

ChatGPT's Drawbacks and Benefits as a Study Aid for Students

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Abstract

This study aims to investigate the opportunities and problems that come with using ChatGPT as a student assistance tool. A survey was completed by 60 students who had utilised ChatGPT for school-related reasons. The study examined the views of the students regarding the usefulness of ChatGPT, its impact on their learning, and any challenges they had when utilising it. Based on its prompt and accurate responses to students' inquiries, ChatGPT appears to have the potential to be a helpful supplementary tool for learners. The study also discovered that ChatGPT enhanced students' educational experiences by providing them with a multitude of information. The study highlighted several problems students faced with ChatGPT, including technical difficulties and a desire for more interpersonal communication. The study's conclusions expand on our understanding of ChatGPT's potential as a teaching aid and suggest future research directions. This study highlights the benefits of employing technology to support student learning while also discussing the potential challenges that may occur.

Keywords: ChatGPT, artificial intelligence, education, learning, Open AI

INTRODUCTION

ChatGPT is a revolutionary natural language processing tool that can answer queries like a human because it has been trained on a vast amount of textual material. It can understand natural language and respond with accurate and relevant information. Many contexts, including customer service, healthcare, and education, are using ChatGPT, and students may find it to be a helpful tool in these areas.

Figure 1 gives a brief rundown of ChatGPT's functioning procedures. The working procedure is divided into two categories: query and response. The ChatGPT is powered by an artificially intelligent supercomputer. The training data for this computer comprises of multiple parameters and a large dataset. This supercomputer has unsupervised training to detect patterns in the input data by determining the statistical structure of the data. Usually, users can ask questions of ChatGPT. This query is sent directly to the supercomputer. The question is now being processed by the supercomputer. Before fine-tuning the output data, the output generating circuitry generates the likely outputs first; giving ChatGPT instructions to respond is the next step; and lastly, ChatGPT responds in a way that resembles human communication.

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Received Date: July 18, 2024
Accepted Date: July 24, 2024
Published Date: August 01, 2024

Citation: Rajesh Yadav. ChatGPT's Drawbacks and Benefits as a Study Aid for Students. *Journal of Computer Technology & Applications*. 2024; 15(2): 62–69p.

By integrating ChatGPT into the educational system, students can have access to a wealth of knowledge and develop their critical thinking skills. However, there are several issues that need to be fixed before using ChatGPT in the classroom. Examining the difficulties and possibilities of using ChatGPT to help students with their academic work is the aim of this study.

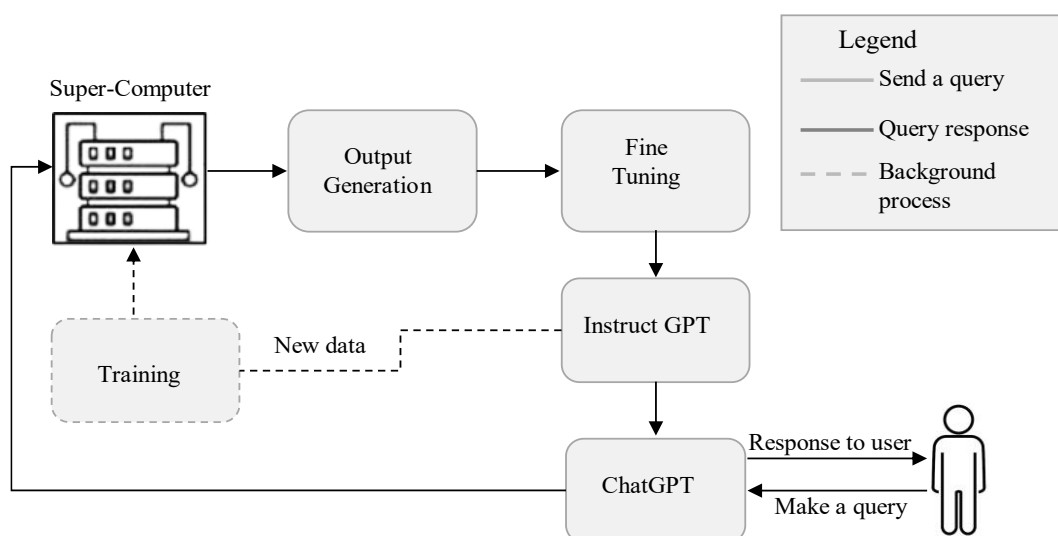


Figure 1. ChatGPT's Workflow.

