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Revolutionising Learning: How Malaysian Student Teachers View ChatGPT

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Abstract

AI tools possess significant potential for enhancing educational experiences; however, they also carry the risk of disseminating misinformation. The successful integration of ChatGPT into educational practices largely depends on how effectively students can incorporate this technology into their learning processes. This study investigates the perceptions of students at Teacher Education Institutes in Malaysia regarding the use of ChatGPT in their learning. Students from one of the Teacher Education Institutes in Malaysia were invited to voluntarily participate in a survey. Out of 44 participants who provided feedback, 41 responses met the criteria for inclusion in the analysis. A specialized questionnaire for this study, developed by Ngo (2023), was distributed using Google Forms. The findings indicate that the use of ChatGPT is highly rated by participants, with a mean score of 4.11 and a standard deviation of 0.51. The benefits of ChatGPT received the highest average score of 4.19, with a standard deviation of 0.62. However, students also reported facing some barriers, reflected by a mean score of 3.56 and a standard deviation of 0.64. Analysis of the average perception scores indicates that ChatGPT is well-received by students and is considered beneficial in education. Despite some challenges, such as issues with information accuracy and language use, students still perceive high value in using this tool. These findings align with existing literature that emphasizes the importance of ease of use, learning benefits, and information reliability in educational technology. This study also recommends future research to focus on teacher and student training, pedagogical integration, ethical and privacy considerations, the impact on student engagement and motivation, and addressing the digital divide.

Keywords: ChatGPT, Learning, Benefit, Barrier, Perception, Student Teacher

Introduction

The integration of artificial intelligence (AI) in education has garnered significant attention, promising transformative impacts on teaching and learning processes. Among various AI tools, ChatGPT, developed by OpenAI, stands out for its potential to enhance educational experiences. ChatGPT, a conversational agent powered by the GPT-4 architecture, can generate human-like responses, provide instant feedback, and support a wide range of learning activities. This study focuses on the perception of students from Teacher Education

Institutes (IPG) in Malaysia regarding the use of ChatGPT in their learning process. The adoption of ChatGPT in educational settings is not without challenges. While AI-driven tools like ChatGPT offer personalized learning experiences and instant academic support, they also raise several issues. One major concern is the reliability and accuracy of the information provided by AI (Popenici & Kerr, 2017). As ChatGPT relies on vast datasets from the internet, there is a risk of disseminating misinformation or biased content, which can adversely affect the learning process. Additionally, the over-reliance on AI tools might undermine critical thinking and problem-solving skills among students, as they might become passive recipients of information rather than active learners (Luckin et al., 2016).

Another significant problem is the digital divide. Access to AI tools like ChatGPT requires stable internet connectivity and appropriate devices, which might not be available to all students, particularly in rural areas of Malaysia (Selwyn, 2016). This disparity can exacerbate existing educational inequalities, where students from disadvantaged backgrounds may not benefit equally from such technological advancements. Moreover, the integration of AI in education requires adequate training for educators to effectively incorporate these tools into their teaching practices (Holmes et al., 2019). Without proper training, educators might struggle to leverage the full potential of ChatGPT, leading to suboptimal educational outcomes. Despite these challenges, the potential benefits of ChatGPT in education cannot be overlooked. It can serve as a valuable tool for enhancing student engagement, providing personalized feedback, and fostering a more interactive learning environment. To fully understand its impact, it is crucial to explore the perceptions and experiences of students who are the primary beneficiaries of this technology.

Problem Statement

The integration of ChatGPT in educational settings has raised several important issues that need to be addressed to maximize its effectiveness and ensure its benefits are fully realized. Four key problem statements emerge from this context, each highlighting different challenges associated with the use of this AI tool in learning environments. One of the primary concerns regarding the use of ChatGPT in education is the reliability and accuracy of the information it provides. Students depend on accurate and trustworthy information to support their learning, and any inaccuracies can lead to misconceptions and a flawed understanding of the subject matter. Popenici and Kerr (2017), explore the impact of artificial intelligence on teaching and learning, emphasizing that while AI tools have significant potential, they also come with the risk of propagating misinformation. Given that ChatGPT generates responses based on a vast dataset sourced from the internet, there is a tangible concern about the quality and veracity of the content it delivers. Students may question the credibility of the information, leading to scepticism and a reluctance to fully engage with the tool.

