

ChatGPT's Impact on College Education

Tianyi Ye^{1,a,*}

¹Beijing Etown Academy, Beijing, 100039, China

a. yeah11wyyx@126.com

*corresponding author

Abstract: The emergence of Chat GPT in the field of education has generated significant interest. This tool, powered by artificial intelligence technology, offers advanced functionalities that surpass those of traditional retrieval search tools. As a result, it represents a significant milestone in the ongoing development of artificial intelligence. Furthermore, Chat GPT introduces a fresh perspective for the exploration of artificial intelligence education. The influence of ChatGPT on education primarily lies within the realm of higher education. It has the potential to enhance learning and research efficiency, as well as impact educational assessment and evaluation. Moreover, it can facilitate the advancement of academic creativity and critical thinking in education. It is important to note that despite technological advancements, knowledge remains fundamental to personal well-being and societal progress, serving as a core resource in modern society. Expanding educational opportunities is crucial for promoting social advancement, enabling a larger population to access higher education. However, it is worth considering whether ChatGPT will entirely replace teachers in this process. Does the use of Chat GPT have a net positive impact on students? Nevertheless, the ongoing discourse lacks substance and lacks a foundation in theory. Therefore, it is of utmost importance to put forth an appropriate framework of technical and theoretical knowledge. This study examines the level of knowledge, frequency of utilization, and reliance on ChatGPT among students with varying academic qualifications through the administration of a questionnaire. The objective is to explore the potential of ChatGPT as a substitute for conventional instructional approaches.

Keywords: ChatGPT, Higher Education, Frequency of Use

1. Introduction

ChatGPT, an artificial intelligence conversational agent, has demonstrated remarkable performance and achievements throughout the current year. This year, the artificial intelligence chatbot known as ChatGPT has gained significant popularity due to its robust capacity for integrating knowledge and processing natural language. It can be described as possessing exceptional capabilities in various domains, including astronomy and geography. Additionally, ChatGPT is capable of generating text in accordance with conversational and article-writing needs. The integration of artificial intelligence (AI) in education has provided instructors with valuable support in various aspects, including curriculum design, class preparation, and homework evaluation, in response to the pervasive influence of technological advancements. While acknowledging the advantages of these conveniences, it is inevitable to contemplate the potential replacement of teachers by robots endowed

with cognitive capabilities. According to the second source, In response to the significant impact of technological advancements, the field of education has promptly addressed the matter through the production of a collection of scholarly articles that outline the prospective outlook and potential hazards associated with the utilization of ChatGPT in educational contexts [1].

This study aims to examine the comprehension, utilization frequency, and reliance on ChatGPT among students with varying academic qualifications. Through the administration of questionnaires, we seek to explore the potential of ChatGPT as a substitute for conventional instructional approaches. There are useful recommendations for addressing the impact of ChatGPT on the field of education.

2. Methodology

The study employed the Chat GPT Impact Survey on Student Education, a questionnaire that was developed by adapting certain items from the ChatGPT Impact Survey on College Education, which is a questionnaire available on the Questionnaire Star website. The distribution of the questionnaire took place on August 23, 2023, and its collection was completed on August 25, 2023. A total of 123 individuals participated in the survey, out of which 112 responses were considered legitimate.

Table 1: Education Background of Respondents

Respondents Education	High School	Specialists	Undergraduates	Master's Degree and Above	Faculty and Staff	Total
Numbers	12	14	76	17	4	123

"Have you heard of or used ChatGPT?", "What is your main purpose for using ChatGPT?" , "Do you agree that relying on ChatGPT for problem solving affects the ability to innovate?" The above are a selection of inquiries from the questionnaire, designed to ascertain the participants' identification, familiarity with Chat GPT, and primary motivations for utilizing Chat GPT. Through the systematic collection and rigorous analysis of the data obtained from the administered questionnaire, it is possible to derive initial inferences regarding the influence of Chat GPT on the realm of higher education. The survey instrument was specifically developed to examine the influence of Chat GPT on students' educational experiences. The questionnaire primarily focused on assessing the respondents' level of dependence on Chat GPT, their perceptions regarding the potential impact of Chat GPT on innovation, and their opinions on the potential replacement of traditional teaching methods by Chat GPT. The entirety of the questionnaire is primarily examined through the assessment of agreement levels. Through a comprehensive analysis of the questionnaire outcomes, it becomes feasible to ascertain the extent of influence and utilization of Chat GPT within the realm of higher education.

