


Chapter 2

Advantages and Disadvantages of Access to ChatGPT Among University Students: A Systematic Literature Review

Tahani R. K. Bsharat

Universiti Sains Islam Malaysia, Malaysia

Ismail Sheikh Ahmad

 <https://orcid.org/0009-0001-9735-5339>

International Islamic University Malaysia, Malaysia

Zuheir Khlaif

 <https://orcid.org/0000-0002-7354-7512>

An Najah National University, Palestine

ABSTRACT

This chapter explores the advantages and disadvantages of university students using ChatGPT, an AI-powered chatbot. By synthesizing existing research, it aims to provide a comprehensive understanding of the topic. Using thematic analysis, the study identifies key themes: the benefits of ChatGPT, its drawbacks, and its potential integration into university education. The findings suggest that ChatGPT enhances learning experiences, offers personalized support, and promotes self-directed learning. However, concerns such as overreliance on AI, ethical issues, and privacy challenges are also highlighted. The chapter emphasizes the need for further research to address these issues and guide effective integration into academic settings.

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1. INTRODUCTION

The advancement of natural language processing (NLP) and artificial intelligence (AI) technologies has led to the emergence of conversational agents that can simulate human-like conversations. One such prominent conversational agent is the Chat Generative Pre-Trained Transformer (ChatGPT), developed by OpenAI, which employs a deep learning model to generate human-like text responses (Roumeliotis & Tselikas, 2023). In recent years, ChatGPT has gained significant attention and has been widely explored in various domains, including customer service, healthcare, and entertainment. However, its potential applications in higher educational settings have received relatively less attention (Ray, 2023). This systematic literature review aims to examine the use of ChatGPT in higher educational settings and explore its benefits, challenges, and implications for teaching and learning.

This systematic literature review explores the advantages and disadvantages of university students accessing ChatGPT, an AI-powered chatbot, aiming to identify its impact. Using NVivo software, the review synthesizes existing research, revealing key themes such as enhanced learning experiences, improved access to information, and potential drawbacks like ethical concerns. Furthermore, the study highlights the need for further research to address concerns and establish best practices for integrating ChatGPT into university settings. Moreover, the significance of this study lies in its comprehensive examination of ChatGPT's impact on university students, offering insights into the benefits and challenges involved. This study establishes the importance of responsible implementation by addressing concerns such as over-reliance on artificial intelligence and privacy concerns. The recommendations so far emphasize the need for further research, balanced integration, and collaboration among stakeholders, as well as guidance for effective use by universities. The goal of this study is to integrate ChatGPT effectively, balancing AI with human interaction, inform students about its benefits and drawbacks, collaborate with AI researchers, prioritize privacy, foster stakeholder collaboration, and gather feedback from stakeholders. A collaborative approach is required to address ethical considerations when integrating AI into education. AI, like ChatGPT, must be used responsibly to preserve human skills while reaping its benefits. The study also emphasizes the need to use AI cautiously in educational assessments, recognizing its limitations and potential dangers. To integrate AI responsibly, collaboration is required to harness technology while addressing ethical concerns.

2. LITERATURE REVIEW

This review of the selected articles has illuminated the multifaceted impact of large language models like ChatGPT across various educational domains and industries. The published studies collectively demonstrate the potential benefits and limitations of integrating AI technologies into education and training contexts. From healthcare to statistics, chemistry, and beyond, ChatGPT's role in reshaping pedagogical practices and industry standards is undeniable. However, as these studies reveal, careful consideration of domain-specific requirements, ethical concerns, and user perceptions is essential for harnessing the full potential of AI in education and beyond.

Therefore, this study explores the various applications and implications of ChatGPT in different educational domains, including medical education, statistics and data science education, chemistry education, construction safety education, nuclear medicine and radiography education, parasitology, Chinese academic settings, English as a Foreign Language (EFL) education, and event planning within an event management class. Each section provides insights from relevant studies and highlights the strengths and limitations of ChatGPT in these educational contexts. The details of the reviewed articles are presented in Table 1.

