



The Use of Chatgpt as a Tool to Facilitate Writing Scientific Work

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ABSTRACT This research aims to explore the use of ChatGPT as a tool in scientific writing, given the challenges in academic writing such as difficulties in finding references, organizing arguments, and formulating ideas systematically. By utilizing a qualitative approach through a literature study, this research analyzes the effectiveness of ChatGPT in increasing writing efficiency, overcoming difficulties in developing ideas, and improving the quality of arguments. The results show that ChatGPT is able to speed up drafting, summarize literature, and provide relevant revision suggestions, although it still requires manual verification to prevent plagiarism and misinformation. The implications of this study highlight the potential of ChatGPT as a support tool in academia, with recommendations for ethical and optimal integration of this technology in education. Keywords: ChatGPT, Scientific Work, Writing Support.			

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INTRODUCTION

In today's digital age, the development of information technology has brought about fundamental changes in various aspects of life, including the way scientific papers are written and delivered. One of the most important innovations in this context is the emergence of artificial intelligence-based language models, such as ChatGPT. These models are not only capable of processing and generating texts quickly, but also offer support in organizing ideas, reordering texts, as well as developing more systematic arguments. ChatGPT, with its deep learning technology, allows writers to access a wide range of resources quickly and efficiently, helping them to deal with the complexity of the scholarly process (Putri & Khasanah, 2023; Suharmawan, 2023; Lo, 2023).

Writing scientific papers is often faced with various challenges, such as difficulties in finding relevant references, constructing strong arguments, and formulating ideas in a clear and cohesive manner. Many writers get stuck when it comes to constructing a logical outline or integrating complex ideas. It is in this context that ChatGPT is a promising

solution, where this tool can help users overcome deadlock and increase writing productivity (Firaina & Sulisworo, 2023). According to research conducted by (Haidir et al., 2024), ChatGPT has also demonstrated effectiveness in accelerating the process of gathering information and summarizing literature, which is often a major challenge for academic writers.

This research aims to explore how ChatGPT can be utilized as a tool in the scholarly work process, specifically in terms of its effectiveness in improving writing efficiency, helping writers overcome idea deadlock, as well as improving the quality of arguments presented. Several previous studies have highlighted the potential of ChatGPT in supporting argument development and helping academic writers produce more structured work (Rejeb et al., 2024; Suharmawan, 2023). Therefore, through a qualitative approach, this study is expected to provide new insights into the utilization of artificial intelligence technology in academia as well as practical recommendations for educational institutions to integrate this tool into the writing curriculum.

RESEARCH METHODOLOGY

This study adopts a qualitative approach through a library research method to explore the use of ChatGPT as a tool in scientific writing. Data were collected from various literature sources indexed in Scopus, Researchgate, and Google Scholar databases in the form of recent publications that discuss the integration of AI technology in education. The data collection process involved searching the literature with relevant keywords such as "ChatGPT," "Scientific Work," and "Writing Support," which resulted in a significant number of references. Data analysis was conducted by categorizing information based on themes and subthemes, and using content analysis techniques to highlight emerging patterns regarding the effectiveness and challenges of using ChatGPT. By drawing on trusted and accredited sources, this research aims to provide comprehensive insights into the potential of ChatGPT in enhancing the scientific writing process, and provide recommendations for academics and writers in making optimal use of this technology.

RESULT AND DISCUSSION

In the rapidly evolving world of academia, technology plays a significant role, especially when it comes to academic writing. One recent innovation that has changed the way we interact with academic writing is ChatGPT. Through this technology, the previously time-consuming writing process can now be streamlined. However, as with every new tool, there are benefits and challenges that need to be critically considered. In this discussion, we will further explore how ChatGPT can make writing scientific papers easier, the challenges faced, and its potential use in education and research.

1. Benefits of Using ChatGPT in Scientific Writing

Artificial intelligence technologies such as ChatGPT have revolutionized various aspects of scientific work and higher education. In the process of writing scientific papers, ChatGPT provides unprecedented convenience. Many authors find that ChatGPT is able to

assist them in composing an initial draft of an academic text more quickly and efficiently compared to traditional methods (Putri & Khasanah, 2023; Suharmawan, 2023; Yasmar & Amalia, 2024; Lo, 2023). This is important given that writing scientific papers is often a time-consuming process, especially in the early stages of outlining and collecting literature resources.