3. Data analysis and discussion

3.1. Degree of Understanding

According to the data presented in Figure 1, it is evident that Chat GPT, an AI language processing model introduced in late 2022, has gained significant recognition in China, with a notable 92% awareness among the populace. However, it is unlikely that a significant number of individuals will utilize it on a regular basis. In the field of statistics, it has been observed that a mere 15.3% of individuals exhibit a high frequency of usage when it comes to Chat GPT. The majority of individuals possess limited familiarity or engage in sporadic experimentation with it. The limited popularity of Chat GPT can be attributed to its recent online availability and the requirement for users to pay for its usage, which may deter potential users. One of the primary rationales is from the fact that while

Chat GPT is accessible within China, it is not permissible to officially register the service within the country, including regions like as Hong Kong and Macau. In order to complete the registration process, players are need to utilize a non-domestic mobile phone number. There are certain limits that may impede the direct access to ChatGPT for the typical user. Some of the challenges encountered may encompass network access limitations, browser compatibility discrepancies, account-related complications, among other factors [2-4]. Furthermore, several ChatGPT services may encounter limitations in China as a result of governmental rules and regulatory measures.

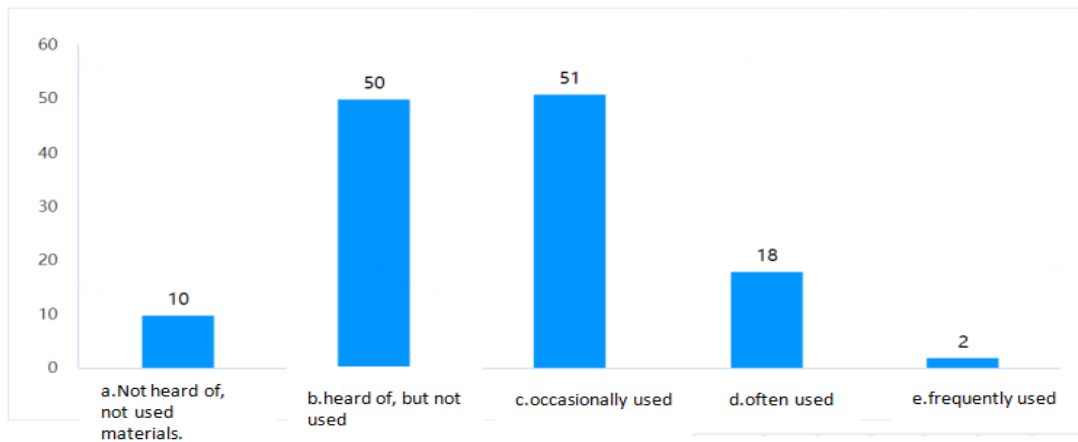


Figure 1: Results of "Have you heard of or used ChatGPT?"

3.2. Purpose of use

ChatGPT is utilized by individuals for various objectives. The utilization of Chat GPT encompasses various academic activities such as accessing study materials such as thesis information and code, addressing inquiries and resolving complex problems, fostering a sense of curiosity and engagement, offering guidance on effective studying techniques, and facilitating scientific research. This is illustrated in Figure 2, where the predominant usage of Chat GPT is observed in obtaining study materials (25.5%) and addressing questions and puzzles (28%). The second approach is attempting to engage in the activity while taking into consideration a proportionate allocation of 26%. It is evident that students have the ability to utilize ChatGPT as a means to acquire more extensive and precise knowledge. However, the predominant motivation behind students' utilization of ChatGPT is curiosity, and it has not yet supplanted the crucial role of an instructor in offering educational guidance.