Table 1. Details of Authors, Research Context, and Source Journals

Study	Context	Source(s)
(Chukwuere,2024).	The study looks at ChatGPT, an AI tool created by OpenAI, and its application in higher education. It evaluates research from January 2023 to July 2023 to determine the possible advantages and disadvantages of ChatGPT. Among the benefits are enhanced access to learning resources, timely feedback, individualized instruction, and more student interaction. However, there are drawbacks, including the risk of relying too much on AI, social interaction deficits, difficulty understanding emotions, and technological limitations. The study recommends integrating it with conventional teaching techniques and considering ethical considerations.	Computer Science Journal
(Garcia Castro, et al., 2024)	The integration of ChatGPT into basic education is examined in this study, with particular attention paid to the benefits, drawbacks, and effects on academic assignments. The quick uptake of ChatGPT in educational environments begs concerns regarding its drawbacks and efficacy. ChatGPT is positioned as a revolutionary tool in education due to its sophisticated features. This study aims to close the gap between ChatGPT's alleged advantages and its real-world applications in the classroom. To understand how ChatGPT influences educational practices, a varied group of educators and students.	Contemporary Educational Technology,
(Ali, Barhom, Tamimi, & Duggal, 2023)	The performance evaluation of ChatGPT in the context of contemporary healthcare education.	European Journal of Dental Education
(Chan & Hu, 2023)	Exploration of university students' perceptions of Generative AI (GenAI) technologies, such as ChatGPT, in higher education. The research indicated that students are generally familiar with GenAI technologies, but concerns about their use were not necessarily related to knowledge about the technology.	International Journal of Educational Technology in Higher Education
(Currie, Singh, Nelson, & Nabasenja, 2023)	Performance evaluation of ChatGPT among nuclear medicine and radiography students. The study found that ChatGPT consistently performed below average in written tasks but outperformed students in foundational subjects where shallow responses sufficed.	Radiography Journal
	This highlights the model's potential as a resource for certain types of assessments.	
(Ellis & Slade, 2023)	Utility investigation of ChatGPT in statistics and data science education. The study recognized its role in developing course materials and providing guidelines for responsible interaction, but it also pointed out limitations in ChatGPT's common-sense knowledge and contextual understanding, which may hinder its effectiveness in certain contexts.	Journal of Statistics and Data Science Education
(Emenike & Emenike, 2023)	ChatGPT's potential assessment in chemistry education. The findings highlighted limitations in its ability to answer algorithmic questions accurately. Chemistry's reliance on visual concepts like Lewis structures and protein representations makes it challenging for text-only systems like ChatGPT to provide comprehensive support in this domain.	Journal of Chemical Education

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Table 1. Continued

Study	Context	Source(s)
(Hung & Chen, 2023)	Discussion on the implications of Chinese students using ChatGPT for academic activities. The study highlighted concerns about the negative impact on critical thinking skills and the risk of plagiarism. It underscored the need for a well-designed regulatory system to mitigate these issues.	Social Sciences-Basel Journal
(Iskender, 2023)	Discussion on the multifaceted impacts of ChatGPT on education and the tourism and hospitality industry. While ChatGPT proved valuable in various educational aspects, there were concerns about over-reliance on AI hindering critical thinking. In the tourism and hospitality sector, ChatGPT showed potential but should not replace human creativity and personalized service.	European Journal of Tourism Research
(Kasneji, et al., 2023)	Discussion on the potential of large language models like ChatGPT in medical education and clinical decision-making. The study also identified the importance of thoughtful integration, considering factors such as age and background. It suggested that ChatGPT can enhance medical education by providing resources and assistance tailored to individual needs.	Learning and Individual Differences
(Keiper, 2023)	Examination of ChatGPT applications in event planning of an event management class. The study revealed its effectiveness in content creation tasks, such as generating bios, promotional materials, and event descriptions. ChatGPT's ability to provide templates and reduce faculty time commitments can enhance students' acquisition of employability skills in event management.	Journal of Hospitality Leisure Sport & Tourism Education
(Uddin, Albert, Ovid, & Alsharif, 2023)	Examination of ChatGPT's integration into safety education for construction students. The study observed a substantial improvement in hazard recognition among students after using ChatGPT. It suggested	Sustainability
	that AI can significantly enhance safety education, a critical aspect of preparing future construction professionals.	
(You, Chen, You, Zhang, & Cao, 2023)	Utilization of evolutionary game analysis to explore the role of AI in education. The study discovered strategies that could improve educational effectiveness in an AI-driven era. Schools were recommended to adopt positive supervision to standardize AI usage, while students were encouraged to engage with AI technology actively. The research demonstrated the potential of AI to reshape the education landscape.	Sustainability

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Table 1. Continued

Study	Context	Source(s)
(Young & Shishido, 2023)	Investigation of ChatGPT's ability to generate reference dialogues for an EFL chatbot system. The study found that ChatGPT's dialogues were suitable for elementary and intermediate-level students, offering comprehensible content and vocabulary, suggesting its potential in EFL education.	International Journal of Advanced Computer Science and Applications
(Šlapeta, 2023)	Transformative potential analysis of large language models like ChatGPT in parasitology. While acknowledging limitations in providing authentic experiences, the integration of AI in this field can enhance research, education, and communication.	Trends in Parasitology

