Uses and Misuses of ChatGPT as an AI-Language Model in Academic Writing

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Abstract-**This paper aims to examine the uses and misuses of ChatGPT, an AI-language model developed by OpenAI, in academic writing. It explores how ChatGPT can enhance academic writing by generating ideas, improving grammar, assisting in research, and aiding collaborative writing. The study highlights the advantages of using ChatGPT as a valuable tool for academic writing, including its ability to assist in brainstorming, improve grammar and syntax, and provide relevant information. However, this paper also addresses the misuses and limitations of ChatGPT in academic writing. Concerns are raised regarding the accuracy and reliability of the information generated by ChatGPT, as well as the potential for unintentional plagiarism when relying solely on the outputs of artificial intelligence. Ethical considerations surrounding transparency and integrity in scholarly pursuits are also discussed. The findings of this study showed that by understanding both the potential benefits and risks associated with ChatGPT, stakeholders can make better decisions about its application in academic writing, ensuring that it is used effectively and responsibly to advance scholarly pursuits.**

Keywords: ChatGPT, OpenAI, Academic Writing, Uses and Misuses

Introduction

The integration of technology and academic writing has become increasingly intertwined. The traditional approach of relying only on human intervention in the educational realm is being rendered obsolete in light of technological advancements (Han et al., 2021).

The aspiration for exemplary academic writing among faculty and students has become increasingly popular in the educational landscape of the 21st century, primarily due to its novelty and innovative nature (Chanyoo, 2018; Schillings et al., 2019; Schillings et al., 2018).

To address this growing demands, various Artificial Intelligence (AI) techniques (e.g., CopyAI, Rytr, Writesonic, GoCharlie, Scalenut, HyperWrite, Moonbeam, Writefull, etc.) have been developed to deliver flawless content for faculty and consumers of research. These AI procedures aim to mitigate errors and ensure the production of high-quality academic materials. As stated by Zahi (2022), the emergence of new AI technologies is having a substantial influence on the transformation of the global labor market.

Modern technology heavily depends on AI, which works discreetly to imitate human thinking and support us in various ways (Kaplan, 2016). In the past few years, there has been a rapid improvement in AI, resulting in the emergence of state-of-the-art language processing models such as ChatGPT, which was created OpenAI. ChatGPT, an advanced language model, has undergone extensive training on vast volumes of data. This training enables it to excel various language-related tasks, including question answering, text generation, and even creative writing such as poetry. Due to its remarkable capabilities, ChatGPT has gained significant popularity and is widely employed across divers applications ranging from customer service to content creation (Brown et al., 2020).

The progress in AI has become evident through the emergence and introduction of AI-driven chatbots like ChatGPT, showcasing the

significant advancements made in this field to the general audience (Susnjak, 2022). However, the growing utilization of AI models such as ChatGPT necessitate the careful consideration of ethical and social implications. There are worries about the possibility of AI systems continuing biases and stereotypes, and the influence they could exert on employment (Powles, 2020). Furthermore, there are concerns regarding the outcomes of assigning tasks previously carried out by human workers to AI systems (Brouwer et al., 2021).

The purpose of this paper is to examine the uses and misuses of ChatGPT, an AI-language model developed by OpenAI in academic writing. Through a comprehensive review of the literature, this study aims to provide a better understanding of the merits and demerits of using ChatGPT in academic writing and how it helps users to generate ideas by utilization ChatGPT.

An Overview of ChatGPT as an AI-language Model

ChatGPT is highly regarded as a valuable and useful tool in the field of academic writing. As an AI- language models, it has the ability to support researchers and writers in multiple aspects of the writing process. By using its comprehensive training on a wide array of texts, such as academic literature, ChatGPT can provide valuable and useful suggestions, generate innovative ideas, and help refine language usage to elevate the overall quality of academic writing. ChatGPT is an advanced language model developed by OpenAI, an artificial intelligence research organization. It is built upon the GPT (Generative Pre-trained Transformer) architecture, which is a state-of-the-art deep learning model for natural language processing tasks (Ufuk, 2023).

ChatGPT was developed in 2021 with the objective of generating text that copies the natural flow and reliability of human conversation. GPT-3, one of the most expansive language models currently in existence, played a significant role in the creation of ChatGPT. The versatility of ChatGPT in language processing is showcased by its capacity to perform various tasks such as translation, summarization, question answering and text generation, often requiring minimal or no specific training for each task. Since its initial release, GPT-3 has found applications in numerus domains, such as language translation, content generation, and linguistic modeling. The versatility of GPT-3 has allowed it to be utilized in diverse fields with varying requirements and objectives (Chen, 2023).

The fact that chatbots made with GPT-3 can understand and respond to users' natural language is more proof of how useful the technology is (Cotton et al., 2023). ChatGPT (Chat Generative Pre-trained Transformer) has emerged as a prominent AI system, sparking intellectual discussions among scholars from various professional background. ChatGPT, an AI software developed by OpenAI, is designed to simulate academic writing in a manner that closely resemble human-like expressions. Its purpose is to generate coherent and comprehensive academic texts (Shahriar & Hayawi, 2023).