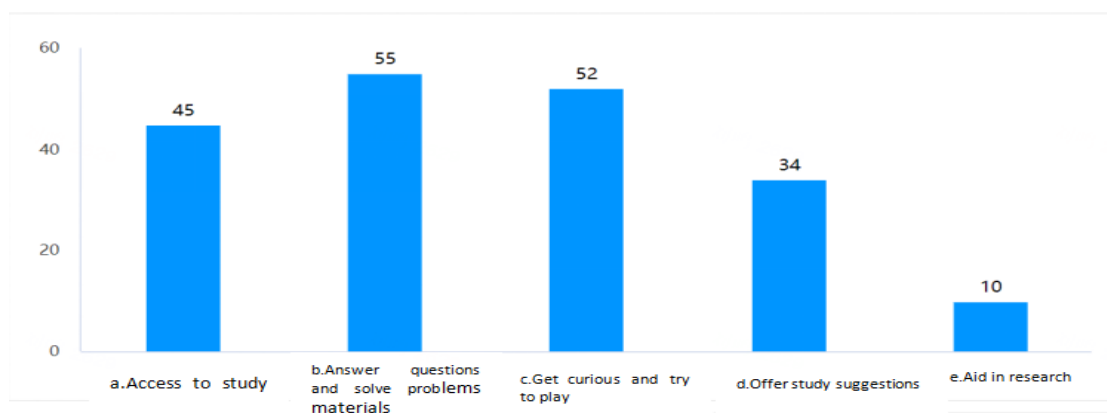


Figure 2: "What is your main purpose for using ChatGPT?"

3.3. Dependency

Extended use on ChatGPT can potentially engender excessive dependence among students [5]. Individuals may potentially develop a heightened reliance on ChatGPT as a means of addressing inquiries, so reducing their inclination to engage in independent thinking and problem-solving. The aforementioned phenomenon is likely to undermine the capacity of students to engage in autonomous thought and effectively address complex problems, hence exerting an adverse influence on their future educational pursuits and overall life trajectory.

As depicted in Figure 3, a considerable number of individuals possess an understanding of the adverse consequences associated with excessive dependence on Chat GPT. Consequently, it is advisable for educational institutions and students to exercise moderation in their utilization of ChatGPT, while concurrently incorporating alternative teaching and learning approaches. This approach aims to foster a more comprehensive and efficacious learning experience.

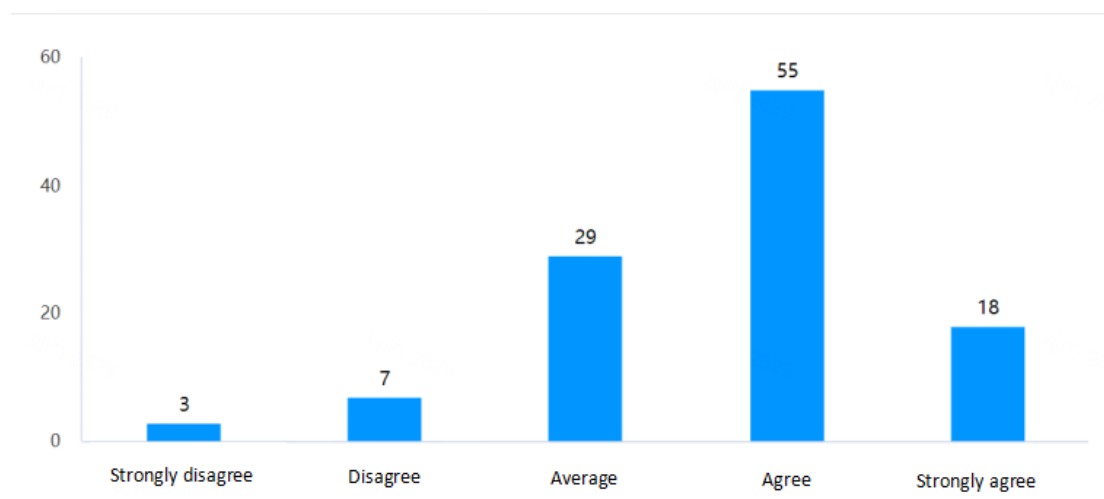


Figure 3: Results of "Do you agree that relying on ChatGPT for problem solving affects the ability to innovate?"

4. Discussion

The influence of Chat GPT on higher education exhibits a dual nature; while Chat GPT garners significant attention within the realm of artificial intelligence, empirical studies indicate that its adoption among the majority of individuals remains relatively limited. The low utilization and restricted application of Chat GPT technology may be attributed to its relative freshness and intricate nature. Furthermore, the apprehensions of many individuals regarding the presence of privacy and ethical dilemmas associated with Chat GPT have constrained their inclination to embrace and utilize it [6-7].