By conducting a systematic literature review, we aim to provide a comprehensive overview of the existing research on the use of ChatGPT in higher education. This methodology is driven by its merits in the form of systematic, transparent, and replicable review, and it is also inspired by prior review articles (Montenegro-Rueda, Fernández-Cerero, Fernández-Batanero, &

López-Meneses, 2023). Therefore, this review will help in identifying the current state of knowledge and research gaps, as well as in providing insights into the potential future directions of using ChatGPT. Through the analysis of the selected articles, the current systematic literature review provides a comprehensive understanding of the current state of research on the advantages and disadvantages of using ChatGPT in higher educational settings. This review explores the potential benefits of employing ChatGPT in teaching and learning. Additionally, it examines the challenges and limitations associated with its implementation.

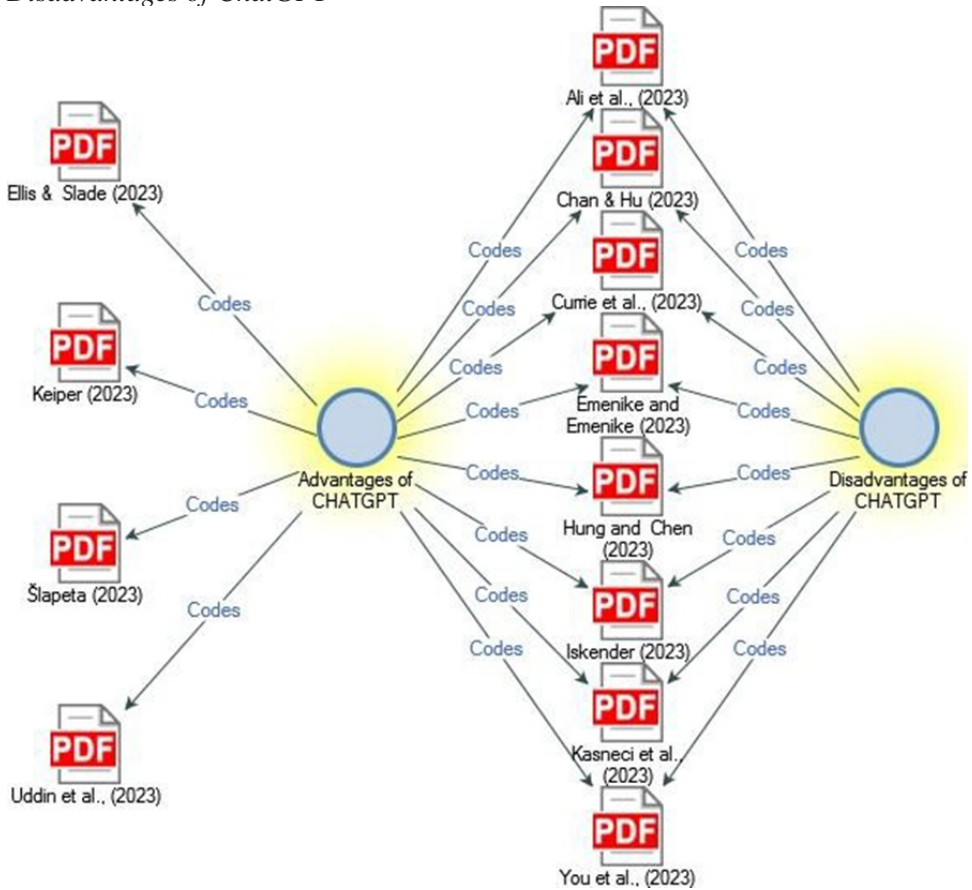
3. METHODOLOGY

The systematic review methodology applied in this study was developed based on recent education publications (Shahrol, Sulaiman, Samingan, Mohamed, 2020; Azman, Maat, 2021; Mohamed Nor & Sihes, 2021). The methodology was driven by its merits, as it allowed for systematic, transparent, and replicable reviews. Additionally, the study drew inspiration from prior review articles (Pahlevan Sharif, Mura, Wijesinghe 2019; Stracke ; Trisolini, 2021 & Garcia Castro, et al., 2024)). A systematic search strategy to ensure the rigor and reliability of the review was employed, and managed to identify 24 relevant studies from the Scopus academic database. Keywords such as “ChatGPT”, “advantages of ChatGPT”, “disadvantages of ChatGPT”, “university students”, and other related terms were used to retrieve these relevant articles while limiting the search to Open-Access category. The

inclusion criteria to screen the published studies were made to gather the articles published within the 2023 timeframe, written in English, and focused on the use of ChatGPT in higher educational settings. Subsequently, out of the 24 articles, 12 were excluded following the exclusion criteria, i.e., the articles that do not specifically discuss the use of ChatGPT in higher education or those that are not directly related to teaching and learning. The remaining 12 selected-for-review articles went through a systematic screening process based on their titles, abstracts, and full texts. These articles were subjected to data extraction, where relevant information such as research objectives, methodologies, findings, advantages and disadvantages of ChatGPT, educators' and students' perception of the use of ChatGPT, use of ChatGPT, how best to use ChatGPT, ways of identifying a text written by ChatGPT, and recommendations were extracted and synthesized. These 12 papers were then selected for further analysis, as listed in Table 1.