Despite being relatively new in the field of AI, ChatGPT has gained significant popularity as an academic writing software. This is primarily attributed to the high-quality and engaging responses it generates, leading many to view it as a potential substitute for various everyday writing tasks, ranging from emails to college-level essays (Maerten & Soydaner, 2023; Megahed et al., 2023). ChatGPT, functioning as a generative software, has garnered widespread attention from individuals ranging from business professionals to policy makers. This widespread interest signifies a notable shift in the landscape of AI (Lin, 2023). While ChatGPT enjoys popularity and is highly regarded in the realm of academic writing, concerns have arisen regarding its potential impact on human creativity and academic integrity (Luan et al., 2023).

In this regard this study focuses on understanding the use and misuse of ChatGPT in academic writing.

Significance of ChatGPT in Academic Writing

ChatGPT holds immense importance in the realm of academic writing. This AI driven tool has emerged as a valuable asset for researchers, scholars, and writers, providing comprehensive support throughout the writing process. Its capacity to generate coherent and contextually relevant text, offer suggestions, and refine language usage has rendered it an indispensable tool for improving the overall quality and productivity of academic writing. Without a doubt, the integration of technological products in academia has become a permanent fixture (Aldosari et al., 2022; Ali, 2020).

Some scholars contend that ever-expanding global acceptance of ChatGPT exemplifies the vast array of potential applications for the technology. These applications range from software development and testing to creative pursuit such as writing poetry, essays, business correspondence, and even drafting contracts (Metz, 2022; Reed, 2022; Tung, 2023; Tung, 2022). Regarding this matter, the application of artificial intelligence (AI) in the educational field is anticipated. In meeting this anticipation, ChatGPT is an AI system that is becoming increasingly popular in academic writing and is considered a valuable aid to human thinking (Aljanabi, 2023; George & George, 2023).

According to Dwivedi et al. (2023), it would not be an overstatement to assert that ChatGPT has achieved global prominence, its impact has been profound, significantly disrupting numerous fields and challenging their fundamental principles. By utilizing ChatGPT in academic writing. Professionals ca harness its potential to generate fresh ideas. As a result, educators, and faculties are increasingly inclined to leverage this tool for creating innovative course, syllabi, lectures, assignments, and grading rubrics (Atlas, 2023).

Liebrenz et al. (2023) suggest that the availability and user-friendly nature of ChatGPT could enable a significant expansion in academic endeavors. They mention that ChatGPT's ability to understand and generate content in various languages could overcome the obstacle of English writing proficiency, allowing non-native English speakers to contribute and share knowledge more easily. This potential breakthrough could foster the democratization of knowledge dissemination. According to Lin (2023), ChatGPT has the capability to transform the scientific research sector by offering an intelligent, adaptable, and cooperative tool that enhances research productivity and promotes inclusivity, fairness, objectivity, and innovative problem-solving. In a similar vein, Lewis (2022) asserts that ChatGPT has demonstrated its ability to facilitate student engagement and collaboration by enabling virtual discussions and group work, eliminating the need for physical presence. For instance, students can utilize ChatGPT to convene and collectively study or collaborate on coursework (Lewis, 2022; Jowarder, 2023).

Cotton et al (2023) conducted a comprehensive evaluation of the potential of ChatGPT, specifically examining its ability to connect AI writing assistants. Their study concluded that when applied to academic writing, ChatGPT proved to be beneficial and alleviated stress. In their study, Nisar and Aslam (2023) discovered that ChatGPT is widely preferred and highly efficient as a personalized learning resource among medical students for promptly accessing information related to their coursework. Gilson et al. (2022) discovered that ChatGPT's performance was satisfactory and comparable to that of third-year medical students. Their study aimed to assess how well the system could perform on the United States Medical Licensing Examination (USMLE).

According to a study conducted by Bommarito and Katz in 2022, it was discovered that ChatGPT has the ability to successfully complete the Bar Examination in the U.S., a test that usually requires a decade of education and training. According to Zhai's (2022) pilot study, ChatGPT proved beneficial in assisting students to produce well-structured, precise, enlightening, and methodical academic papers. The author recommends incorporating artificial intelligence (AI) into the educational setting as a means for fostering students' creative thinking abilities and proficiency in problem-solving (Zhai, 2022).

Uses of ChatGPT in Academic Writing

ChatGPT, as complicated AI-based language model, provides a range of functionalities that can be valuable in the context of teaching English as a Foreign Language (EFL) and supporting EFL writing instruction. One notable benefit is the quick and tailored feedback that is accessible. ChatGPT has the capability to evaluate learners' written answers, propose improvements for grammar, vocabulary, and writing style, and provide feedback on the overall flow and structure of their writing. The ability to receive feedback in real-time allows learners to recognize and correct mistakes in their writing, resulting in enhanced writing abilities and increased proficiency in language.

One more benefit of ChatGPT in EFL writing is the chance to engage in customized practice and independent learning. Students have the opportunity to participate in interactive writing exercises using ChatGPT, where they can receive immediate responses and take part in virtual conversations that resemble real-world writing scenarios (Wang, Zhu, & Qin, 2021). This individualized approach to learning enables students to concentrate on their unique writing requirements, whether it be enhancing grammar skills, expanding vocabulary, or developing arguments. Additionally, ChatGPT provides a

comfortable and non-critical setting, motivating learners to explore new language styles, take chances, and enhance their writing confidence.