The use of technology in the classroom is growing in popularity, and ChatGPT is one such tool that could completely alter how kids learn. This research study is significant because it sheds light on ChatGPT's potential as an educational auxiliary tool and identifies the issues that must be resolved to ensure its successful adoption.

“What are the challenges and opportunities of using ChatGPT as a supporting tool for students in their classroom activities?” is the issue that this study seeks to address. The article states that “This research study aims to explore the challenges and opportunities of using ChatGPT as a supporting tool for students in their classroom activities, with a focus on investigating the perceptions of students regarding ChatGPT's usefulness, its impact on their learning experience, and the challenges they encountered while using it (Figure 2).” The study's findings will contribute to elucidating ChatGPT's potential as an additional supportive tool and offer guidance for further research in this area.

LITERATURE REVIEW

Artificial intelligence technology is changing classrooms and schools today and simplifying the work of teachers [1]. The most current development in artificial intelligence is the ChatGPT, which responds to questions by providing a thorough textual response. In order to analyse the promise and issues that this latest breakthrough (ChatGPT) offers to the academic world in general and the teaching of composition, business writing, and communication courses in particular, this study looks into how this technology is used. It is crucial to remember, though, that artificial intelligence technologies have long been used in the field of education.

The ability of ChatGPT to critically think and express ideas in flawless English is one of its best qualities. In some domains, this technology has demonstrated exceptional competence, seemingly matching human abilities [2]. Regardless of how simple or complex, rational or absurd, significant or meaningless, the GPT-3 generates a text without comprehension that keeps up the order of our words (the prompt) throughout the entire text [3].

Most artificial intelligence applications currently focus on machine learning, which uses inferences rather than scripting to learn and adjust to user behaviour. In this case, the most important resource for developing and maintaining artificial intelligence is data. According to Johnson [4], artificial intelligence is becoming more and more integrated into our daily lives. Artificial intelligence technology is utilised in automated parking systems, smart sensors for collecting pictures, and personalised support, in addition to altering the way individuals study.

On a scale of 1-5, how often do you use ChatGPT as a supporting tool for your learning?
60 responses

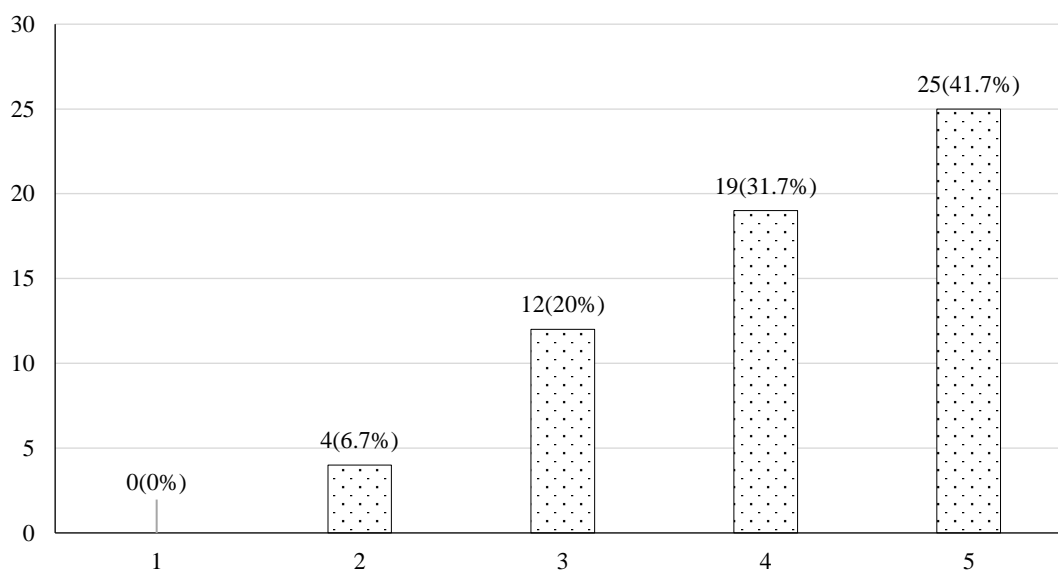


Figure 2. Survey chart for use of ChatGPT as supporting tool.