4. RESULTS

Figure 1. Comparison Among Researchers that Discussed the Advantages and Disadvantages of ChatGPT



a. Discussion on the Advantages of ChatGPT

Figure 1 illustrates a comparison among researchers who have explored the advantages of ChatGPT utilization for students.

Interactive Learning with ChatGPT

One of the distinctive strengths of ChatGPT, as highlighted by Ali et al. (2023), lies in its conversational and interactive nature. Unlike traditional web search engines, ChatGPT offers a platform where learners can engage directly, receiving immediate responses to their queries.

This facet empowers students not only to consume information but also to dissect it critically and question its authenticity and sources. AI technology transcends physical barriers, providing equal access to education for students with diverse needs (You et al., 2023). In essence, ChatGPT functions as a virtual tutor, available around the clock and free of cost, which is likely to witness increased utilization in higher education, including medical and science education. Furthermore, the benefits are enhanced access to learning resources, timely feedback, individualized instruction, and student interaction (Chukwuere, 2024).

Personalized Learning Support

ChatGPT's utility extends to personalized learning, empowering students with tailored content to meet their individual needs (Ali et al., 2023; Iskender, 2023; You et al., 2023). Through adaptation and personalization, it enhances comprehension and retention, benefiting both students and educators. Moreover, the system provides valuable explanations and examples, which are pivotal in elucidating complex concepts (Currie et al., 2023). ChatGPT's summarization capabilities further streamline the learning process, allowing students to condense and simplify intricate information for better understanding and retention (Emenike & Emenike, 2023; You et al., 2023). Additionally, students can harness these systems to access a wealth of practice materials generated by GPT (the type of machine learning model used by ChatGPT), aiding in exam preparation and reinforcing their grasp of course content (Iskender, 2023; You et al., 2023). By leveraging AI algorithms, Generative AI or GenAI (the type of AI that can create a wide variety of data, in which ChatGPT is included) can dynamically adjust instruction in real-time to address each student's unique strengths and weaknesses (Chan & Hu, 2023).

Writing and Brainstorming Assistance

GenAI excels in providing writing and brainstorming assistance, as acknowledged by students who appreciate its capabilities in offering guidance and suggestions throughout the writing process (Chan & Hu, 2023). This type of AI can assist with various aspects of academic writing, including grammar and vocabulary corrections, structural advice, and idea generation (Currie et al., 2023). Furthermore, ChatGPT,

as one of the well-known uses of GenAI, has proven valuable in enhancing creativity, encouraging critical thinking, and enabling students to delve deeper into various topics (Iskender, 2023). It can also refine the phrasing and sentence structures in a student's work, significantly elevating the overall quality of written assignments. In addition to spelling, grammar, vocabulary, and punctuation corrections, ChatGPT ensures clarity, conciseness, and a smooth flow in the writing process. These capabilities make it a valuable tool for students seeking academic writing assistance.

Research and Analysis Capabilities

GenAI's potential for research and analysis support is indeed a remarkable revelation. The AI's capacity to gather, process, and analyze vast amounts of information streamlines the research process (Chan & Hu, 2023). It assists students in locating pertinent sources, summarizing findings, and deriving meaningful conclusions. This capability not only saves time but also cultivates critical thinking and analytical skills. By providing keywords and specific topics, it empowers students to streamline their research processes and pinpoint relevant sources for assignments and papers (Currie et al., 2023).

Visual and Audio Multimedia Support

In the digital age, multimedia elements play a pivotal role in education. Some of the GenAI implementations offer visual and audio support by generating interactive content and facilitating multimedia presentations (Chan & Hu, 2023). This aids in conveying complex concepts effectively and engaging students in a dynamic learning experience. At the time the study was conducted, ChatGPT could not deliver visual and audio output. However, OpenAI has since begun to roll out new voice and image capabilities for ChatGPT. The company has provided an interface that allows users to engage in voice conversations and upload images (OpenAI, 2023).

