

# THE USE OF CHATGPT IN ACADEMIC WRITING: A BLESSING OR A CURSE IN DISGUISE?

**Alberth**  
(alberth@uho.ac.id)

*Universitas Halu Oleo, Kampus Hijau Bumi Tridharma,  
Anduonohu, Kendari, Southeast Sulawesi 93232, Indonesia*

**Abstract:** The emergence of generative artificial intelligence such as ChatGPT has left people feeling ambivalent and disagreement among scholars, academicians, educators and the community at large prevails. While the artificial intelligence could potentially revolutionize how research is conducted and how research papers are written, a number of ethical concerns arise. In particular, the world of academia has reservations pertaining to whether this language model will actually do more good than harm, especially as far as academic writing is concerned. This paper argues that the cutting-edge technology is here to stay and the question is not whether to accept it, but rather, how to best utilize it judiciously, cautiously and responsibly to improve research performance by strictly adhering to academic integrity and transparency. Potential benefits and drawbacks of ChatGPT will be critically examined in light of current literature and, when relevant, potential solutions to the drawbacks will also be provided or commented on. Needless to say, the use of artificial intelligence in academic writing is still in its infancy and more discussion and debates pertaining to its use and merit are highly urged. This paper contributes to these on-going debates.

**Keywords:** Artificial Intelligence, academic writing, ChatGPT, chatbot, language model

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The advent of cutting-edge generative artificial intelligence (henceforth AI) such as ChatGPT (Generative Pretrained Transformer) has sparked a surge of interest, controversies and heated debates worldwide, and this is particularly true in the realm of education (Arif et al., 2023; Chen, 2023; Lim et al., 2023; Tlili et al., 2023). ChatGPT is "... a machine-learning system that autonomously learns from data and can produce sophisticated and seemingly intelligent writing after training on a massive data set of text" (van Dis et al., 2023 p. 224). It is a natural language processing model developed by OpenAI with a conversational AI interface known as chatbot (George & George, 2023; Tlili et al., 2023). With chatbot, users can enter text instructions, also known as prompts or queries, and the application will quickly produce text responses using its pre-trained massive data corpus (Pavlik, 2023). As of the end of January 2023, ChatGPT held the record for having the fastest-growing user base of any program, having surpassed 100 million active users in just two months, following its debut at the end of November 2022 (Haleem et al., 2023; Pavlik, 2023).

Whereas some people believe that ChatGPT brings numerous educational and professional benefits, others may not share this view (Rudolph et al., 2023). In fact, the advent of this leading-

edge technology has been perceived to be both fascinating and alarming (Rudolph et al., 2023). People are so fascinated owing to the capabilities of the new technology to perform a wide array of tasks such as responding to prompts using texts, providing advice, up to writing essays and research papers. In fact, it has been reported that the text structure generated by ChatGPT has a human-like feel that may lead one to believe that it is actually written by humans (Buriak et al., 2023). It is this human-like competence that is quite worrying as it is prone to ethical questions (Chen, 2023; Liebreuz et al., 2023; Salvagno et al., 2023), especially when it is used for writing a research paper. Thus, ChatGPT has significant implications on academic writing (Alkaissi & McFarlane, 2023; Chen, 2023; Kumar, 2023; Salvagno et al., 2023), especially with reference to the issue of “plagiarism and academic honesty” (Halaweh, 2023 p. 3). Unfortunately, since the AI technology is so new, relatively little research has been carried out on its application in education, especially in academic writing. Whereas there have been a handful of articles written about ChatGPT, a survey of the literature on the use of ChatGPT in education only turned up eight preprints and two academic articles (Rudolph et al., 2023). As a result, the implication of AI in academic writing is not well understood. Discussion and debates pertaining to this issue is strongly encouraged if we are to better understand how the new technology might impact the world of academia, especially controversies that surround its use in academic writing.

There are generally two major concerns voiced with regard to the use of ChatGPT in education; the first concern is related to text generation (i.e. it is ChatGPT that writes the texts based on its pre-trained massive data corpus) and the second one pertains to idea generation (i.e. it is ChatGPT that generates the ideas based on its pre-trained massive data corpus) (Halaweh, 2023). The author further maintains that both texts and ideas can be generated by humans, AI, or a collaboration between humans and AI. As far as the author is concerned, the latter proves to be most superior in terms of producing the best writing quality. In fact, the writing piece produced in partnership between ChatGPT and human authors is generally perceived to be more inventive, original, and productive than if either one of them worked on their own (Halaweh, 2023). However, as discussed later in this paper, there is also an issue regarding whether AI such as ChatGPT can be a valid co-author for a research paper, making the debate even more intricate than ever.