Despite these new technological advancements in education, according to Bayne [5], the deployment of teacher bots and other intelligent programmes that approach human intelligence in the classroom is intended to replace instructors [6]. Currently, educational content can be accessed using smart gadgets [4]. To free up more time for teachers to concentrate on their pupils, administrative chores at educational institutions have been mechanized in certain cases and automated in others [1, 4]. Tutoring, content development, and administrative tasks can all benefit from artificial intelligence [4, 7]. These days, artificial intelligence is also capable of writing entire tasks.

Two instances of artificial intelligence being used in education are computer-aided instruction and computer-based training [8]. The growing number of students from diverse geographic locations enrolling in on-campus college courses is a compelling case in favour of artificial intelligence in education. Even while most colleges save money by hiring fewer instructors, this could nevertheless be quite advantageous for organizations [9, 10]. Thus, the need for online courses to facilitate technology-assisted distance learning is growing. Artificial intelligence in educational systems has advanced over time as a result of ongoing research. Using animated avatars and other user-friendly interface agents to help users with language, facial expressions, and identification problems is one of these developments [11]. Artificial intelligence has applications that ordinary people use on a daily basis, as was previously established. Search engines utilise artificial intelligence to provide results for users on the Internet. Recommendation engines in social networking apps use artificial intelligence as well to provide recommendations based on users' previous searches and "likes". Owners of iPhones also use voice recognition, an artificial intelligence-based technique, to speak with "Siri". For the convenience of people, artificial intelligence is also utilised in many computer games and self-driving cars (Figure 3).

Software and technology that can think, absorb, gather information, interact, control, and identify objects is referred to as artificial intelligence. The term "artificial intelligence" was first used in 1956 by John McCarthy to describe a relatively new area of computer science that attempts to replicate human behaviour in machines. It is a relatively new problem in the field of research (mid-20th century). Alan Turing asked whether robots are capable of thinking in a paper from the 1950s. This investigation cleared the path for a tonne of research and eventual developments in the field of artificial intelligence. Artificial intelligence encompasses various topics, including text and speech synthesis, robotics, machine learning, natural language processing, computer vision, planning, and expert systems [12].

On a scale of 1-5, how accurate are the responses provided by ChatGPT?

60 responses

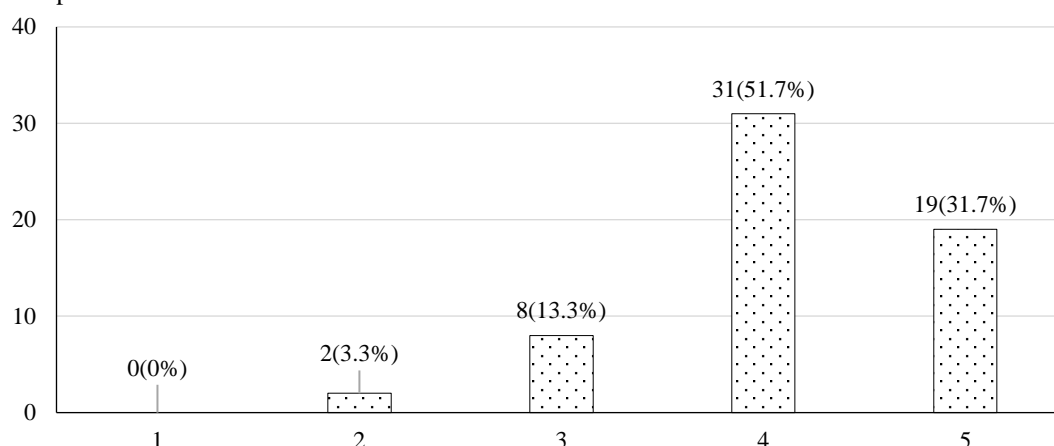


Figure 3. Survey chart for recommendation of ChatGPT.

METHODOLOGY

In order to investigate the potential and difficulties of utilising ChatGPT as an aid for students' in-class activities, this research study employed a survey approach. By using a quantitative research method like a survey, information from a large sample of students can be obtained. The study participants are 60 students who utilised ChatGPT as a supplemental tool. Purposive sampling was used to choose the participants by looking for and selecting those who had previously used ChatGPT in class activities. In order to guarantee a diverse and inclusive sample, students from a range of academic backgrounds and experiences were selected as participants. An online survey questionnaire with 25 questions, a mix of open-ended and closed-ended multiple-choice, was used to gather the data for this investigation. The survey was emailed to the research subjects who had been specially selected. Along with pertinent study issue questions, the poll also included demographic questions on age, gender, and academic standing. This study's survey strategy is a tried-and-true research methodology that enables data collection from a substantial sample of participants. Using the purposive sampling method, participants who used ChatGPT in their lessons were located and selected.

