demographic profiles, academic disciplines, and patterns of ChatGPT usage.

As illustrated in Figure 1, the gender distribution was skewed slightly toward female respondents (56.9%) compared to male respondents (43.1%). While this reflects a higher level of female engagement in the study, it also raises the possibility of gender-based differences in the use of AI tools, which may influence the interpretation of other results.

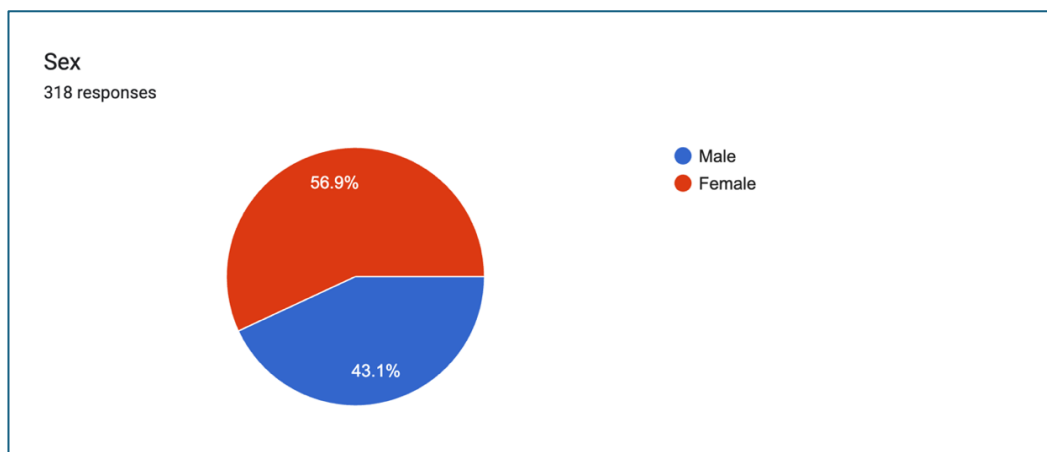


Figure 1. Sex Distribution of Respondents

In terms of academic discipline (Figure 2), Information Technology Education represented the largest share of respondents (36.2%), followed by education (21.4%), Engineering and Architecture (15.4%), Health Allied (12.3%), Business and Management (10.7%), Industrial Technology (1.6%), and Other disciplines (2.5%). This broad participation suggests that ChatGPT is being adopted across diverse fields. However, the dominance of IT students might skew results toward more favorable views of AI tools, as these users are typically more exposed to or comfortable with technology.

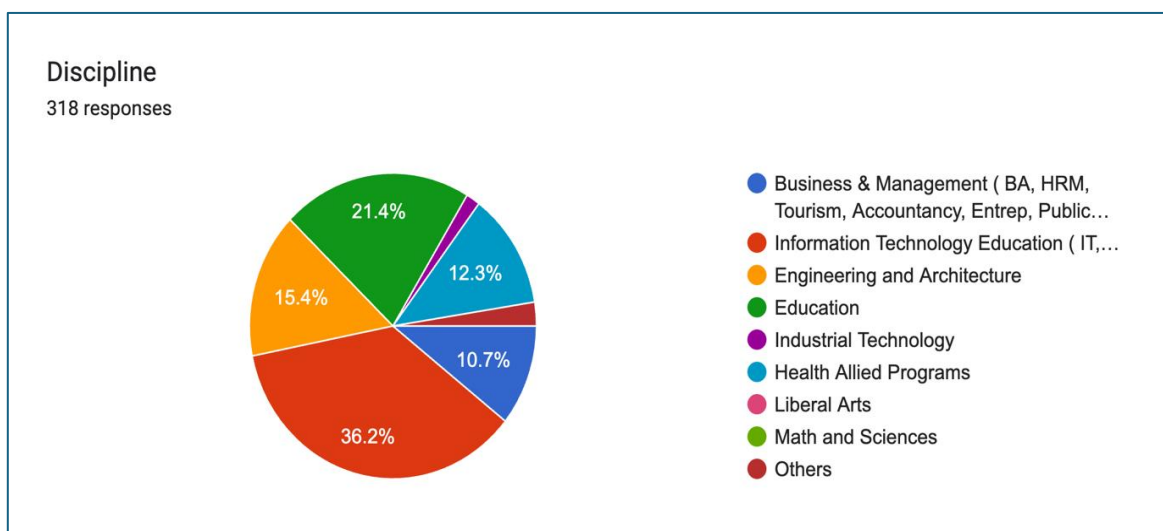


Figure 2. Academic Discipline Distribution of Respondents

Regarding school classification (Figure 3), State Universities and Colleges comprised the largest portion (48.59%), followed by Local Colleges (31.71%) and Private Institutions (19.7%). This imbalance may reflect broader enrollment patterns, but it is also possible that students in public institutions are more actively exploring or

experimenting with free or accessible technologies like ChatGPT due to resource constraints.