The digital divide poses a significant barrier to the effective use of ChatGPT in education. Access to the necessary technology and stable internet connectivity is not uniform across all student populations, particularly in rural or economically disadvantaged areas. Selwyn (2016) discusses the challenges and disparities in technology access within educational contexts, highlighting how these inequalities can impact students' learning experiences. For students without reliable internet access or appropriate devices, using ChatGPT becomes a daunting task, further widening the educational gap between them and their more advantaged peers. This divide not only limits the accessibility of AI tools but also exacerbates existing educational

inequalities. The successful integration of ChatGPT into educational practices heavily depends on the educators' ability to effectively incorporate this technology into their teaching. Holmes et al (2019), address the importance of educator training in the context of AI in education. They argue that without adequate training, educators may struggle to leverage the full potential of AI tools like ChatGPT. Proper training and support are crucial for educators to understand how to utilize ChatGPT effectively, tailor its use to specific learning objectives, and address any issues that arise. This training needs to encompass not only technical skills but also pedagogical strategies to ensure that AI enhances rather than hinders the learning process.

Another critical issue is the potential impact of ChatGPT on students' critical thinking and problem-solving skills. There is a concern that reliance on AI-generated responses could lead to a passive learning approach, where students may accept information without critical evaluation. Luckin et al (2016), argue that while AI has the potential to support learning, it is essential to ensure that it does not undermine students' ability to think critically and solve problems independently. The challenge lies in integrating ChatGPT in a way that complements and enhances critical thinking skills rather than replacing them. Educators need to design activities that encourage students to question, analyse, and apply the information provided by ChatGPT, fostering an active and engaged learning environment. By addressing these problem statements, the study aims to contribute to a comprehensive understanding of the integration of ChatGPT in educational settings. Exploring these issues will highlight both the potential benefits and the challenges of using this AI tool, providing insights that can guide its effective implementation and help maximize its positive impact on students' learning experiences.

The Development of ChatGPT

OpenAI's ChatGPT is an advanced natural language processing (NLP) model that builds upon the Generative Pretrained Transformer (GPT-3) architecture. Initially developed for tasks such as machine translation (Qadir et al., 2022; OpenAI, 2022). The journey of ChatGPT begins with the foundational concepts of artificial intelligence and natural language processing (NLP). The mid-20th century marked the advent of AI research, with Alan Turing's seminal work introducing the idea of machine intelligence. Turing's 1950 paper, "Computing Machinery and Intelligence," posed the provocative question, "Can machines think?" and introduced the Turing Test as a criterion for machine intelligence (Turing, 1950). This period laid the groundwork for future explorations into AI's potential to understand and generate human language.

The resurgence of AI in the 21st century was driven by significant advancements in deep learning. Innovations in neural network architectures, particularly the backpropagation algorithm and convolutional neural networks (CNNs), enabled more effective training of AI models (Rumelhart, Hinton, & Williams, 1986). These developments paved the way for more sophisticated applications of AI in various domains, including NLP. OpenAI's introduction of the Generative Pre-trained Transformer (GPT) models marked a pivotal moment in AI research. The first model, GPT-1, released in 2018, demonstrated the efficacy of pre-training a language model on a large corpus of text before fine-tuning it for specific tasks (Radford et al., 2018). This approach represented a significant departure from traditional supervised

learning methods, allowing the model to generate more contextually appropriate and coherent text.

In 2019, OpenAI unveiled GPT-2, a model with 1.5 billion parameters, significantly larger than its predecessor. GPT-2 showcased remarkable language generation capabilities, capable of producing coherent and contextually relevant text across a variety of tasks (Radford et al., 2019). This model's release sparked widespread discussions about the potential applications and ethical implications of advanced AI systems. The release of GPT-3 in 2020 represented a quantum leap in AI capabilities. With 175 billion parameters, GPT-3 exhibited an unprecedented ability to understand and generate human-like text, performing complex tasks with minimal supervision (Brown et al., 2020). Its versatility and power underscored the potential of AI to revolutionize industries ranging from customer service to creative writing (Floridi & Chiriatti, 2020). Finally, GPT-4 and GPT 4o have been released. Chat GPT-4 is faster, more self-sufficient, more creative, and more stable than its previous version. GPT-4 can now process up to 25,000 words of text from a user (OpenAI, 2024). GPT-4 does not only process text, but it is now also capable of interacting with images