As a tool powered by deep learning technology, ChatGPT has a remarkable ability to produce coherent texts, with a good understanding of sentence structure and logic. One of the advantages of this technology is its ability to access various information sources that already exist on the internet and use them to help users construct arguments or summarize research (Suharmawan, 2023; Ramadhan et al., 2023; Loos et al., 2023). This is very helpful for students and lecturers who have to manage time well in completing writing articles, essays, or even dissertations.

In addition, ChatGPT can improve efficiency in the editing and revision process. For example, it can suggest better grammar and writing style changes, thus helping writers improve the quality of their writing before submitting it for assessment or publication (Firaina & Sulisworo, 2023). The speed in responding to user queries and generating texts that meet academic needs also makes ChatGPT a very effective tool in speeding up the writing process (Annas et al., 2024).

However, one challenge that is often faced is the risk of plagiarism. ChatGPT can generate text based on existing information, but it does not include references or citations automatically (Jauhiainen & Guerra, 2023). Therefore, it is important for users to manually add references to ensure the work produced meets academic standards. Plagiarism is a serious problem in academia, and if not managed properly, the use of technologies such as ChatGPT can lead to potential violations of academic ethics (Suharmawan, 2023; Sony Maulana et al., 2023).

To address this issue, some ChatGPT users have developed methods to ensure that all text generated by this tool is always supplemented with appropriate references. For example, Wahid Suharmawan (2023) suggested that after using ChatGPT, authors should review the results and match them with valid literature to ensure that the information used is sourced from legitimate references. In this way, ChatGPT can be a useful tool without posing the risk of plagiarism.

2. Challenges in the Use of ChatGPT in Education

Although ChatGPT offers various benefits, as mentioned earlier, there are some significant challenges that should be noted, especially in an educational context. One of the main challenges faced by ChatGPT users is the tool's limitations in understanding more complex contexts. For example, when faced with questions that are ambiguous or require deeper understanding, ChatGPT often provides imprecise or irrelevant answers (Ausat et al., 2023; Grassini, 2023).

Grassini showed that when using ChatGPT to answer questions that focus on in-depth analysis or complex arguments, the technology tends to provide answers that are too general. Therefore, while the tool is very useful in generating simple and quick texts, users should still be critical and re-verify the information generated.

This is especially important in scientific writing, where accuracy and validity of information are of utmost concern. Another challenge faced is ChatGPT's inability to replace human creativity. For example, while the technology is capable of producing logical and coherent scientific texts, writing that requires creativity, such as essays or works that focus on personal expression, still requires human intervention. In a study (Kusumaningtyas et al., 2023), it was found that ChatGPT often produced texts that lacked the ability to capture the creative nuances required in some types of academic writing. Therefore, this technology should be viewed as an aid, not as a complete replacement for the creative process (Suharmawan, 2023; Ramadhan et al., 2023).

When it comes to facts and opinions, ChatGPT also faces a big challenge in distinguishing between the two. For example, in scientific papers, it is crucial to distinguish between factual statements supported by evidence and opinions that are subjective in nature. ChatGPT, because it is trained using data from the internet, is sometimes unable to filter information appropriately, so users must perform additional verification to ensure data accuracy (Ramadhan et al., 2023; Suharmawan, 2023). This is a significant drawback in the use of this technology, especially in academic contexts where the accuracy of information is critical.

For example, Chinonso et al., 2023, emphasized the importance of double-checking each result provided by ChatGPT to ensure that the information is correct and in line with academic standards. Users must take an active role in interpreting the data provided by ChatGPT, as complete reliance on this technology can lead to errors in the analysis process.

In addition, another technical challenge often faced by ChatGPT users is the need for a stable and reliable internet connection. Given that ChatGPT is a cloud-based application, network quality greatly affects the user's experience in using the tool. If the internet connection is unstable, this can hinder the flow of work and slow down access to needed information (Suharmawan, 2023).