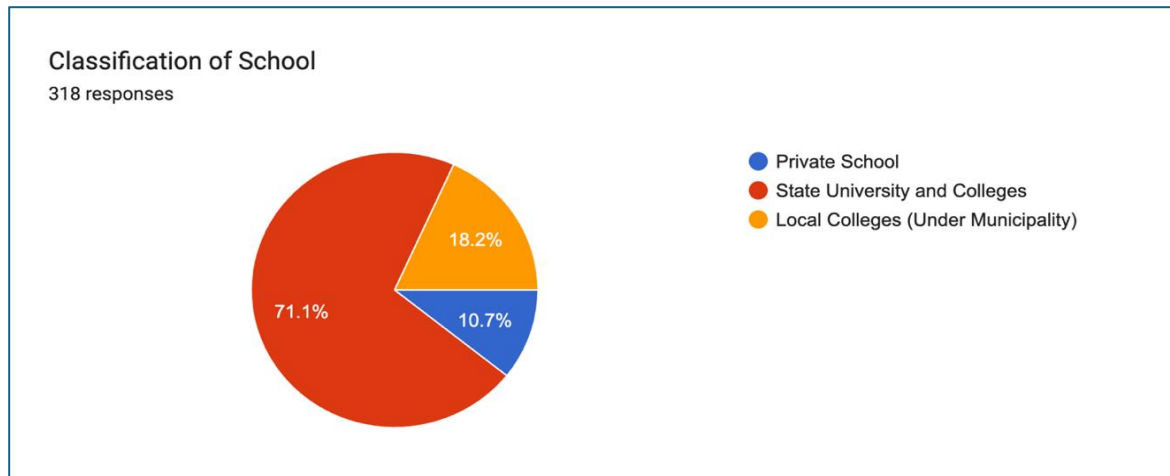


Figure 3. Classification of Respondents' Schools

As shown in Figure 4, 51.6% of respondents reported using ChatGPT regularly for studying, while 21.4% used it occasionally, 18.2% usually, 4.4% seldom, and 4.4% have never used the tool. This widespread use highlights the increasing reliance on AI-assisted learning. However, it is important to critically consider potential downsides, such as over-dependence on AI-generated content, reduced critical thinking, or academic dishonesty. Furthermore, the relatively high proportion of regular users may indicate both the benefits (e.g., accessibility and efficiency) and challenges (e.g., lack of proper guidance or ethical considerations) associated with such tools.

