The Role of ChatGpt in Academic Writing: Helpful Scaffold or Debilitating Crutch?

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Abstract- This paper critically examines the role of ChatGPT, an advanced language model, in academic writing and explores whether it serves as a helpful scaffold or a debilitating crutch. As artificial intelligence technologies continue to advance, ChatGPT has gained popularity as a tool for generating written content, including academic papers. This review paper assesses the benefits and limitations of utilizing ChatGPT in academic writing, considering its impact on the writing process, content quality, and the development of critical thinking skills. The analysis draws on existing literature, empirical studies, and expert opinions to provide a comprehensive evaluation of ChatGPT's influence on academic writing. The findings reveal that while ChatGPT can offer valuable support by assisting with generating ideas, improving language fluency, and enhancing productivity, it also presents challenges related to reliance, plagiarism, and potential erosion of writing skills. The paper discusses the ethical considerations associated with the use of ChatGPT and proposes strategies to maximize its benefits while mitigating its drawbacks. Overall, this review contributes to the ongoing discourse on the integration of artificial intelligence tools in academic writing and provides insights for educators, researchers, and students in navigating the complex landscape of technology-assisted writing.

Keywords: ChatGPT, Artificial Intelligence, Academic Writing

I. INTRODUCTION

Recently, the utilization of corpus technology has exhibited significant promise in the realm of second language (L2) writing instruction. This approach involves integrating vocabulary, grammar, and discourse patterns specific to various types of writing into the teaching of L2 writing (Gledhill, 2000; Hyland, 2002; Jabbour, 1997, 2001; Tribble, 1999, 2002). The desire for exceptional academic writing among both faculty and students has gained substantial popularity in the contemporary educational landscape of the 21st century. This heightened interest can be attributed to its novelty and innovative characteristics (Chanyoo, 2018; Schillings et al., 2019; Schillings et al., 2018). Contemporary technology heavily depends on Artificial Intelligence (AI), a covert system designed to emulate human cognition and provide assistance in various capacities (Kaplan, 2016). Despite having a lengthy history, recent years have witnessed significant advancements in the field of AI (Haenlein et al., 2019). The progress in AI has become evident through the creation and introduction of AI-driven Chatbots like ChatGPT, showcasing the significant strides made in the field of AI to the general public (Susnjak, 2022).

The incorporation of AI in the field of education has experienced a noticeable upsurge in popularity in recent times. Initially, AI applications in education concentrated on enhancing the learning process through means like automated grading and personalized instruction, aiming to achieve greater efficiency and effectiveness (Zawacki-Richter et al., 2019). However, the emergence of language models like ChatGPT has made the utilization of AI in education even more accessible, as these tools provide a more natural and human-like interface. AI pertains to the capacity of computer systems to execute tasks that typically necessitate human intelligence, encompassing natural language processing, pattern recognition, decision-making, and learning (Russell & Norvig, 2010).

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AI involves the emulation of human intelligence in computer systems, which are programmed to carry out tasks that typically rely on human cognitive capabilities. The objective of AI is to enable machines to exhibit human-like thinking, learning, reasoning, and problem-solving abilities. The advent of AI has brought about significant transformations in systems across diverse sectors, including healthcare, finance, transportation, manufacturing, and education (Yampolskiy, 2018). Demirbilek and Saka (2021) assert that AI has gained extensive usage in the field of education, leading to a transformative impact on how students acquire knowledge and teachers deliver instruction. AI in education pertains to the application of machine learning algorithms and intelligent systems to improve the methods of teaching and learning. Its widespread implementation encompasses various areas, including the domain of learning English as a Foreign Language (EFL).

In order to develop a thorough comprehension of ChatGPT's role in academic writing, it is essential to assess both its advantages as a helpful scaffold and its potential disadvantages as a crutch. This review paper intends to critically evaluate the consequences of utilizing ChatGPT in academic writing and explore the fine equilibrium between harnessing its capabilities and avoiding excessive reliance.

II. THE ROLE OF CHATGPT AS AN AI-LANGUAGE MODEL

ChatGPT is an advanced language model developed by OpenAI that has garnered significant attention in the field of artificial intelligence. Researchers have underlined its potential applications in numerous domains, including language translation, content generation, and customer service (Radford et al., 2019). The integration of ChatGPT in academia has become a highly discussed subject in recent times because of its remarkable capabilities in various forms of academic writing, including lengthy essays, short stories, poems, and even letters (Dergaa et al., 2023).

ChatGPT, an application enabling human-AI interaction, was made available to the public on April 30, 2022 (Heaven 2023). ChatGPT is widely regarded as a transformative tool that assists students in accomplishing their coursework and assessments (Rudolph et al. 2023). The capabilities of this language model include text generation, question answering, as well as performing tasks like translation and summarization (Agomuoh, 2023). ChatGPT can be utilized as a valuable aid in the academic realm, offering benefits such as enhancing writing skills by providing feedback on style, coherence, and grammar (Aljanabi et al., 2023). Additionally, it can extract key points and offer citations, further aiding the academic writing process (Aydin & Karaarslan, 2022).