Administrative Support

Beyond academics, GenAI extends its utility to administrative tasks. Chan and Hu's (2023) study highlights that GenAI can assist in managing schedules, organizing assignments, and tracking progress. Hung and Chen (2023) also emphasize that GenAI aids students in creating schedules and establishing task priorities, ensuring they meet deadlines and maintain coursework efficiency. According to Currie et al. (2023), this support enhances the learning experience by allowing educators to focus more on teaching, while students can allocate more time to meaningful academic activities. This administrative assistance empowers students to manage their

educational responsibilities and time better, promoting efficiency and self-directed learning (Kasneci et al., 2023; Keiper, 2023).

Mental Health Support

Importantly, ChatGPT extends its utility beyond academics. It acts as a resource hub for students grappling with stress and mental health issues. The system suggests coping strategies and provides access to essential resources, such as counseling services, fostering a supportive environment for students in need (Currie et al., 2023).

Enhancing Educational and Professional Opportunities with GenAI Systems

ChatGPT's human-like text generation has the potential to significantly enhance the educational experience in various ways. It can be a valuable tool for educators, helping to create engaging learning materials, answer students' questions, and even simulate conversations to facilitate language learning (Ellis & Slade, 2023; Uddin et al., 2023). This feature not only boosts teacher productivity but also ensures that students have access to high-quality resources for their studies (Hung & Chen, 2023). By harnessing the capabilities of ChatGPT, education can become more personalized, providing immediate assistance to students and benefiting both learners and educators alike.

Another key advantage of ChatGPT is its ability to assist students in producing coherent and well-structured content, thereby enhancing the quality of their work (Emenike & Emenike, 2023). This can offer students the advantage of swiftly seeking factual answers to their queries. In essence, ChatGPT can help correct spelling, grammar, vocabulary, and punctuation errors, making students' work more polished and professional. Therefore, ChatGPT's advanced text generation capabilities hold great promise for revolutionizing education. It can create engaging learning materials, answer questions, facilitate language learning, and improve the overall quality of student work, benefiting both students and educators (Ellis & Slade, 2023; Uddin et al., 2023; Hung & Chen, 2023; Emenike & Emenike, 2023). This innovation has the potential to make education more personalized and accessible while increasing productivity and resource quality in educational settings.

Empowering Faculty in Their Roles

Both students and faculty members can benefit from GenAI systems when it comes to drafting various documents. Faculty members can employ these systems not only for academic applications but also for other tasks, e.g., crafting letters of

recommendation, award nominations, speeches, and promotional materials. This versatility enhances their productivity and ensures the creation of polished, effective documents (Emenike & Emenike, 2023). Additionally, faculty members can harness the power of these systems to swiftly access and synthesize vast amounts of data, facilitating informed decision-making and research (Emenike & Emenike, 2023). These models enable teachers to stay up-to-date with the latest

developments and techniques in education (Kasneci et al., 2023; You et al., 2023). By harnessing their capabilities, educators can generate innovative and engaging lesson plans tailored to their students' needs and curriculum requirements. This not only enhances the learning experience but also minimizes the time teachers spend on manual planning (Hung & Chen, 2023).

Automated Assignment Grading

ChatGPT's ability to grade written assignments efficiently can liberate instructors from the monotony of grading and allow them to focus on providing valuable feedback and conducting research (Iskender, 2023). It reduces the administrative burden of educators while ensuring consistent and unbiased assessment.

Promoting Machine Learning

Interacting with GPT can foster students' comprehension of natural language processing (NLP) and machine learning, both of which are in high demand in today's job market (Iskender, 2023). Engaging with GPT offers practical exposure to these domains and facilitates the development of pertinent skills (Kasneci et al., 2023). Furthermore, Kasneci et al. (2023) asserted that large language models enhance student engagement and participation.

Impact on Related Industries

Beyond higher education, GPT and similar machine learning models have the potential to revolutionize industries like hospitality, tourism, travel, events, and leisure services. They can provide personalized recommendations, improve customer service, and generate effective marketing materials (Iskender, 2023). These advancements can lead to enhanced customer experiences and industry growth.

Impact in Medical Field

In recent years, AI tools have proven to be invaluable assets within hospital settings, significantly reducing mortality rates among sepsis patients. By streamlining early detection and enabling swift, precise intervention, these AI systems have effectively lowered sepsis-related mortality rates by 20% (Šlapeta, 2023). This remarkable achievement underscores the immense potential of AI in revolutionizing healthcare. Šlapeta (2023) also noted that beyond healthcare, AI tools have demonstrated their prowess in accelerating the development of antiparasitic vaccines by accurately predicting structures with specific functions. These tools offer a promising avenue to expedite the creation of vital vaccines, crucial for combating various parasitic diseases afflicting populations worldwide. Therefore, AI tools have emerged as a powerful new weapon against society's most formidable challenges.