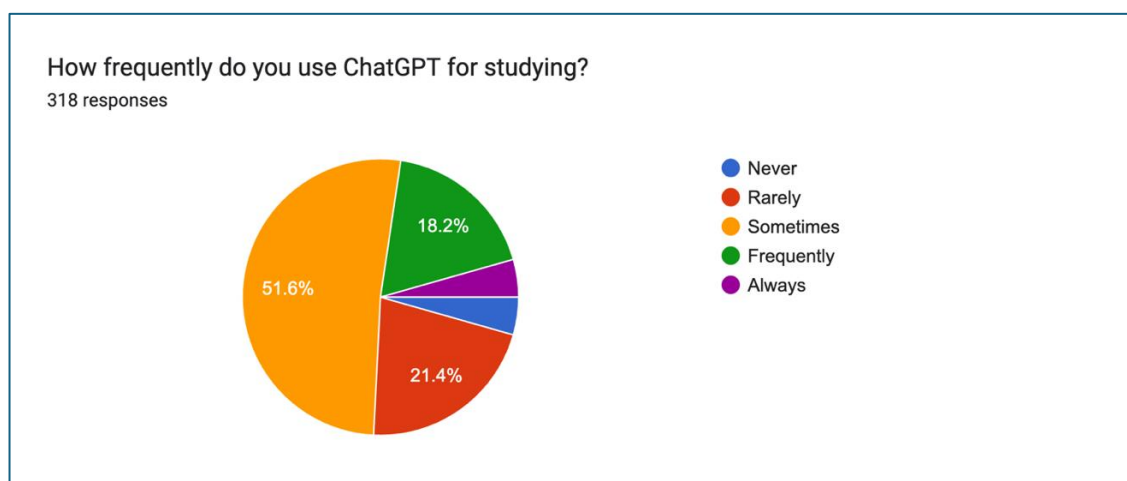


Figure 4. Frequency of ChatGPT Use for Studying

ChatGPT's conversational interface increases user engagement by emulating natural discussions. Halaweh (2023) describes how ChatGPT's interactive discourse features encourage active involvement and long-term engagement in educational activities. ChatGPT promotes a conversational learning environment, encouraging students to ask questions, seek clarification, and participate in discussions, thereby improving their learning experience.

Figure 5 illustrates respondents' perceptions of ChatGPT's most useful features. The data shows that the most popular feature, chosen by more than half of the participants (52.2%), is ChatGPT's ability to give explanations, followed by answering questions (27.4%), making summaries (8.8%), generating text (8.2%), and other features (3.5%).

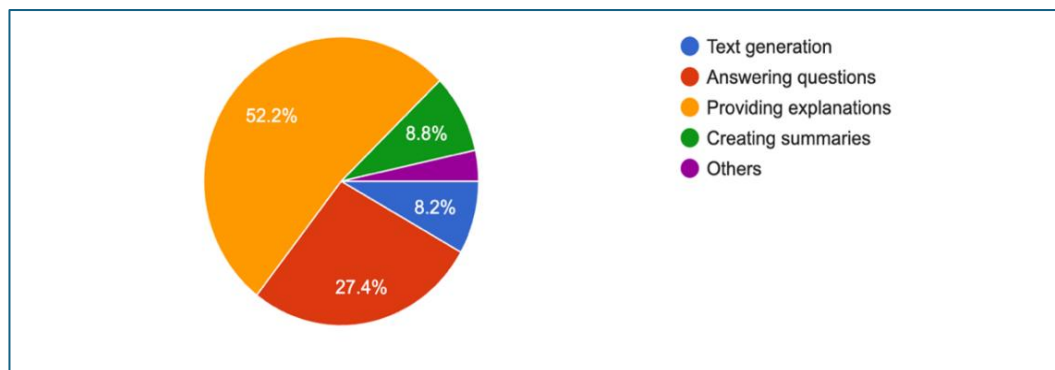


Figure 5. Respondents' perception on ChatGPT's most useful features

The dominant preference for explanatory responses suggests that students value ChatGPT primarily as a cognitive support tool, capable of demystifying complex academic content. This function fits with Vygotsky's (1978) sociocultural theory of scaffolded learning, which says that learners improve when they get help that connects what they already know to what they can learn next. ChatGPT, acting as a form of "cognitive scaffolding," allows learners to receive immediate, on-demand explanations that promote deeper comprehension—especially when instructors are not immediately available.

Moreover, the high percentage attributed to answering questions highlights ChatGPT's role in enabling self-directed inquiry. When viewed through the lens of constructivist learning theory, this use represents an important shift from teacher-dependent instruction to student-driven exploration. In this capacity, ChatGPT empowers learners to actively engage in knowledge construction by posing questions and refining their understanding based on dynamic AI feedback.

While less frequently cited, the remaining categories, creating summaries, generating text, and other functions, still illustrate the platform's versatility. These features reflect ChatGPT's potential to enhance productivity, particularly in information synthesis and content generation tasks. Such capabilities are particularly useful in research-heavy or writing-intensive disciplines, where managing large volumes of information is essential.

Finally, the findings indicate that students primarily value ChatGPT for its explanatory clarity and responsive support, both of which contribute to enhanced engagement and learning efficacy. Yet, to maximize its educational potential, institutions must approach AI integration with strategic oversight, promoting digital literacy and critical thinking alongside technological adoption.

Figure 6 presents the top three purposes for which respondents reported using ChatGPT: (1) to obtain general information or guidance on various topics, (2) to assist with homework and academic assignments, and (3) to support personal learning. These findings offer insight into how students integrate AI tools into their academic routines and self-directed learning strategies.