Additionally, whilst some people believe that this world-shattering technology will do more harm than good in the world of academia, others believe that ChatGPT could actually foster research performance if used judiciously and responsibly (van Dis et al., 2023). Whilst it is clear that ChatGPT is here to stay, it is extremely important that the value of this revolutionary technology along with its numerous implications be examined and debated (van Dis et al., 2023) so that its merit can be justified. The main objective of this paper is, thus, to contribute to these on-going debates. It is argued that, whereas there are various issues and caveats that need to be attended to, ChatGPT could potentially revolutionize how research is conducted and how research papers are written (Alkaissi & McFarlane, 2023; Gilat & Cole, 2023) and that we need to embrace this new technology with caution while strictly adhering to academic integrity, honesty, and transparency. Thus, the major question is not whether or not to accept ChatGPT in the world of academia, but rather, how to make the utmost use of the language model properly, responsibly and ethically (Halaweh, 2023) to support research and publication, thus fostering

research performance. In the following section, the benefits and drawbacks of ChatGPT will be examined along with controversies surrounding the debate.

## **BENEFITS AND DRAWBACKS OF CHATGPT IN ACADEMIC WRITING**

There have been discussions about the idea of using ChatGPT as a tool to help with the preparation of academic manuscripts (Alkaissi & McFarlane, 2023; Gilat & Cole, 2023; Salvagno et al., 2023). For example, ChatGPT could generate research ideas and write a literature review and soon it is envisaged that this new technology will also have the ability to carry out more intricate and complex tasks such as generating research hypothesis, designing research experiment, writing manuscripts and even peer-reviewing research papers (van Dis et al., 2023). Owing to these unprecedented capabilities, it is believed that the advent of ChatGPT has substantial implications for research endeavors. This section will examine the benefits and drawbacks of the new technology for academic writing in light of the current literature along with controversies surrounding the idea of using ChatGPT in academic writing. Caveats of using ChatGPT in academic writing will also be discussed, including considerations related to potential misuse, ethical implications, and the importance of maintaining human authorship and critical thinking throughout the writing process.

To begin with, it has been argued that ChatGPT could foster research performance by shortening the writing and publication time of papers and researchers could focus on the research itself (Arif et al., 2023; Gilat & Cole, 2023; van Dis et al., 2023). ChatGPT can assist in the writing process by producing an initial draft of a scientific article and even coming up with possible titles. By supplying the necessary data, ChatGPT can help with the writing of the section on the study's methodologies, the justification of the sample size, and the explanation of data analysis methods (Salvagno et al., 2023). Having ChatGPT assist with writing a paper is of particular importance, as it can save valuable time that would otherwise be spent searching for relevant literature on a given topic (Halaweh, 2023), and enable the production of more papers with ease.

However, ChatGPT could introduce a number of ethical concerns (Chen, 2023; Liebreuz et al., 2023; Salvagno et al., 2023). Although ChatGPT can generate increasingly realistic text, it is unknown whether utilizing this language model will compromise the integrity or veracity of scientific writing (Alkaissi & McFarlane, 2023). In fact, it has been suggested that the use of ChatGPT could degrade researcher's potential and autonomy in the whole process of a research project (van Dis et al., 2023). On the one hand, AI could maximize academic training, for instance, by offering feedback to researchers to help them become better writers and thinkers. On the other hand, it has the potential to reduce the importance of certain skills, including those skills related to a literature search (van Dis et al., 2023).

Additionally, when researchers rely solely on technology to write a whole research paper, an issue of authorship transpires (Liebreuz et al., 2023). Of course, one may argue that researchers have long relied on apps such as SPSS (Statistical Packages for Social Sciences) or Microsoft Excel to conduct data analysis, in which case these apps perform the entire analysis for them and no one appears to have objection to this long-held practice (Halaweh, 2023). However, data analysis using apps and writing a whole research paper using apps are

incomparable. In fact, the process of writing a research paper constitutes part of the vital academic integrity and professionalism of a researcher, in which case the author's honesty, transparency, critical thinking, understanding of the subject matter, and professional judgement are put to the test. By comparison, a quantitative data analysis using apps is just a mechanistic process – whichever apps are used will yield identical results, which is not the case with paper writing.