The implementation of a standardised questionnaire with both open-ended and closed-ended multiple-choice questions allowed for the collection of both quantitative and qualitative data [13]. This made it possible to comprehend the experiences of the participants in greater detail.

The survey results were used in order to provide an understandable and thorough picture of the findings. Finding patterns and trends in the participant replies was the aim of the data analysis, which was then used to draw conclusions and offer suggestions.

RESULTS AND FINDINGS

Based on the survey's demographic data, the bulk of participants (53.3%) were between the ages of 20 and 21 years, followed by those between the ages of 22 and 23 years (25%). In addition, the sample's gender distribution was equal, with males making up 56.7% of the responses and females accounting for 43.3%. 40% of the respondents were undergraduate students, followed by graduate students (31.7%) and postgraduate students (26.7%) in terms of academic level. These results imply that the sample is representative of a varied set of students with a range of educational backgrounds.

According to the study results, a sizable percentage of students use ChatGPT as an additional learning aid. On a scale of 1 to 5, more than half of the respondents (41.7%) said they used ChatGPT frequently (4–5), compared to just 6.7% who said they used it infrequently (1–2). This implies that ChatGPT is a tool that students are using more and more frequently. Furthermore, according to 75% of respondents,

ChatGPT might be a helpful resource for students with specific needs or learning difficulties. This discovery is especially significant since it implies that ChatGPT may be a useful inclusive tool for closing the achievement gap for students with special needs (Figure 4).

The survey's findings also demonstrate how useful ChatGPT is as an aid for learning. 60% of respondents said they had seen an improvement in their grades or academic performance since using ChatGPT, while the majority of respondents (80%) thought it had enhanced their capacity to retain information. Additionally, 70% of respondents said that ChatGPT had increased their level of independence in their learning (Figure 5). This is a significant result for students since it gives them the ability to take charge of their educational path.

Notwithstanding the favourable results that the participants experienced, ChatGPT has many drawbacks as a learning aid. For example, 30% of respondents said ChatGPT could not answer their inquiries, and 58% said ChatGPT might not be able to completely replace more conventional ways of asking questions. Furthermore, on a scale of 1 to 5, the majority of respondents (86.7%) expressed high levels of satisfaction with ChatGPT as a learning assistance tool, whereas 3.4% of respondents expressed low levels of satisfaction (Figure 6). This implies that even while ChatGPT is a helpful resource for a lot of students, not everyone will benefit from using it.

Do you think ChatGPT is useful tool for students with learning disabilities or other special needs?
(Yes/No)
60 responses

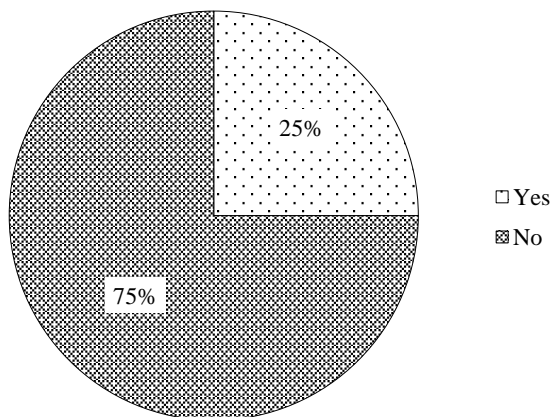


Figure 4. Survey chart as useful tool for student with special needs.

Do you Feel ChatGPT has made your more independent in your learning?
60 responses

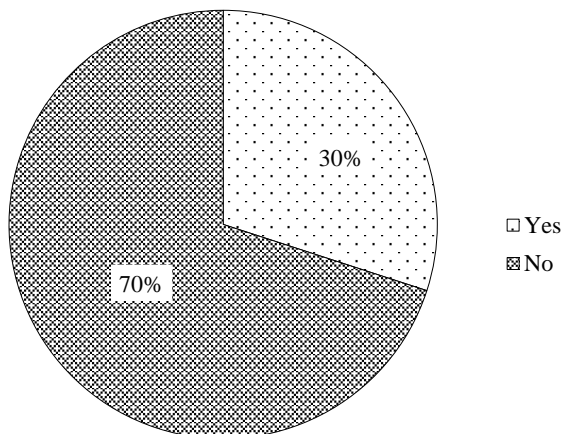


Figure 5. Survey chart for independent learning.