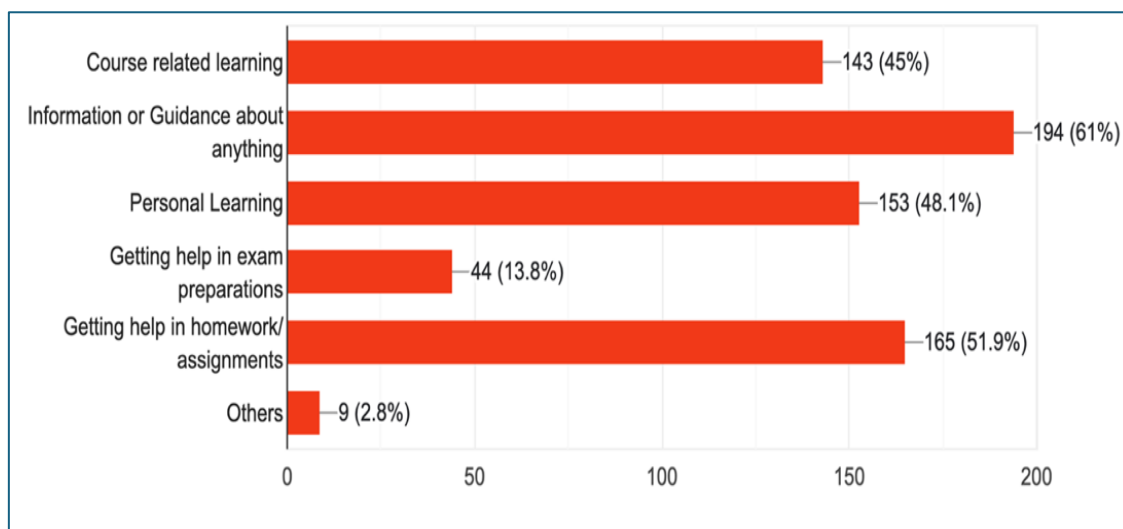


Figure 6. Reasons in using ChatGPT

The predominant use of ChatGPT for information seeking and academic support reflects students' inclination to leverage AI for immediate and context-relevant assistance. This aligns with the findings of Mai et al. (2023), who emphasized that GPT-based tools provide not only fast access to knowledge but also personalized feedback mechanisms that help shape students' cognitive and affective learning experiences. From a theoretical standpoint, these uses correspond with constructivist learning theories, which posit that learners build new knowledge through active

engagement and meaningful interaction with content. ChatGPT's natural language interface supports this interaction by adapting explanations based on user queries, thereby reinforcing personalized knowledge construction.

The second most common use—assisting with homework and assignments—raises critical pedagogical considerations. While such usage can enhance efficiency and reduce cognitive load, it may also pose risks if students become overly dependent on AI-generated content without fully understanding the underlying concepts. The third major purpose, personal learning, underscores the growing role of ChatGPT as a self-directed learning companion. Smith et al. (2023) note that ChatGPT fosters individualized instructional environments by offering real-time explanations, feedback, and support tailored to each learner's pace and style.

Moreover, the platform's role in collaborative learning contexts should not be overlooked. Wang et al. (2024) showed that using AI in group learning, like with ChatGPT, resulted in better grades, less mental effort, and more confidence in students—important elements for doing well in school. This study suggests that ChatGPT's value is not limited to individual learning tasks but extends to socially constructed learning experiences that mirror real-world collaboration.

However, while these findings are promising, it is important to consider them with a balanced perspective. The frequency of ChatGPT use does not necessarily equate to educational effectiveness. Without structured guidance, students may misuse the tool or internalize surface-level knowledge. Additionally, there remain concerns about academic integrity, skill erosion, and the potential oversimplification of complex subject matter.

Finally, the diverse reasons for using ChatGPT reflected in Figure 2 affirm the tool's versatility and broad appeal among students. Grounded in constructivist and self-determination theories, ChatGPT offers multiple affordances for personalized, autonomous, and collaborative learning. However, to harness its full educational potential, institutions must adopt thoughtful integration strategies, ensuring that students are technologically equipped and pedagogically guided in their use of AI-powered tools.