ChatGPT's capability to learn and tailor itself to user preferences and conversational styles over time renders it a highly efficient instrument for fostering enduring connections with customers and clients (Zhang et al., 2018). The potential of ChatGPT to generate coherent and contextually appropriate responses in various languages holds the promise of overcoming language barriers and facilitating cross-cultural communication (Wang et al., 2019). The remarkable proficiency of ChatGPT in producing imaginative and original text has unlocked fresh avenues for its utilization in domains like creative writing, marketing, and advertising, presenting new possibilities and opportunities (Bowman et al., 2016)

ChatGPT is an artificial intelligence model that employs advanced deep learning techniques to process and generate natural language text. Originally introduced as a prototype on November 30, 2022, it was subsequently made accessible to the general public on January 30, 2023 (OpenAI, 2023). Through extensive training on extensive text datasets, the model acquires an understanding of intricate language patterns, subtleties, and intricacies. The training corpus encompasses a wide range of sources, such as books, articles, reviews, online conversations, and human-generated data. This comprehensive training empowers the model to engage in sophisticated dialogues and provide precise and reliable information across diverse subjects. (Alessio et al., 2018)

III. IMPORTANCE OF CHATGPT IN ACADEMIC WRITING

The emergence of AI technologies has had a profound impact on the field of English as a Foreign Language (EFL) writing instruction. AI has brought forth innovative methodologies and resources that can significantly enhance the teaching and learning experience in EFL writing. These advancements have introduced new possibilities and avenues for improving the overall quality and effectiveness of EFL writing instruction. Writing tools powered by AI, such as grammar and spell checkers, automated essay scoring systems, and language enhancement software, offer learners instant feedback on

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grammar, vocabulary, and writing style. These AI-driven tools provide learners with valuable assistance in refining their writing skills by highlighting areas of improvement and suggesting corrections, thereby fostering a more effective and efficient learning process (Lee, 2021).

OpenAI has developed ChatGPT, an expansive language model capable of generating text-based responses that closely resemble human-like language and behavior. This advanced model has been designed to provide coherent and contextually relevant replies when presented with various prompts (OpenAI, 2023). ChatGPT is built upon the foundation of two cutting-edge large language models (LLMs), namely GPT-3.5 and GPT-4. These Large Language Models (LLMs) possess remarkable capabilities in generating natural language texts across a wide array of knowledge domains. Thus, ChatGPT inherits and leverages the advancements and versatility of these powerful language models to deliver contextually appropriate responses in various fields of knowledge (Owens, 2023). To enhance its performance and ensure high-quality output, ChatGPT has undergone rigorous fine-tuning using a combination of supervised and reinforced learning techniques. It has been trained on an extensive text corpus comprising diverse sources such as books, articles, and websites. This comprehensive training approach allows ChatGPT to acquire a broad understanding of language patterns and context, enabling it to generate coherent and relevant responses (Dwivedi et al., 2023).

This Chabot exhibits a broad range of capabilities, including writing, question answering, coding, and facilitating both individual and collaborative discussions on productivity guidance (Lund & Wang, 2023). Global academic and scientific discourse indicates that ChatGPT can have a highly influential role in providing versatile writing assistance and aiding in the completion of various writing tasks (Sallam, 2023). As a result, ChatGPT possesses extensive knowledge of the English language, making it a valuable resource for researchers seeking to enhance the quality of their academic writing and publications. Its user-friendly nature further facilitates its integration into the academic writing process. Consequently, the Chabot holds potential for application in scientific writing as well. (King, 2022).

Undoubtedly, ChatGPT has the potential to emerge as a promising and potent tool for a range of tasks, including automatic draft generation, article summarization, and language translation. Its capabilities in these areas make it a valuable resource for researchers and writers seeking efficient and effective solutions in their writing and content creation endeavors (Salvagno et al., 2023). The use of ChatGPT leads to acceleration of the academic and scientific writing process for authors, especially for students and early career researchers.

IV. CHATGPT AS HELPFUL SCAFFOLD IN ACADEMIC WRITING

ChatGPT serves as a valuable scaffold in academic writing, providing support and assistance to students and scholars in various aspects of the writing process. It can offer guidance on style, coherence, grammar, and provide feedback on the overall structure of the text. Additionally, ChatGPT can help generate ideas, suggest relevant content, and assist in organizing thoughts effectively (Aljanabi et al., 2023). Through the utilization of ChatGPT as a scaffold, writers can augment their writing skills, surmount obstacles, and generate academic work of exceptional quality. Global academic and scientific discourse demonstrates that ChatGPT holds immense potential in providing valuable assistance for a wide range of writing tasks in a versatile manner. Its ability to adapt and support various writing needs has garnered attention and recognition within the academic community (Sallam, 2023).