Overall, how satisfied are you with the use of ChatGPT as a supporting tool for your learning?
 (On a scale of 1-5)
 60 responses

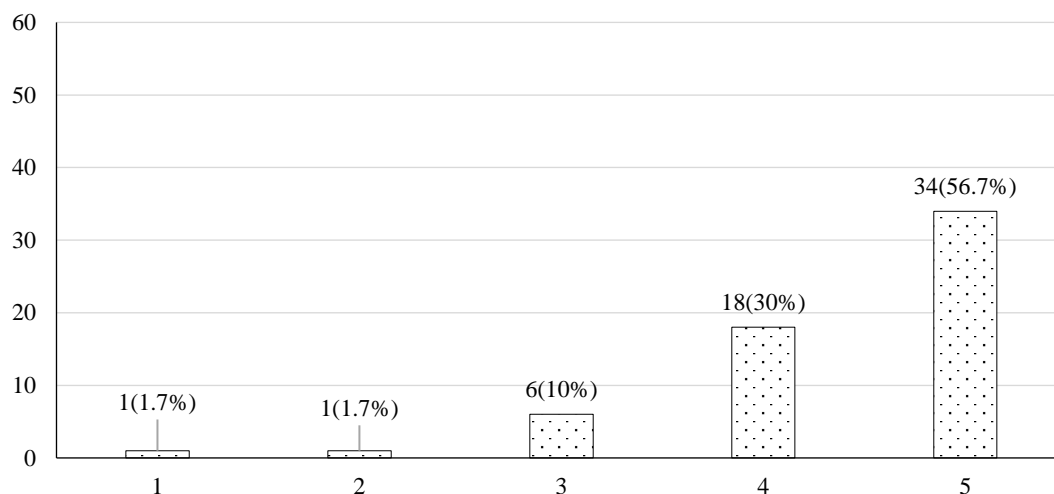


Figure 6. Survey Chart for satisfaction level.

On a scale of 1-5, how accurate are the responses provided by ChatGPT?
 60 responses

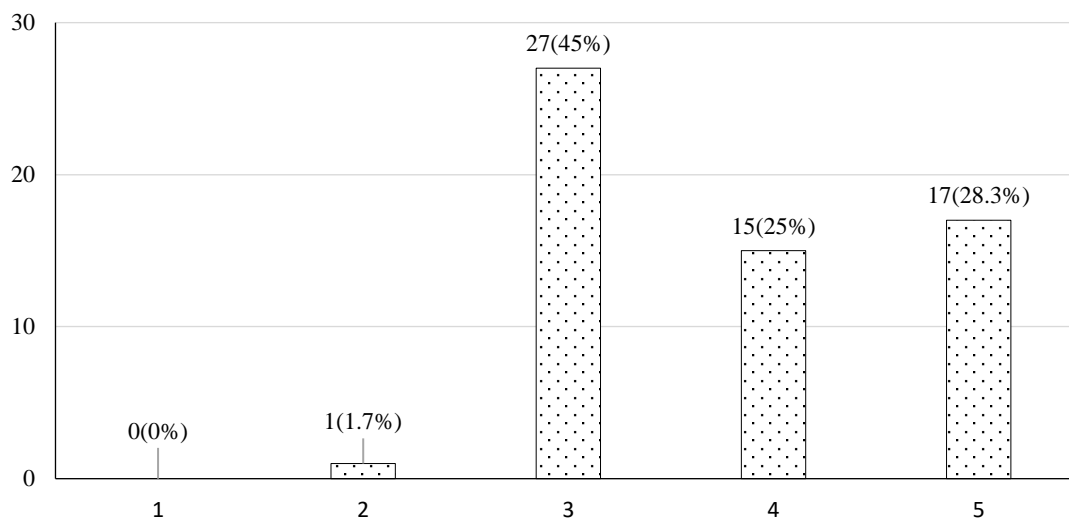


Figure 7. Survey chart for accuracy level of responses by ChatGPT.

It was discovered that most students (73.3%) gave ChatGPT's responses an accuracy rating of four or five out of five. This suggests that the students have faith in ChatGPT to give them accurate and dependable information. Furthermore, more than 60% of students rated ChatGPT as useful or excellent for answering their inquiries, giving it a rating of four or five stars. This shows that ChatGPT is a helpful resource for students looking for prompt and precise responses to their inquiries (Figure 7).