Table 1 summarizes some major findings about the influence of ChatGPT on students. First, most respondents (4.08%) agreed that ChatGPT might help them understand difficult topics, demonstrating its potential as a learning aid. Furthermore, respondents reported higher confidence in their studies (3.84) and increased engagement in learning activities after using ChatGPT (3.48), indicating that it benefits student motivation and involvement. Furthermore, respondents reported that ChatGPT made learning more pleasurable (3.89) and increased their efficiency in

completing assignments (4.20), showing its practical utility. Furthermore, respondents reported improved critical thinking (3.39) and writing skills (3.73), as well as a renewed enthusiasm in learning (3.71), which they attributed to their contact with ChatGPT. Furthermore, respondents highly agreed that ChatGPT is a time-saving tool (4.21) for their academic work, emphasizing its practical value. The fact that respondents gave ChatGPT an overall rating of 3.83 for being an effective platform for raising their academic performance suggests that it could be a helpful tool in educational settings.

Table 1. Impact of using ChatGPT

		<i>SD</i>	<i>WM</i>	<i>Verbal Interpretation</i>
1	Do you find ChatGPT helpful in understanding difficult concepts?	0.78	4.08	Agree
2	Do you feel more confident in your studies when using ChatGPT?	0.91	3.84	Agree
3	Do you feel more engaged in learning when using ChatGPT?	0.91	3.48	Agree
4	Do you think ChatGPT has made studying more enjoyable for you?	0.84	3.89	Agree
5	Has ChatGPT helped you in completing assignments more efficiently?	0.77	4.30	Strongly Agree
6	Do you think ChatGPT has improved your critical thinking skills?	0.99	3.39	Agree
7	Do you think ChatGPT has improved your writing skills?	1.16	3.73	Agree
8	Do you think that using ChatGPT tool, will increase your interest in learning?	1.10	3.71	Agree
9	Do you think that ChatGPT is a time-saving tool for your academic tasks?	0.85	4.21	Strongly Agree
10	Do you think ChatGPT is a good AI platform for improving your overall academic performance?	1.05	3.83	Agree
Average Weighted Mean			3.85	Agree

On the other hand, efficiency in assignment completion received the highest weighted mean among the 10 measured indicators, while strengthening critical thinking skills ranked lowest. The overall weighted mean across all questions is 3.85, indicating that respondents generally perceive ChatGPT as beneficial to several academic areas.

Garcia and Martinez (2021) looked at AI-based educational platforms and found that using ChatGPT improved students' writing skills, critical thinking, and overall academic success, which backs up the idea that ChatGPT helps in many areas

of learning. These findings back up the current study's result—based on an average score of 3.85—showing that ChatGPT improves students' academic experiences in areas like understanding concepts, confidence, engagement, writing, critical thinking, and working together.

In Table 2, the negative t-statistic (-4.38) indicates that male students had a significantly higher mean impact score (3.63) than female students (3.27). The p-value, which is less than 0.001, confirms that this difference is statistically significant at the 0.05 level. The result suggests that the influence of ChatGPT varies notably between male and female students. According to the independent samples t-test, male students report a higher mean impact score compared to their female counterparts.

Table 2. Comparisons between the impact of ChatGPT on students across Sex

2.a. Independent Samples T-Test						
		Statistic	df	p		
L	Student's t	-4.38	346	<.001		
2.b. Group Descriptives						
Group		N	Mean	Median	SD	SE
L	Female	192	3.27	3.40	0.763	0.0551
	Male	156	3.63	3.60	0.755	0.0605

These results align with prior research exploring gender differences in how students use educational technologies. For instance, Fadillah and Akbar (2025) found that male students reported a significantly greater perceived impact from ChatGPT compared to female students. Similarly, Møgelvang et al. (2024) demonstrated that male higher-education students engaged more frequently and broadly with generative AI chatbots, whereas female students exhibited more cautious, text-focused, and critically reflective usage patterns.

These findings suggest that ChatGPT may cater more effectively to male students' learning styles or technological preferences, which warrants further exploration into how AI tools are designed and how they interact with different student groups.

However, it is crucial to consider that the higher mean score among male students does not necessarily mean that female students are less engaged or benefiting from ChatGPT. Rather, this result may reflect a gender-based difference in how students perceive and engage with the tool. Further research could explore whether these differences are due to social, cultural, or educational factors or stem from inherent differences in learning approaches. The findings also prompt the need

for targeted pedagogical interventions that address these differences and ensure that both male and female students benefit equally from AI-powered educational tools.