The advent of ChatGPT has the potential to significantly reduce the time and effort involved in generating written content. Its capacity to produce coherent and well-structured text on a wide range of topics enables students and educators to save valuable time, allowing them to allocate their resources to other essential aspects of their work (Lund et al., 2023; Yan, 2023). ChatGPT can assist students in generating fresh ideas for their writing assignments by offering suggestions on topics, themes, and perspectives that they may not have previously considered. By leveraging ChatGPT's capabilities, students can expand their creativity and explore new avenues of thought, enhancing the overall quality and depth of their written work (Kasneci et al., 2023; Taecharungroj, 2023).

The introduction of ChatGPT increases the probability of producing precise and consistent content. By having access to extensive information, ChatGPT becomes more adept at identifying and rectifying errors, thereby enhancing the accuracy and consistency of the generated content (Stacey,

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2022). ChatGPT also enables seamless collaboration among students and educators. Moreover, ChatGPT can assist in proofreading and editing student writing by providing suggestions for corrections in grammar, syntax, and spelling. This valuable feedback aids students in enhancing the quality of their writing and reducing errors (Geher, 2023; Holmes et at., 2022; McMurtrie, 2022). Another benefits of utilizing ChatGPT as a scaffold in EFL writing is the potential for personalized practice and autonomous learning. Learners have the opportunity to participate in interactive writing tasks with ChatGPT, receiving immediate responses and engaging in virtual conversations that replicate real-life writing scenarios. This immersive experience enables learners to practice their writing skills in a personalized and independent manner, fostering autonomy and enhancing their overall language proficiency (Wang et al., 2021).

V. CHATGPT AS DEBILITATING CRUTCH IN ACADEMIC WRITING

While ChatGPT offers several capabilities for EFL writing instruction, there are also certain drawbacks to consider. One notable drawback pertains to the potential for overreliance on AI-generated feedback. Learners might rely too heavily on ChatGPT's suggestions and corrections, leading to a passive approach to writing and a reduced focus on developing their own critical thinking and problem-solving skills (Evans, 2020). The excessive dependence on AI-generated feedback can impede learners' capacity to autonomously analyze and assess their writing, thereby restricting their progress as independent and skilled writers. There is a possibility that second language (L2) learners might excessively depend on ChatGPT for content generation, which could potentially restrict their own creativity and originality in writing (Cao & Chong, 2021). Excessive reliance on AI-generated text can impede the independent thinking and expression of L2 learners.

Another disadvantage of employing ChatGPT in EFL writing is the possibility of receiving inaccurate or unsuitable feedback. Being an AI system, ChatGPT may not consistently offer precise suggestions or fully comprehend the subtleties of learners' writing intentions (Shi & Lammers, 2020). ChatGPT's limitations include the potential for misinterpreting context, generating errors, or providing suggestions that do not align with the specific requirements of the writing task. When learners receive inaccurate or inappropriate feedback, it

can lead to the reinforcement of incorrect language patterns or ineffective writing strategies, thereby misleading them in their writing development. When employing ChatGPT for EFL writing instruction, it is crucial to take into account the significant drawbacks related to privacy and data security. Since ChatGPT collects and processes learners' written responses as an AI system, there are valid concerns regarding the privacy and security of learners' personal information (Hong & Lee, 2021).

Ethical consideration is another disadvantage of using ChatGPT in academic writing. The use of ChatGPT raises ethical concerns regarding transparency, privacy, and potential biases embedded within the AI system (Rozado et al., 2021). L2 learners should possess awareness of the policies concerning data collection and usage, as well as a comprehensive understanding of how their personal information is managed. Another aspect to consider is that utilizing ChatGPT without appropriate citation and attribution may be regarded as plagiarism. From this standpoint, as the generated content is not original, it should be acknowledged as derived from another source (Okaibedi, 2023).

VI. CONCLUSION

The role of ChatGPT in academic writing is multifaceted, offering both benefits and drawbacks. On one hand, it can act as a helpful scaffold, assisting writers in improving their abilities, overcoming difficulties, and generating exemplary work. On the other hand, if relied upon excessively, it has the potential to hinder progress and become a debilitating crutch. When considering the use of ChatGPT, it is important to evaluate the advantages it offers, such as the ability to generate initial ideas and explore various perspectives. However, these benefits must be carefully balanced against its drawbacks, which include the absence of human expertise, the potential for plagiarism, and the possibility of encountering inconsistent quality and limited domain-specific knowledge. Furthermore, it is crucial not to overlook concerns related to excessive reliance, diminished critical thinking, and the necessity for independent analysis. The ethical aspects concerning transparency, privacy, and the potential biases ingrained within the AI system demand diligent consideration. Ultimately, a balanced approach that combines the benefits of ChatGPT with human expertise, independent research, and critical evaluation is crucial for leveraging its potential while ensuring academic integrity and fostering the development of

students' writing and analytical skills. As the field of AI-assisted academic writing progresses, there is a pressing need for additional research and ongoing discussions to comprehensively grasp and harness the capabilities of ChatGPT in a responsible and efficient manner.

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