According to the survey's findings, most students believe ChatGPT to be a useful tool for enhancing their learning. In particular, 36.7% of students gave ChatGPT a 5-star rating for improving their learning experience, compared to 43.3% who gave it a 3-star rating. Furthermore, a sizable percentage of students (60%) felt that ChatGPT offers enough feedback to assist them better comprehend the subject, with only 1.7% giving it a two. Additionally, the majority of students (83.4%) said they would suggest ChatGPT to other students as a helpful tool, and 31.7% gave it a 5-star rating. These results imply that ChatGPT can be a useful tool that students can use to complement.

According to the research study, ChatGPT is a great tool for students who need assistance with their homework. A student uses ChatGPT to pose a variety of factual, open-ended inquiries concerning their academic courses with the goal of gaining a deeper understanding of difficult concepts. Many students also utilise ChatGPT to help with schoolwork and assignments related to programming, particularly when it comes to deciphering cryptic codes and simplifying intricate programming principles. Generally speaking, the types of questions that are asked include multiple-choice, factual, and questions based on academic topics. Students also seek assistance in the areas of circuit analysis, technology, marketing, finance, and other fields. Pupils studying a wide range of academic disciplines could gain from ChatGPT.

The results of this study demonstrated that students encountered a number of challenges when utilising ChatGPT. One of the most common issues was that the tool's results were only sometimes accurate. Another complaint from a student was that it was not always easy to sift through the vast amount of information offered by ChatGPT and identify the most reliable sources. Additionally, some students struggled to formulate their questions in a way that would provide pertinent responses. Some challenges were responding too quickly or incompletely, having trouble understanding the context or depth of the responses, and experiencing inconsistent login problems. Despite these challenges, a number of students found that once they learned the art of asking specific questions, ChatGPT turned into an excellent learning tool.

DISCUSSION

According to the research study's findings, ChatGPT is a well-liked and practical tool that students can utilise to enhance their learning. A significant portion of students use ChatGPT as an addition to their education, according to the poll, and the majority of participants say that ChatGPT has improved their learning and helped them get better grades. Additionally, the study found that ChatGPT has the potential to be a tool that is inclusive and can help close the achievement gap for kids with exceptional needs. Despite the many positive results that the respondents reported, ChatGPT has several limitations as a student assistance tool. While some students felt that ChatGPT was unresponsive to their questions, others found it difficult to find their way around the tool's vast knowledge base. In addition, a subset of respondents showed dissatisfaction with ChatGPT, despite the majority expressing high levels of pleasure.

The study's conclusions throw a lot of insight on how ChatGPT is used as a supportive tool. The research indicates that ChatGPT can be a helpful tool for enhancing student learning and academic achievement as well as a supporting resource for kids with special needs. But it is important to keep in mind that not all students may find ChatGPT to be the best option, and others may still need to employ more traditional questioning strategies.

Subsequent research endeavours may focus on devising strategies to enhance ChatGPT and address the limitations identified by this investigation. For example, efforts may be undertaken to improve ChatGPT's accuracy and reliability or to provide students with additional guidance and support while they browse through the vast amount of knowledge the tool has to offer. The potential of ChatGPT to support students in a range of learning situations, such as online or blended learning, may also be investigated further. The study highlights the potential of this technology to enhance students' learning experiences and provides useful information on using ChatGPT as a learning support tool.

CONCLUSION

The study's findings suggest ChatGPT as a helpful tool, especially for improving student learning and promoting learner independence. Additionally, the results imply that ChatGPT can be a useful inclusive tool that helps close the achievement gap for children with exceptional needs. However, there were a few problems that limited ChatGPT's utility as a learning tool. These issues encompassed inconsistent response times and challenges in navigating the extensive amount of available information. Furthermore, a tiny proportion of respondents indicated low levels of satisfaction with ChatGPT, indicating that it might not be the best choice for all students, even if the majority of respondents showed high levels of enjoyment with the service. The study emphasizes the potential advantages of integrating

ChatGPT into educational environments, especially for students needing assistance with homework and programming projects. Further research is necessary to ascertain the long-term effects of utilising ChatGPT as a learning support tool, as well as its effectiveness at different academic levels and disciplines. According to the study's findings, ChatGPT may be a beneficial addition to the educational environment, providing students with an easily available and effective tool to enhance their comprehension and memorization of the information. Notwithstanding the constraints and challenges that several students have brought to light, ChatGPT holds promise as a valuable supplement to the educational environment.

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