Future studies should explore the reasons behind these gender-based variations and examine the effectiveness of personalized learning pathways that can address the diverse needs of male and female students. Such research could help optimize the use of AI in education, making it more inclusive and responsive to the needs of all students.

Table 3 presents the results of a one-way ANOVA (Welch's) test examining the impact of ChatGPT usage on students across different types of educational institutions. The analysis shows a significant difference in the average effects of ChatGPT among different types of schools ($p = 0.044$), meaning that how students feel about ChatGPT differs notably between state universities, local colleges run by the city, and private schools.

Table 3. *The impact of using ChatGPT on students across educational institutions*

3.a. One-Way ANOVA (Welch's)							
F		df1		Df2		p	
L	3.23	2		94.2		0.044	
3.b. Group Descriptives							
A				N	Mean	SD	SE
L	State Universities and Colleges			295	3.46	0.753	0.0439
	Local Colleges (Under Municipality)			59	3.20	0.809	0.1053
	Private School			54	3.29	0.874	0.1189

A closer look at the information in Table 3.b shows that students at state universities and colleges have the highest average effect score ($M = 3.46$, $SD = 0.753$), indicating they view ChatGPT's impact more positively. Next are students in private schools ($M = 3.29$, $SD = 0.874$), while those in local colleges have the lowest average score ($M = 3.20$, $SD = 0.809$). Although these differences might seem small, the statistical significance indicates that we can reject the null hypothesis and confirm that the type of school influences how students feel about AI tools like ChatGPT.

From a critical standpoint, the findings point to institutional variation as a possible mediating factor in the educational efficacy of AI applications. This can be understood through the framework of sociocultural theory (Vygotsky, 1978), which emphasizes the influence of learning environments, available resources, and institutional support structures on cognitive development. State universities and

colleges often have greater access to digital infrastructure, faculty development initiatives, and technology integration programs, which may facilitate more meaningful and pedagogically aligned use of ChatGPT. In contrast, local colleges under municipal governance may face resource limitations or policy constraints that inhibit optimal AI use, thus contributing to a less impactful experience for their students.

Moreover, these findings also warrant reflection through the lens of digital equity and access theory. The discrepancies across institutional types suggest that not all students benefit equally from technological innovations, even when tools like ChatGPT are universally accessible. Institutional preparedness, faculty training, and curriculum alignment with AI integration are likely critical moderators of ChatGPT's perceived impact.

However, it is essential to interpret these differences with nuance. While state university and college students exhibit the highest average impact score, this does not necessarily imply superior learning outcomes. It's also important to look at factors like how involved students are, the type of tasks that use AI, and the teaching methods used with ChatGPT, as these all need more detailed study. Additionally, standard deviations within each group indicate considerable variability, suggesting that individual experiences with ChatGPT are heterogeneous even within the same institutional setting.

The findings point out the value of context-sensitive AI implementation in education. The important differences shown by Welch's ANOVA highlight the need for customized plans when using AI tools in different educational settings. Instead of implementing a universal strategy, policymakers and educators should consider each institution's distinct technological, cultural, and pedagogical contexts to optimize the educational benefits of tools such as ChatGPT.

Figure 7 reveals a complex landscape of concerns expressed by respondents regarding the educational use of ChatGPT. While the tool is widely utilized across various academic tasks, a significant number of participants articulated critical apprehensions about its broader pedagogical implications. Chief among these is the issue of over-reliance on AI for learning, which many fear may erode students' intellectual independence and self-directed learning capacities. Zhai and Wibowo (2024) warn that relying on AI dialogue systems could hinder the growth of important thinking skills, a worry shared by participants in this study who wondered if always having AI help might reduce their ability to think for themselves and solve problems on their own.