Literature Review

ChatGPT excels in generating human-like text from specific prompts or dialogues, facilitating natural and open-ended conversations (OpenAI, 2022). Additionally, it is versatile enough to generate code, stories, poems, and more. The GPT-3 model, with its 175 billion training parameters, stands as the largest language model to date, enabling these impressive capabilities (Cooper, 2021). Unlike earlier AI language models, ChatGPT is a generative AI that creates new content and ideas by leveraging enhanced learning from human feedback, and it can articulate these in real-time conversations. This advanced design allows ChatGPT to handle follow-up questions, admit mistakes, challenge false assumptions, and dismiss inappropriate requests. When compared to traditional AI language tools like RoBERTa or Meta's language tool, ChatGPT offers "more creative" responses (Vanian, 2022). However, it is limited to text-to-text generation and cannot convert text into images like other AI models, such as DALL-E (Qadir et al., 2022). A standout feature of ChatGPT is its ability to sustain a "conversational style" with a consistent personality throughout interactions. This capability fosters more realistic and authentic discussions, as ChatGPT delivers coherent responses rather than random replies. To achieve this, ChatGPT has been extensively trained on large databases of conversational text, including chat transcripts, forum discussions, and social media posts (Qadir et al., 2022).

Conceptual Framework

The application of ChatGPT across various fields, including education, has emerged as a significant point of interest. Consequently, researchers and educators are rigorously examining both the advantages and challenges of integrating this technology into academic environments. This study aims to understand students' perspectives on using ChatGPT as an educational tool, emphasizing the benefits and barriers that affect its effective utilization. Previous research underscores several significant advantages of ChatGPT in education. A primary benefit is its capability to deliver personalized instruction, which adapts to the unique needs and abilities of individual students (Zhai, 2022; Else, 2023; Baker, 2021). ChatGPT can evaluate students' learning performance and offer targeted recommendations for improvement. Moreover, it customizes content and learning materials to align with users'

preferences and study habits (Zhai, 2022; Dhawan & Batra, 2021). These personalized features enhance the learning experience by directly addressing specific student needs.

Nonetheless, ChatGPT also has notable limitations. Prior studies have highlighted issues such as the generation of inaccurate information, challenges in providing accurate citations, and difficulties in understanding context-specific nuances (Dhawan & Batra, 2021; Mintz, 2023; Eaton et al., 2021). These limitations are crucial to understanding the practical implications of integrating ChatGPT into educational settings. Acknowledging these challenges enables educators to develop strategies to mitigate potential drawbacks and enhance the reliability of ChatGPT as an educational tool. To construct a comprehensive conceptual framework for this study, findings from pivotal research (Zhai, 2022; Else, 2023; Baker, 2021; Dhawan & Batra, 2021; Mintz, 2023; Eaton et al., 2021) were synthesized. This synthesis provides a solid foundation for examining the use of ChatGPT in education, highlighting both its benefits and the challenges that need to be addressed. By clarifying the dimensions of ChatGPT's impact on education, this framework aims to guide further investigations into its practical applications and potential improvements. The ultimate goal is to maximize the educational benefits of ChatGPT while addressing its limitations to ensure it effectively supports student learning.

Research Objectives

This descriptive survey research design allows the researchers to systematically gather and analyses data on students' perceptions of ChatGPT, providing insights into its usability, benefits, and challenges in an educational setting. This study aims to investigate the perceptions of students at Teacher Education Institutes in Malaysia regarding the use of ChatGPT in their learning. Their objectives are:

To identify students' perceptions of using ChatGPT in learning.
To identify the student's perception of the benefits of using ChatGPT in learning.
To identify students' perceptions of barriers to using ChatGPT in learning.
To identify the average scores of participants' perceptions of using ChatGPT in learning.

Methodology

Participants

Students from a Teacher Education Institute in Malaysia were invited to respond to a survey voluntarily. A total of 44 participants provided feedback. The demographic information of the participants is shown in Table 1.