Impact on Identifying Construction Hazards

The study conducted by Uddin et al. in 2023 underscores the pivotal role played by ChatGPT in enhancing hazard recognition within the construction industry. By providing easily accessible information and guidance, ChatGPT empowers individuals to identify potential safety hazards more effectively. The discovery highlighted the versatility of ChatGPT, as it could adapt to diverse demographic backgrounds, including varying levels of experience and age among participants (Uddin et al., 2023). Consequently, ChatGPT emerged as a reliable tool that consistently offers substantial benefits to construction professionals in terms of hazard recognition.

b. Discussion on the Disadvantages of ChatGPT

Figure 1 shows not only the articles that outlined the advantages of ChatGPT, but also those that did not—a comparison list of researchers who have explored the disadvantages of utilizing ChatGPT among students. Notable contributions to this subject include the work of Ali et al. (2023), which conducted an examination of ChatGPT's capabilities and identified several noteworthy limitations. First and foremost, they found that ChatGPT was confined to answering text-based questions and lacked the capacity to process queries based on images. However, this limitation might have been eliminated, following the recently released capability for ChatGPT 4.0 to process audio files and images (OpenAI, 2023). Subsequently, Currie et al. (2023) also assessed ChatGPT's performance in the context of medical imaging content. Regrettably, they discovered that ChatGPT fell significantly short of expectations in this domain. Its inability to provide the required depth of insight and

accuracy raises concerns not only regarding academic integrity but also its utility in situations where visual information is crucial (Ali et al., 2023; Currie et al., 2023).

Limitations in Responses to Sequential Questions (SEQs)

Ali et al. (2023) discovered that ChatGPT faces challenges in providing detailed information regarding clinical interventions and follow-up visits when responding to Sequential Questions (SEQs). This limitation results in comparatively lower scores when compared to other question formats. Currie et al. (2023) also questioned ChatGPT's ability to generate questions, offer assessment feedback, and create content for university-level independent learning. Emenike and Emenike (2023) reported a notable issue with ChatGPT, which is the inconsistency in responses to repeated prompts and in answering algorithmic questions. Specifically, ChatGPT struggles to generate accurate responses in chemistry-related questions, as exemplified by the case involving the paramagnetic or diamagnetic nature of phosphorus (Emenike & Emenike, 2023). Furthermore, it is important to note that ChatGPT's capacity to produce high-quality but superficial responses can potentially jeopardize academic integrity. At the same time, its deficiency in providing clinical details could hinder its efficacy in healthcare-related applications.

Issues in Written Assignments

In assisting students' written assignments, Currie et al. (2023) discovered significant issues with ChatGPT's performance. Notably, ChatGPT often provided answers without proper supporting evidence, relied on outdated sources, and, at times, even fabricated citations. Ali et al. (2023), in their work on generating reflective portfolio reports, also highlighted a noteworthy limitation of ChatGPT. Specifically, they found that it frequently omitted references to specific learning activities or events. Furthermore, ChatGPT's inability to adhere to professional writing standards and maintain an appropriate tone exacerbated its shortcomings when assisting students in doing their written assignments. This deficiency not only undermined the depth and relevance of the generated content but also diminished its overall educational value (Currie et al., 2023; Ali et al., 2023)

Challenges in Plagiarism Detection and Ethical Concerns

With ChatGPT's ability to generate original text, the effectiveness of routine plagiarism detection software applications comes into question. OpenAI has developed tools like AI Text Classifier, including DetectGPT and GPTZero, to address this challenge (Ali et al., 2023). However, Ali et al. cautioned that these tools might

not always be entirely accurate and that misclassifications could occur (Ali et al., 2023). This raised significant concerns about potential academic dishonesty and cheating in academic works (Ali et al., 2023). Chan and Hu (2023) have also noted that students expressed their apprehension about the potential invasion of privacy, particularly as AI systems collect and process vast amounts of personal data. Ethical considerations include bias in AI algorithms and the responsible use of GenAI, highlighting the necessity for robust regulations and ethical guidelines (Chan & Hu, 2023; Kasneci et al., 2023).

Consequently, it is imperative to develop and implement more accurate and reliable detection mechanisms to uphold academic integrity.