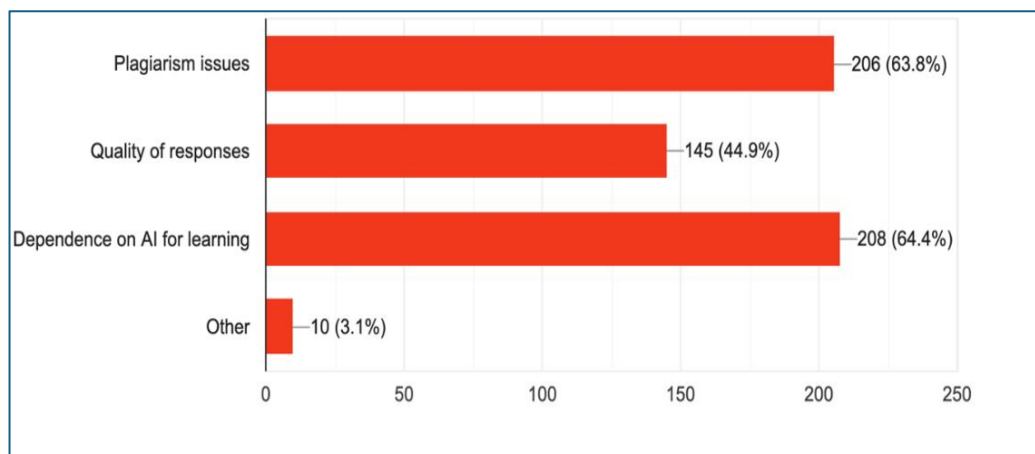


Figure 7. Concerns of students using ChatGPT for educational purposes

Another pressing issue raised is the potential for plagiarism and the ethical misuse of AI-generated content. Garcia et al. (2025) report that students fear the normalization of AI-authored submissions without proper citation could compromise academic integrity. This aligns with broader concerns in the literature about authorship, originality, and the blurred boundaries between assistance and substitution. From a critical literacy perspective, it is not merely a technical matter but a socio-ethical dilemma that calls for a renewed emphasis on digital ethics and academic honesty within AI-augmented learning environments.

The concern regarding ChatGPT's responses' quality, accuracy, and contextual relevance is equally noteworthy, particularly in complex or specialized disciplines. As Garcia et al. (2025) highlight, there remains a justifiable skepticism about the AI's ability to provide nuanced, discipline-specific information. This challenge underscores the limitations of large language models, which, while statistically powerful, may lack the epistemic grounding and domain-specific rigor expected in formal education. Beyond these substantive concerns, respondents identified practical limitations, including difficulties with interface usability, insufficient language adaptability, and limited cultural sensitivity.

In synthesis, while the survey findings highlight several descriptive concerns, a critical analysis reveals deeper tensions between the promise of AI and the pedagogical realities of higher education. These tensions underscore the need for a more deliberate and theory-informed integration of tools like ChatGPT—one that balances technological utility with the preservation of human-centered learning values. Ultimately, addressing these challenges requires a collaborative effort among educators, developers, and policymakers to ensure that AI-enhanced learning environments are not only efficient but also ethical, inclusive, and intellectually empowering.

Figure 8 illustrates a range of student-suggested improvements to enhance ChatGPT's utility as an educational support tool. Notably, the most prominent recommendation centers on improving the accuracy of the AI's responses, reflecting a broader concern about the reliability of AI-generated information. This concern may be interpreted through the lens of Cognitive Load Theory, where inaccurate or inconsistent feedback from ChatGPT potentially increases extraneous cognitive load, thereby hindering effective learning. The emphasis on accuracy suggests that while students appreciate ChatGPT's capabilities, they remain critically aware of its current limitations in content precision, especially in complex or discipline-specific contexts.

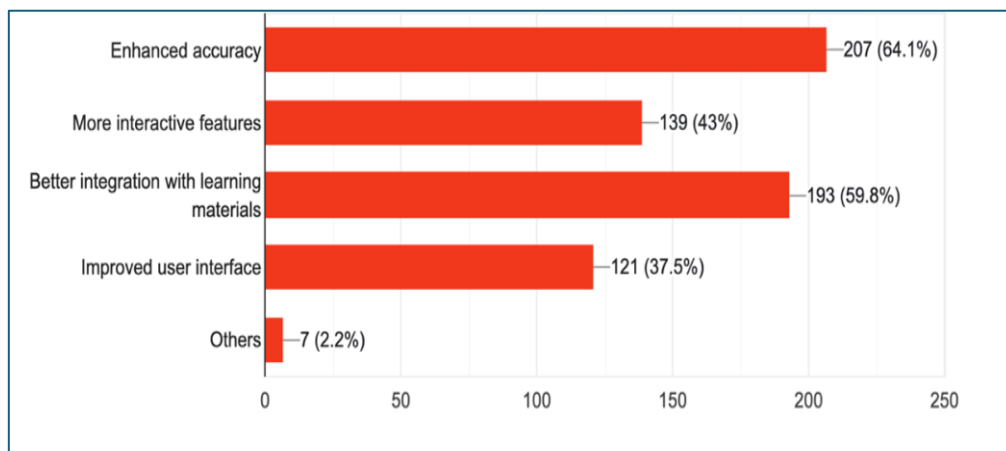


Figure 8. Suggestions of the Respondents to Increase Educational Support of ChatGPT