3. ChatGPT's Potential in Improving Accessibility and Collaboration in Education

One of the major contributions of ChatGPT in education is to increase accessibility for students and college students from diverse backgrounds, especially those who may not have access to adequate educational resources (H.I.A, 2023; Farhi et al., 2023). In the study Putri & Khasanah, 2023, ChatGPT was used as a learning tool that gives students access to the information they need quickly and easily, regardless of their geographical location. This is especially beneficial for students in remote areas who may not have access to libraries or other academic reference materials.

ChatGPT also enables personalization of learning, where students can customize learning materials according to their individual needs (Montenegro-Rueda et al., 2023). For example, Haidir et al., 2024, showed that ChatGPT can be used to provide immediate and relevant feedback based on specific questions asked by students. In this way, this technology can help improve students' understanding of the learning material, and allow them to learn at their own pace.

In addition, ChatGPT also supports collaboration between students and college students in the completion of group tasks (Aktay et al., 2023). Misnawati Misnawati, 2023, showed that ChatGPT has been used effectively in collaborative learning processes, where students can discuss and work together in completing academic tasks (Misnawati Misnawati, 2023; Salmi et al., 2023). This technology not only serves as a writing aid, but also as a tool that supports interaction and collaboration among students. The ability to provide quick and relevant information allows students to work together more effectively in completing complex tasks.

However, it is important for educational institutions to consider the ethical and privacy aspects of using these technologies. As highlighted by (Kusumaningtyas et al., 2023), privacy protection and information security remain a major concern in the use of technology in education. It is therefore important for educational institutions to adopt appropriate policies to ensure that students' personal information is properly protected, and that the use of ChatGPT remains compliant with applicable privacy regulations (Suharmawan, 2023).

4. Use of ChatGPT in Research

In addition to the benefits in education, ChatGPT also offers great potential in supporting the scientific research process. In research, one of the most time-consuming aspects is finding relevant references and summarizing existing literature. ChatGPT can help overcome this challenge by quickly finding and summarizing information from various online sources, allowing researchers to focus on data analysis and interpretation (Rejeb et al., 2024; Suharmawan, 2023; Su & Yang, 2023). In this case, ChatGPT can be used as an auxiliary tool to ease the process of data collection and the preparation of research reports.

However, ChatGPT is not completely free from drawbacks. One major drawback is that it relies on information available on the internet, which is often not always accurate or verified. Therefore, it is important for researchers to verify any information provided by ChatGPT before incorporating it into their research (Jauhiainen & Guerra, 2023; Suharmawan, 2023; Zen Munawar et al., 2023). They also highlighted that this technology may not always be suitable for types of research that require in-depth analysis or very specific quantitative data.

Additionally, the use of ChatGPT in research may raise ethical concerns, especially if it is overused to replace manual research processes. Suharmawan, 2023 highlighted that the exclusive use of ChatGPT could detract from the essence of the scientific research process, which should involve critical thinking, in-depth analysis, and accurate data collection. Therefore, it is important to maintain a balance between the use of technology and manual skills in scientific research.

To conclude, ChatGPT does offer a variety of great benefits in scientific writing and research, but its use must be done wisely and within ethical boundaries. By combining the use of this technology with manual skills and careful verification, ChatGPT can be a very beneficial tool in supporting the learning and research process in this digital age (Veddayana et al., 2023; Su & Yang, 2023).

CONCLUSION

ChatGPT brings many benefits in scholarly work and research, especially in improving efficiency and accessibility. Its ability to quickly generate draft texts, help writers organize arguments, and speed up the revision process makes it extremely useful for writers, students, and researchers. However, challenges such as plagiarism, information accuracy, and limitations in understanding context remain, so users must perform manual verification. In education, ChatGPT supports accessibility and collaboration, but aspects of privacy and data security must be considered. Overall, ChatGPT is highly beneficial provided it is used wisely and in accordance with ethical standards, and balanced with human creativity and critical thinking.

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