The language accuracy of L2 learners can be improved with the help of ChatGPT's capability to identify errors in grammar and vocabulary (Wang, Zhu, & Qin, 2021). Through receiving immediate feedback, second language (L2) learners have the opportunity to learn from their errors and improve their comprehension of accurate language use.

The utilization of ChatGPT can enhance learner engagement and motivation in EFL writing by providing a valuable tool. Through its interactive features, ChatGPT encourages collaboration and interactivity, emulating human-like conversations that enhance the learning process, making it more enjoyable and engaging (Li, Li, & Wu, 2020). When learners receive prompt responses and feel a sense of interaction with the AI system, they are likely to be more motivated and actively participate in writing tasks. This heightened motivation and engagement can result in improved learning outcomes and a more favorable outlook on writing in the EFL context.

Using ChatGPT brings up ethical issues regarding the transparency of the system, privacy concerns, and the possibility of biases present in the AI system (Rozado et al., 2021). Learners of a second language should have knowledge about the policies regarding the collection and utilization of data, and should comprehend how their personal information is managed. It is crucial to acknowledge that the impact of L2 learners using ChatGPT for writing can differ based on various factors such as the context, integration of the tool into instruction, and how the individual learner engages with the system. To ensure the best outcomes and minimize any potential disadvantages, it is important to provide careful guidance, suitable support, and a balanced approach that promotes independent thinking while utilizing ChatGPT. Teachers play a vital role in offering proper guidance and support to L2 learners, enabling them to enhance their writing skills while making the most of AI-based tools.

Misuses of ChatGPT in Academic Writing

While ChatGPT provides numerous capabilities and uses for EFL writing instruction, it is important to acknowledge that there are potential misuses or drawbacks associated with its use. Due to the pervasive integration of ChatGPT in academic writing, the academic community has raised concerns about the potential misuse of language models in generating and publishing scientific papers (Davis, 2023; De Waard, 2023; Kendrick, 2023). Individuals have put ChatGPT to the test by inquiring about a range of topics, such as ethical issues in publishing and intricate technical matters (De Waard, 2023; Flanagin, 2023; Nature Editorial, 2023). The results of their study showed that although ChatGPT provides generally effective written answers to questions, these responses are often predictable, outdated, untrue, or made up. Additionally, they lack precise or comprehensive sources, and in some cases, they rely on fictional or nonexistent evidence to support their statements or claims, which is even more concerning.

The academic and educational communities have raised various concerns regarding the utilization of ChatGPT. These concerns encompass the challenge of discerning between human and AI authorship, as well as the revival of discussions about the significance of conventional human activities (Else, 2023; Stokel Walker, 2023). According to Rudolf et al. (2023), the challenges arise from the extensive use of ChatGPT in various tasks such as generating text, translating languages, and providing answers to different types of questions. Consequently, it is advisable to exercise caution when incorporating ChatGPT in academic writing, as its output may lack reliability and credibility in this context. A major drawback is the risk of excessive dependence on AI-generated feedback. Students might rely too heavily on ChatGPT's recommendations and edits, resulting in a passive writing style and less emphasis on nurturing their own analytical thinking and problem-solving abilities (Evans, 2020). Relying excessively on AI0generated feedback can impede learners'' capacity to independently analyze and assess their writing, thereby restricting their development as self-reliant and skilled writes.

Another limitation of ChatGPT in EFL writing lies in the possibility of receiving erroneous or unsuitable feedback. As an AI system, ChatGPT may not consistently offer precise suggestions or fully comprehend the intricacies of learners' intended meaning in their writing (Shi & Lammers, 2020). The tool might misunderstand the context, make mistakes, or provide suggestions that don't match the particular writing task. Incorrect or unsuitable feedback can confuse

learners and lead them to reinforce wrong language usage or ineffective writing approaches.

Conclusion

To sum up, ChatGPT, an AI-language model, presents various benefits for academic writing such as improved writing aid, idea formation, research assistance, language translation, learning materials, and streamlined editing and revision. ChatGPT has the capability to greatly enhance the effectiveness and productivity of academic writing procedures. Nonetheless, it is important to remain cautious about the possible abuses that may arise from using ChatGPT. Relying too heavily on AI-generated feedback could impede learners' ability to independently analyze and evaluate their writing, hindering their development as proficient writers. Additionally, there is a risk of receiving inaccurate or inappropriate feedback from ChatGPT, as it may not fully grasp the nuances of learners' writing intentions. The academic community has raised concerns about the potential misuse of language models like ChatGPT for producing and publishing scientific papers. Therefore, while ChatGPT can be a valuable tool, it should be employed cautiously, complementing the critical thinking and expertise of the academic writer. Ongoing research, ethical considerations, and responsible use of AI-language models are crucial to fully harness the benefits of ChatGPT while minimizing its potential drawbacks in the field of academic writing.

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