The awareness surrounding Chat GPT may currently be minimal; yet, its utilization and significance are steadily increasing among students in the realm of higher education. The utilization of Chat GPT's natural language processing skills facilitates the provision of personalized and superior educational assistance and tutoring to pupils. One potential solution for students to address their academic challenges is through engaging with Chat GPT, which offers the opportunity to receive immediate responses and guidance. Moreover, Chat GPT facilitates enhanced comprehension of intricate concepts and information among students with the provision of tailored learning trajectories and suggested learning materials. These characteristics offer pupils supplementary learning chances and assistance that can enhance academic performance and learning achievements [8].

Nevertheless, the over dependence of students on Chat GPT presents many potential issues. Initially, it is plausible that students may develop an excessive dependence on Chat GPT, so disregarding the significance of autonomous learning and critical thinking. Although Chat GPT has the capability to offer responses and resolutions, it should not be regarded as a replacement for students' independent cognitive processes and analytical abilities [9]. Furthermore, the responses provided by Chat GPT may exhibit inaccuracies or a biased perspective due to its reliance on pre-existing data and models. It is advisable for students to adopt a critical approach towards the answers provided by Chat GPT and to actively seek validation and feedback from alternative sources wherever necessary [10].

In summary, the impact of Chat GPT on higher education is characterized by a limited understanding and relatively low utilization, however there is a gradual increase in students' intention and dependence on its usage. To enhance the efficacy of Chat GPT in college education, it is imperative to bolster the dissemination and pedagogy surrounding Chat GPT. Concurrently, it is essential to provide students with proper guidance on the appropriate utilization of Chat GPT, hence mitigating excessive reliance and fostering the development of their autonomous learning and critical thinking skills. However, despite the potential of AI technologies like chat GPT in the field of education, it is widely believed that AI cannot fully supplant the function of teachers. Educators assume a pivotal function within the pedagogical framework, encompassing the provision of tailored guidance, fostering pupils' ingenuity and analytical reasoning, aspects that remain irreplaceable by artificial intelligence.

5. Conclusion

This study examines the level of knowledge, frequency of utilization, and reliance on ChatGPT among students with varying academic credentials. The research employs questionnaires to investigate the potential of ChatGPT as a substitute for conventional instructional approaches. Based on the findings obtained from the questionnaire, it has been observed that Chat GPT has a certain degree of efficacy in enhancing teaching efficiency. However, it is important to note that artificial intelligence is not poised to supplant educators in the foreseeable future. Simultaneously, within the realm of higher education, it is imperative to enhance the dissemination and instruction of Chat GPT, while also providing guidance to students on its proper utilization in order to mitigate the risk of over reliance.

This study undertook an initial investigation into the effects of Chat GPT on higher education; however, certain limitations remain. This study did not employ a field survey and instead relied solely on questionnaires to investigate literature studies and modeling analyses. This methodology may result in a limited comprehension of the real-world circumstances. Furthermore, it is important to note that the study's sample size is quite small, consisting of only 112 participants. Consequently, it is crucial to acknowledge that the findings may not be generalizable to the entire population of individuals engaged in tertiary education. Furthermore, it is worth noting that the study failed to consider the variations among distinct topic areas and different types of higher education institutions (HEIs), thus compromising the applicability of the results.

To address these limitations, future research endeavors can be enhanced by implementing the following strategies. Initially, it is advisable to engage in fieldwork, which may involve conducting interviews with educators, students, and other pertinent stakeholders. This approach would facilitate the acquisition of qualitative data and genuine viewpoints. Furthermore, in order to enhance the representativeness and reliability of the study, it is advisable to broaden the scope of the research sample by including a wider range of colleges and topic areas. Furthermore, the integration of quantitative and qualitative research approaches might yield more thorough findings in study.

In subsequent periods, there exist numerous domains warranting comprehensive investigation about the ramifications of Chat GPT on the realm of higher education. The potential utilization of Chat GPT in the realm of education warrants additional investigation, encompassing its role in supporting teachers during instruction, facilitating tailored learning experiences, and enhancing student evaluation practices. Furthermore, it is worth exploring the possible impact of Chat GPT on educational administration and decision-making inside higher education institutions, specifically in areas such as student enrollment, curriculum design, and overall school operations. Furthermore, the examination of the integrated utilization of Chat GPT alongside other educational technologies might be explored in order to enhance the caliber and efficacy of education. In summary, Chat GPT exhibits considerable potential for implementation within the realm of higher education. Subsequent investigations can contribute to a more profound comprehension of its influence and facilitate the exploration of novel applications.

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