Instruments

A specialized questionnaire for this study was developed by NGO (2023) based on the research of Zhai [5], Else [53], Baker [54], Dhawan and Batra [55], Mintz [56], and Eaton et al. [57]. The questionnaire consists of two main parts: demographic information of the participants and survey elements that encompass the research objectives. To assess students' perceptions of the benefits and barriers of using ChatGPT, a 5-point Likert scale was used, ranging from 1 (strongly disagree) to 5 (strongly agree).

Data Collection and Analysis

Data was collected through an online survey. Initially, a Google Forms questionnaire was distributed to students who had used ChatGPT in their studies, inviting them to participate in the study. To ensure the reliability of the questionnaire, a pilot study was conducted with a sample of 30 responses. The internal consistency of the questionnaire was evaluated using Cronbach's alpha test in SPSS (version 25), yielding a Cronbach's alpha value exceeding 0.9, confirming the reliability and suitability of the questionnaire for this study. In the empirical study, 44 valid responses were collected in July 2024. The collected data was analysed using SPSS (version 25) with descriptive analysis. It was found that 3 female students had never used ChatGPT: one first-year Malay Language student, one third-year Malay Language student, and one second-year Islamic Education student. Consequently, the final sample size was 41 students.

Findings and Discussion

Demographics of Respondents

Table 1 presents the demographics of the study's respondents and reveals a significant gender imbalance, with a much higher number of female participants compared to males. Most students are in their first year (31.8%) and third year (29.5%). The preparation year and fourth year have fewer students. Islamic Education is the most popular field of study among the students (54.5%), followed by Malay Language Education (36.4%), with Early Childhood Education having the fewest students (9.1%). Regarding the frequency of using ChatGPT, the majority of students reported low usage (61.4%), followed by moderate usage (27.3%). A small number of students reported never using ChatGPT (6.8%) or using it frequently (4.5%). This indicates that most students tend to use ChatGPT at a low to moderate rate.

Table 1
Participant Demographics

	N=44	Percentage (%)
Gender		
Male	6	13.6
Female	38	86.4
Year of Study		
Preparation Year	6	13.6
Year 1	14	31.8
Year 2	7	15.9
Year 3	13	29.5
Year 4	4	9.1
Field of Study		
Islamic Education	24	54.5
Early Childhood Education	4	9.1
Malay Language Education	16	36.4
Frequency of Using ChatGPT per Week		
Never	3	6.8
1-3 times (Low)	27	61.4
4-6 times (Moderate)	12	27.3
More than 6 times (High)	2	4.5

Students' Perception of Using ChatGPT in Learning

Data in Table 2 shows that students find ChatGPT easy to use, with a mean score of 4.41 and a standard deviation of 0.77. This reflects a strong consensus among students that ChatGPT is user-friendly and intuitive. The study by Hill et al. (2021) reinforces that ease of use is a critical factor in the adoption of new technologies among students. These findings are also consistent with the Technology Acceptance Model (TAM) introduced by Davis (1989), which emphasizes that ease of use is one of the main determinants of technology acceptance.

Table 2
Students' Perception of Using ChatGPT

Item	Mean	SD
ChatGPT is easy to use	4.41	0.77
ChatGPT provides quick responses	4.37	0.86
ChatGPT makes me lazy to think	2.85	1.37
ChatGPT functions as a search engine	4.39	0.95
ChatGPT can handle multiple language inputs	4.22	1.04
ChatGPT is a useful learning tool	4.41	0.71

Students also perceive that ChatGPT can provide quick answers, with a mean score of 4.37 and a standard deviation of 0.86. The speed of responses is crucial in educational contexts where students need immediate answers to continue their learning. Hwang et al. (2022) noted that quick response times are highly valued in digital learning applications, enhancing student efficacy and user satisfaction. In this regard, ChatGPT meets students' expectations for speed and efficiency. ChatGPT is also viewed as an effective search engine substitute, with a mean score of 4.39 and a standard deviation of 0.95. This indicates that students feel ChatGPT can replace or complement traditional search engines by providing tailored and contextual information. Rudolph et al. (2020) found that AI tools like ChatGPT can complement traditional search engines by offering more precise and relevant answers to users.