Accuracy and Transparency

One pivotal concern raised by students in the study pertains to the accuracy and transparency of GenAI systems. As GenAI becomes more integrated into education and other sectors, ensuring the reliability and precision of generated content is paramount (Chan & Hu, 2023). GenAI-generated information must meet stringent standards, as errors or misinformation could have significant consequences. Hung and Chen's (2023) study revealed factual errors in ChatGPT-generated answers. ChatGPT's responses are generated based on the data it has been trained on, which may contain outdated or incorrect information. This can lead to misinformation and misunderstandings, hindering students' genuine learning experiences. To address this issue, it is crucial to continuously update and improve the training data used for GenAI systems to enhance their accuracy and reliability (Chan & Hu, 2023). This is to ensure that the generated information aligns with the current knowledge and minimizes the risk of spreading inaccuracies.

Academic Integrity and Learning Outcomes at Lower Taxonomies

Currie et al. emphasized that ChatGPT's impact on academic integrity and learning outcomes is most pronounced at lower cognitive levels. The ability of large language models to generate convincing yet unverified information can lead students to accept false or misleading data as fact, undermining the pursuit of knowledge (Kasneci et al., 2023). While it serves as a tool to enhance learning environments, it also poses a risk to academic integrity. Lower-level learning outcomes, such as basic comprehension and knowledge retention, are the areas where ChatGPT could excel by providing quick and accurate responses. Additionally, Chan and Hu's (2023) study revealed concerns about holistic competencies. While GenAI could assist in various tasks, students worry about its potential to diminish their overall skill development. Overreliance on ChatGPT may encourage a narrow view of knowledge, society, and

culture, as students become accustomed to quick answers without depth and critical analysis (Hung & Chen, 2023; Iskender, 2023; Kasneci et al., 2023).

Human Values and Job Displacement

Chan and Hu's 2023 study highlighted the increasing importance of preserving human values in a world increasingly influenced by GenAI. The study raised questions about the potential erosion of societal values and the human touch in various fields, including education. As Iskender (2023) emphasized, an over-reliance on AI might reduce the need for human teachers, leading to concerns about the loss of personalization and essential human interaction within classrooms, which are crucial for effective learning. AI can be a valuable tool for teachers, but it should complement, not replace, their roles (Kasneci et al., 2023). Chan and Hu (2023) added that with GenAI automating certain tasks, individuals may encounter challenges in finding meaningful employment. Preparing students for a rapidly evolving job market, one that incorporates GenAI, becomes imperative for educational institutions. Balancing technological advancements with the preservation of core human values is a critical consideration for the future (Chan & Hu, 2023).

Accessibility Issues

AI adoption in education may inadvertently exacerbate existing educational inequalities. Students from low-income backgrounds may face challenges accessing AI-powered tools and resources, thereby widening the educational divide (Iskender, 2023). It is crucial to ensure equitable access for all students.

Bias Amplification

AI systems, including GPT, are susceptible to inheriting and exacerbating biases present in their training data. In education, this translates into the risk of perpetuating socio-economic and racial disparities (Iskender, 2023). For instance, if AI systems favor certain groups or fail to address the needs of marginalized students, it can exacerbate educational disparities (You et al., 2023). AI's algorithms can unintentionally discriminate against certain groups, reinforcing existing inequalities in the education system.

Data Privacy

A significant concern related to the use of AI tools in education revolves around data privacy and security. The collection and utilization of students' personal information without their consent can pose serious privacy risks (Iskender, 2023; Kasneci et al., 2023). Therefore, if proper safeguards are not in place, the indiscriminate gathering and processing of this information can lead to privacy violations (You et al., 2023). Another ethical challenge pertains to the lack of transparency and informed consent in data collection practices. Often, students, teachers, and parents have limited insight into how AI systems operate and how their data is employed (You et al., 2023). It is imperative for educational institutions to establish robust data protection measures and ensure transparent data usage practices.

Knowledge and Expertise Gap

Many educators and institutions may lack the knowledge and expertise required to effectively integrate these technologies into their teaching methods (Kasneci et al., 2023). Bridging this knowledge gap is crucial for maximizing the benefits of large language models in education.

Financial Burden

Kasneci et al. (2023) stated that the maintenance and deployment of large language models can impose substantial financial burdens on schools and institutions, particularly those with limited budgets. The costs associated with these technologies can strain already stretched resources.

Sustainable Usage

The computational demands of large language models lead to high energy consumption (Kasneci et al., 2023). To ensure environmentally sustainable operation, the adoption of energy-efficient hardware and renewable energy sources, such as cloud infrastructure, is imperative.

Lack of Adaptability

Large language models may struggle to adapt to the diverse needs of students and teachers, hindering the level of personalization essential for effective learning. Ongoing research may address this limitation (Kasneci et al., 2023).

Language Diversity and Access Equity

Most of the research in large language models primarily focuses on the English language, leaving a significant gap in support for other languages (Kasneji et al., 2023).