The second most cited suggestion involves better alignment of ChatGPT with learning materials, including textbooks, syllabi, and curriculum standards. This recommendation underscores a desire for contextual relevance and pedagogical congruence. From a constructivist perspective, learning is most effective when new information is meaningfully connected to prior knowledge. Respondents appear to advocate for AI tools that generate content and integrate seamlessly into their structured academic pathways, supporting deeper conceptual understanding.

A strong emphasis is placed on the need for more interactive features, including adaptive questioning, personalized feedback, and scenario-based simulations. These suggestions show a move from just looking up information to engaging in active, interactive learning, which fits with Vygotsky's idea that learning is something people do together. Respondents are not merely passive consumers of AI-generated content—they envision a tool that co-constructs knowledge with them.

Finally, several respondents proposed other enhancements, such as culturally responsive outputs, improved user interface, and better language localization. While less frequently mentioned, these reflect nuanced concerns about accessibility,

inclusivity, and usability—important factors for ensuring equitable access to AI tools across diverse learner populations. A deeper examination reveals that students critically engage with the technology, even though the data initially presents as a descriptive list of user recommendations. Their suggestions move beyond surface-level convenience and toward pedagogical integrity, cognitive alignment, and learner empowerment. These findings invite educators, developers, and policymakers to consider a more responsive, evidence-based approach to deploying and refining AI tools like ChatGPT in educational contexts.

Conclusions

The results of this study offer compelling evidence that ChatGPT is significantly reshaping students' educational experiences across various academic disciplines and institutional types. With the majority of respondents reporting frequent use of the tool—particularly for explanations, answering questions, and academic support—it is evident that ChatGPT has emerged as a versatile and accessible learning aid. This aligns with constructivist and sociocultural theories emphasizing learner engagement, scaffolding, and contextualized knowledge-building.

The findings suggest that students primarily value ChatGPT for its capacity to simplify complex concepts, provide instant support, and enhance both the enjoyment and efficiency of studying. The highest-rated function—providing explanations—highlights the role of ChatGPT as a cognitive scaffold that fills instructional gaps and promotes deeper comprehension, especially when instructor presence is limited. Moreover, the platform's impact on motivation, assignment completion, writing ability, and engagement further underscores its broad educational relevance.

Gender-based and institutional differences uncovered through inferential statistics reveal that ChatGPT does not impact all students uniformly. Male students reported significantly higher mean effect scores than females, a result that mirrors earlier studies indicating gender-based preferences and patterns in technology use. Likewise, students from state universities and colleges reported a more substantial perceived benefit from ChatGPT than those from local and private institutions—likely due to variations in access, support structures, and digital readiness. These disparities highlight the importance of equity-oriented AI integration, grounded in digital inclusion principles and pedagogical responsiveness.

At the same time, the research outlines key challenges and limitations. Worries about depending too much on AI, maintaining academic honesty, getting accurate responses, and ensuring AI is useful for teaching show that we urgently need to use AI carefully, thoughtfully, and ethically in education. These concerns go beyond mere technical aspects, as they fundamentally impact the essence of learning and intellectual growth in the digital era.

Respondents also offered thoughtful recommendations for improving ChatGPT's educational functionality—including better alignment with curricula, more interactive features, and enhanced cultural sensitivity. These insights reflect students' capacity to engage critically with educational technology and envision AI not simply as a tool for consumption but as a collaborative partner in learning.

This study affirms ChatGPT's transformative potential in academic contexts while also cautioning against uncritical adoption. For educators, administrators, and developers, the challenge lies not in resisting AI's entry into the classroom but in ensuring that its use is pedagogically sound, ethically guided, and equitably accessible. With appropriate oversight, training, and contextual adaptation, ChatGPT can serve as an assistant to students and as a catalyst for deeper, more reflective, and more personalized learning.

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