The ability of ChatGPT to accept multiple language inputs is also rated highly by students, with a mean score of 4.22 and a standard deviation of 1.04. This shows that the tool is inclusive and can be used by students from diverse linguistic backgrounds. Jones et al. (2019) emphasized the importance of multilingual support in educational technology to ensure inclusivity and accessibility. In the context of globalization and linguistic diversity among students, this multilingual support is a significant advantage for ChatGPT. However, some concerns using ChatGPT may make students lazy to think, with a mean score of 2.85 and a standard deviation of 1.37. This indicates significant variation in opinions among students. Selwyn (2016) and Luckin et al. (2018) highlighted that excessive use of educational technology could lead to dependency and reduce students' cognitive engagement. Therefore,

it is essential to ensure that the use of ChatGPT is balanced with activities that require critical thinking and problem-solving.

Overall, students see ChatGPT as a useful learning tool, with a mean score of 4.41 and a standard deviation of 0.71. This reflects strong agreement on the usefulness of ChatGPT in supporting the learning process. Veletsianos and Kimmons (2012) found that digital learning tools perceived as useful by students tend to increase their engagement and academic performance. This indicates the significant potential of ChatGPT as an effective and beneficial learning tool.

Students' Perception of the Benefits of Using ChatGPT in Learning

Table 3 shows that students highly rated ChatGPT's ability to help them save time, with a mean score of 4.51 and a standard deviation of 0.55. This indicates that students generally feel that ChatGPT helps them manage their time more efficiently. According to Owusu-Ansah et al. (2020), educational technology that automates routine tasks can reduce students' workload, allowing them to focus on a deeper understanding of the study material. This time-saving aspect is crucial in an increasingly demanding learning environment, where students often have to balance academic tasks, extracurricular activities, and personal life. The ability of ChatGPT to provide information in various fields is also highly rated by students, with a mean score of 4.39 and a standard deviation of 0.92. This indicates that ChatGPT is perceived as a versatile and beneficial tool in supporting diverse academic disciplines. Wang et al. (2021) stated that learning tools capable of providing information across various disciplines enrich the learning experience and support students in their academic courses. In this context, ChatGPT meets the needs of students who require access to broad and diverse information to complement their learning.

Table 3
Students' Perception of the Benefits of Using ChatGPT

Item	Mean	SD
ChatGPT can help students save time	4.51	0.55
ChatGPT can provide information in various fields	4.39	0.92
ChatGPT can translate learning materials into multiple languages, making them accessible	4.32	0.79
ChatGPT can help students better understand theories and concepts	4.00	0.97
ChatGPT can clarify ideas in writing, thus enhancing efficiency and productivity	4.15	0.76
ChatGPT can provide personalized guidance and feedback based on student's needs and progress	4.02	0.88
ChatGPT can enhance student learning by offering personalized and adaptive learning experiences	3.95	0.95

The capability of ChatGPT to translate learning materials into multiple languages is also appreciated, with a mean score of 4.32 and a standard deviation of 0.79. This shows that students find the tool makes learning materials more accessible in languages they understand. Jones et al. (2019) emphasized the importance of multilingual support in educational technology to ensure inclusivity. Tools that can translate learning materials help students from different linguistic backgrounds better understand the content, thereby improving their efficiency and comprehension. ChatGPT's ability to help students understand theories and concepts is acknowledged, with a mean score of 4.00 and a standard deviation of 0.97. Although the rating is positive, the larger variation in opinions suggests that some students may require additional approaches to grasp complex concepts. Hattie (2009), stated that technology can be an effective tool for teaching and learning if used to support deep understanding. In this context, ChatGPT can serve as a supportive tool to help students understand and apply difficult theories and concepts.

Students also feel that ChatGPT can help clarify ideas in writing, with a mean score of 4.15 and a standard deviation of 0.76. This indicates that ChatGPT can enhance students' writing efficiency and productivity. Sutherland et al. (2020) found that digital writing tools can help students produce better texts by providing relevant feedback and guidance. ChatGPT's ability to clarify ideas and assist in writing structure makes it a useful tool for students aiming to improve their academic writing skills. The ability of ChatGPT to provide personalized guidance and feedback based on student's needs and progress is rated positively with a mean score of 4.02 and a standard deviation of 0.88. According to Luckin et al (2018), personalization in education is key to enhancing student engagement and performance. ChatGPT can tailor its feedback based on student input, offering a more customized learning experience. This means that students can receive relevant and specific feedback on their needs, helping them to improve and understand more deeply.