Significance and Contribution

Research significance and contribution can be attributed to the systematic literature review approach utilized in this study to explore the advantages and disadvantages of university students utilizing ChatGPT. The reason of this audit is to supply a comprehensive understanding of the subject by synthesizing existing inquire about and academic articles. Methodological thoroughness is included to the audit prepare by utilizing NVivo program for analyzing developing topics in chosen investigate papers. Researchers identified several key themes in their study, including the benefits and drawbacks of ChatGPT as well as the possibility of integrating it into university education. ChatGPT has been found to enhance university students' learning experiences, improve access to information, increase convenience, and provide personalized support. Student queries, study resources, and course selection guidance are all examples of how ChatGPT can assist students. Furthermore, it promotes self- directed learning and student engagement. Although the review acknowledges potential disadvantages, such as overreliance on AI technology, ethical concerns, and data security challenges, it also acknowledges potential advantages. As a result of addressing these concerns, the research establishes the need for further research and the establishment of best practices for integrating ChatGPT into university settings. The results of this research provide universities with insights into implementing and utilizing ChatGPT effectively to support their student's educational journeys. For successful implementation, it is important to consider both the benefits and challenges of ChatGPT access.

Recommendations:

1. Further research is needed to address the disadvantages identified in this review, such as overreliance on AI technology, ethical concerns, and privacy challenges. It is important to investigate these concerns thoroughly and propose solutions to mitigate any adverse effects.
2. ChatGPT should be integrated into university settings according to best practices. In addition, we discuss how AI technology must be balanced with human interaction and personalized support, as well as guidelines for using ChatGPT

appropriately. In order to ensure effective and responsible implementation of ChatGPT, universities should share these best practices.

3. Universities should consider ChatGPT to improve learning experiences, increase access to information, and provide personalized support to students. ChatGPT should, however, be used carefully to ensure that its goals and objectives are aligned with its limitations and challenges.
4. It's critical that colleges inform their student body of Chat GPT's possible advantages and drawbacks. AI technology has a place in education, and it is important to teach students how to utilize it properly. Programs for orientation, workshops, and instructional materials that explain ChatGPT and its ramifications can be used to do this.
5. To continuously enhance Chat GPT's features and resolve any shortcomings found in this review, universities should work with AI researchers and developers. Sustained research and development ought to concentrate on improving Chat GPT's comprehension of context, practical expertise, and precision in responding to domain-specific queries.
6. When using ChatGPT in academic settings, privacy and data security concerns ought to come first. Higher education institutions have an obligation to guarantee the security of student data and to implement suitable protocols to protect sensitive data. To address privacy concerns and safeguard student rights, it is important to develop clear standards and policies.
7. Collaboration and communication among stakeholders, including students, faculty, administrators, and AI developers, is essential to the successful integration of ChatGPT into university education systems. Feedback from students and faculty should be sought to resolve issues, improve the user experience, and ensure that the technology meets the needs of the university community. By following these guidelines, colleges and universities can determine how to implement and use ChatGPT to support their students and curriculum while addressing potential challenges and ensuring appropriate use of AI technology.

5. CONCLUSION

The integration of AI chatbots like ChatGPT into education holds significant promise, offering benefits such as personalized learning experiences, improved accessibility, and efficient resource allocation. These AI systems also aid educators in automating tasks and creating engaging materials, enhancing overall work efficiency. Moreover, they have potential applications in fields like occupational safety and medical education. Large language models, including GPT, have revolutionized education by enhancing student engagement, enabling automated grading, and pre-

paring students for modern workforce demands. However, ethical considerations, such as data privacy, transparency, and algorithmic bias, must be addressed collaboratively among educational institutions, policymakers, and technology providers to ensure responsible AI integration. Additionally, the limitations of AI, including detectability, susceptibility to plagiarism detection, and factual errors, should be acknowledged, and AI should be used as a supplementary tool in educational assessments rather than a primary method.

While AI integration in education offers many advantages, it also raises ethical concerns that require careful attention. It is crucial to strike a balance between the benefits of AI and the preservation of essential human skills. The misuse of AI, such as ChatGPT, can compromise academic integrity, as it may be detectable by plagiarism detection software and contain factual errors. Therefore, educators and students should use AI judiciously, recognizing its limitations and potential negative consequences for genuine learning and intellectual development. In educational assessments, AI should be used cautiously, especially in specialized subjects, and educators and researchers must work together to refine its integration effectively, considering its inconsistency and potential for errors. Overall, responsible AI integration in education necessitates collaboration and proactive efforts to address ethical concerns while harnessing the technology's potential for enhancing learning experiences.

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