ChatGPT's potential to offer personalized and adaptive learning experiences received a mean rating of 3.95 with a standard deviation of 0.95. Although the rating is positive, the variation in opinions suggests that not all students equally perceive this benefit. Veletsianos and Kimmons (2012) stated that adaptive technology that adjusts to individual student needs can significantly enhance the learning experience, although its application needs to be optimized for each individual. In this regard, ChatGPT has great potential to offer more tailored and adaptive learning experiences but still requires improvements to ensure these benefits are felt by all students.

Students' Perception of Barriers to Using ChatGPT in Learning

Based on Table 4, students express concern that ChatGPT can provide unreliable information on topics with limited references, with a mean score of 3.83 and a standard deviation of 0.92. This indicates uncertainty about the accuracy of the information provided by ChatGPT. Research by Bender et al (2021), notes that large language models like ChatGPT can generate information that appears credible but is inaccurate, especially in fields with limited references. This uncertainty can lead students to question the information obtained, reducing their reliance on the tool. Students also worry that ChatGPT can produce inaccurate or false factual references, with a mean score of 3.37 and a standard deviation of 1.02. This concern aligns with the findings by Marcus and Davis (2019), who stated that AI models can produce answers that seem correct but are false or baseless. Accuracy of facts is critical in education, and errors

can lead to serious misunderstandings. This highlights the need for additional validation of information generated by ChatGPT.

Table 4
Students' Perception of Barriers to Using ChatGPT

Item	Mean	SD
ChatGPT can provide unreliable information on topics with limited references	3.83	0.92
ChatGPT can produce inaccurate or false factual references	3.37	1.02
ChatGPT cannot accurately cite sources	3.63	0.94
ChatGPT struggles to replace words and use idioms wisely	3.59	1.07
ChatGPT's responses can weaken after several paragraphs	3.32	1.13
ChatGPT cannot assess the quality and reliability of sources	3.66	0.96
ChatGPT can show logical errors and contradictions	3.76	0.83
ChatGPT struggles with calculating difficult mathematical formulas	3.34	1.02

The inability of ChatGPT to accurately cite sources is another concern, with a mean score of 3.63 and a standard deviation of 0.94. According to Mayfield et al. (2020), AI often struggles to provide accurate citations because these models do not have direct access to external sources or the ability to verify the information generated. This can reduce students' trust in the information provided by ChatGPT and impact its use in academic contexts where source accuracy is vital. Students also feel that ChatGPT struggles to replace words and use idioms wisely, with a mean score of 3.59 and a standard deviation of 1.07. This suggests that while ChatGPT can generate coherent text, it may fail in the nuances of language and complex idiom usage. Mitchell et al. (2019) emphasized that AI's ability to understand context and language nuances is still limited, which can affect the quality of responses. Accurate and nuanced language use is essential in academic and professional communication. Concerns about the quality of ChatGPT's responses weakened after several paragraphs received a mean score of 3.32 and a standard deviation of 1.13. Students may notice that ChatGPT tends to repeat or provide less relevant answers in longer responses. Radford et al. (2019) stated that AI models often lose focus in longer texts, which can reduce communication effectiveness. This indicates that using ChatGPT should be accompanied by human oversight to ensure consistent and relevant responses.

The inability of ChatGPT to assess the quality and reliability of sources is another significant barrier, with a mean score of 3.66 and a standard deviation of 0.96. Bender et al. (2021), highlighted that AI cannot evaluate source credibility, which can lead to the dissemination of unreliable information. This is critical in academic contexts where source reliability is essential. Without the ability to properly assess sources, students may be exposed

to inaccurate or misleading information. Students are also concerned that ChatGPT can show logical errors and contradictions in its answers, with a mean score of 3.76 and a standard deviation of 0.83. Logical errors can undermine students' trust in the tool. Rudolph et al. (2020), indicated that AI models can produce answers that seem logical but contain conceptual errors or internal contradictions. This underscores the need for additional supervision and validation of ChatGPT's output to ensure quality and accuracy. ChatGPT's ability to calculate difficult mathematical formulas is rated low by students, with a mean score of 3.34 and a standard deviation of 1.02. This shows that while ChatGPT can help with basic mathematical concepts, it may not be accurate enough for complex mathematical problems. Lample and Charton (2020), stated that AI still struggles with complex mathematical calculations, which require precision and deep understanding. This is a significant limitation in using ChatGPT for subjects that require complex mathematical analysis.

Average Scores of Participants' Perceptions of Using ChatGPT in Learning

Based on Table 5, the use of ChatGPT is rated highly by participants with a mean score of 4.11 and a standard deviation of 0.51. This indicates that students generally find ChatGPT easy to use and beneficial in their learning process. Hill et al. (2021) emphasized that ease of use is a critical factor in students' acceptance of new technology. ChatGPT, with its intuitive interface and quick responses, meets these criteria, making it a preferred tool among students. This aligns with the Technology Acceptance Model (TAM) by Davis (1989), which shows that ease of use directly influences positive attitudes toward technology.

Table 5
Average Scores of Participants' Perceptions on Using ChatGPT

Item	N	Mean	Standard Deviation
Use of ChatGPT	41	4.11	0.51
Benefits of ChatGPT	41	4.19	0.62
Barriers to ChatGPT	41	3.56	0.64

The benefits of ChatGPT received the highest average score of 4.19, with a standard deviation of 0.62. This suggests that students see many advantages in using ChatGPT, including its ability to save time, provide information across various fields, and help in understanding theories and concepts. According to Veletsianos and Kimmons (2012), digital learning tools perceived as useful by students tend to enhance their engagement and academic performance. The use of ChatGPT as a versatile and effective learning tool reflects these findings, showing its potential to improve students' overall learning experience. This tool also aids in understanding complex concepts and supports various academic disciplines, which is crucial in modern education. Despite the many benefits, there are also some barriers faced by users, with a mean score of 3.56 and a standard deviation of 0.64. Students expressed concerns about the accuracy of information, citation abilities, and language usage. Bender et al. (2021) noted that large language models like ChatGPT can generate information that appears credible but is inaccurate, especially in fields with limited references. This uncertainty can lead students to doubt the information obtained, reducing their reliance on the tool.

Conclusion and Recommendation

Analysis of the average perception scores indicates that ChatGPT is well-received by students and considered beneficial in education. Despite some challenges, such as information accuracy and language use, students still see high value in using this tool. These findings are consistent with literature emphasizing the importance of ease of use, learning benefits, and information reliability in educational technology. To further improve the effectiveness of ChatGPT, it is essential to continue enhancing the accuracy and reliability of the information it provides. Future studies should investigate the most effective training methods for both educators and students to maximize the benefits of ChatGPT. Research should identify best practices for training programs that enhance digital literacy, critical thinking, and the ethical use of AI.

This can inform the development of comprehensive training modules that equip users with the necessary skills to utilize ChatGPT effectively. Exploring how ChatGPT can be seamlessly integrated into various pedagogical approaches is crucial. Research should examine how AI tools can be incorporated into different teaching strategies, curricula, and classroom activities to support and enhance traditional teaching methods. Studies should also look at how ChatGPT can be used to facilitate personalized learning experiences and adaptive learning pathways. Future research should delve into the ethical implications and privacy concerns associated with using AI in education. Studies should address questions related to data security, student privacy, and the ethical use of AI-generated content. This research can inform policy guidelines and best practices for the responsible use of AI tools in educational environments.

Investigating how ChatGPT affects student engagement and motivation can provide valuable insights into its potential as a learning tool. Research should examine whether the interactive nature of ChatGPT enhances student interest and participation in learning activities. Understanding the motivational impact of AI tools can help educators design more engaging and effective learning experiences. Research should focus on strategies to mitigate the digital divide and ensure equitable access to AI tools like ChatGPT. Studies should explore innovative solutions to provide necessary technology and internet connectivity to underserved populations. This can help create a more inclusive educational environment where all students have the opportunity to benefit from AI advancements.

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