Other concerns are related to "...copyright, attribution, plagiarism..." (Liebrenz et al., 2023; Salvagno et al., 2023), accountability of the content (Arif et al., 2023), and academic honesty and plagiarism (Halaweh, 2023). Obviously, heavy reliance on ChatGPT for paper writing (i.e. copy-paste generated texts into a paper) could introduce copyright and attribution issues. Unless otherwise prompted (as shall be discussed later), ChatGPT will not normally cite sources or references, thus making it prone to committing plagiarism. Plagiarism is defined as "taking someone else's work or ideas and presenting them as one's own, without giving credit to the original source or author" (Halaweh, 2023 p. 4). In fact, it has been reported that ChatGPT does, in fact, produce writing with a higher level of similarity with other sources (Salvagno et al., 2023). Two concerns may arise here. First, using ChatGPT-generated texts as they are may lead to plagiarism and authors should, therefore, refrain from this practice. Proper citation and attribution are required when using ChatGPT-generated texts in a research paper. Second, even if these generated texts are not derived from other sources, they are still not the author's own writing, it is ChatGPT's. So, it is ethically unacceptable to use them as they are unless they are cited properly using direct quotations. However, since plagiarism is defined as "taking someone else's work..." (Halaweh, 2023 p. 4), we may need to redefine this definition to include the work produced by inanimate entities such as AI.

Another concern is voiced by van Dis et al. (2023) who observe that the language model may produce unreliable and inaccurate research data; a similar observation is also reported by Buriak et al. (2023). These authors note that ChatGPT-generated texts may contain numerous errors, be overly concise, and provide inaccurate journal references and inferences. More importantly, according to these authors, ChatGPT occasionally draws illogical and incorrect connections of ideas (Buriak et al. 2023). What is more, while ChatGPT can produce convincing scientific essays, the data it produces is a mixture of real data and wholly made-up data (Alkaissi & McFarlane, 2023). Alkaissi and McFarlane (2023) put ChatGPT's essay-writing skills to the test while also scrutinizing the supplied content and fact-checking. They found that ChatGPT's assured responses were faithful, but absurd, which they refer to as "artificial hallucination" (Alkaissi & McFarlane, 2023, p. 1). This simply means that, whereas ChatGPT's responses might be accurate and consistent in the sense that they did not contradict themselves or give random answers, these responses were, at times, bizarre or nonsensical, implying that ChatGPT's responses might resemble the way a person might respond if they were hallucinating or experiencing a delusion.

Thus, when using ChatGPT-generated texts to write a paper, it is of crucial importance that the origin of the cited sources (if any) be confirmed to ensure that the texts are trustworthy (later in this paper, I will discuss how to get the language model to cite references to enable authors to cross-check ChatGPT's generated texts with the original sources). It is these original sources, rather than ChatGPT, that should be cited in the paper (Halaweh, 2023). However, the

contribution of the application in helping to find those sources also needs to be acknowledged in the paper.

ChatGPT will obviously continue to improve (Haleem et al., 2023; Qin et al., 2023) and as more improvement has been made and more data corpus have been pre-trained (Haleem et al., 2023), we would expect to see fewer errors and more trustworthy texts to be generated. It is worth noting that ChatGPT's current knowledge is limited to information acquired up until September 2021; as a result, its inconsistent factual accuracy was noted as a major flaw (Vincent, 2022). Unfortunately, to date, there has been no organized assessment of the output's quality of ChatGPT (Salvagno et al., 2023). Whilst some anecdotal evidence of content inaccuracies is reported in the literature, we just have no idea of the extent to which we can trust or distrust the information provided, unless the original sources are confirmed. This could be an interesting and fascinating avenue for further research.

Additionally, there are concerns about ChatGPT's potential misuse in academic writing, with suggestions that this language model poses a significant threat to the trustworthiness of using short-form essays as an assessment tool, exemplified by worries about its application in creating concise essays for exams (Kumar, 2023; Yeadon et al., 2022). In fact, this concern is analogous to the use of calculators during a math exam. Whilst calculators may be allowed for doing math exercises or for checking students' calculation while studying the subject, their use in exams is generally prohibited. This is also the case with ChatGPT. Whilst I disprove of the use of the language model during exams, I would strongly encourage my students to use ChatGPT in their day-to-day learning.

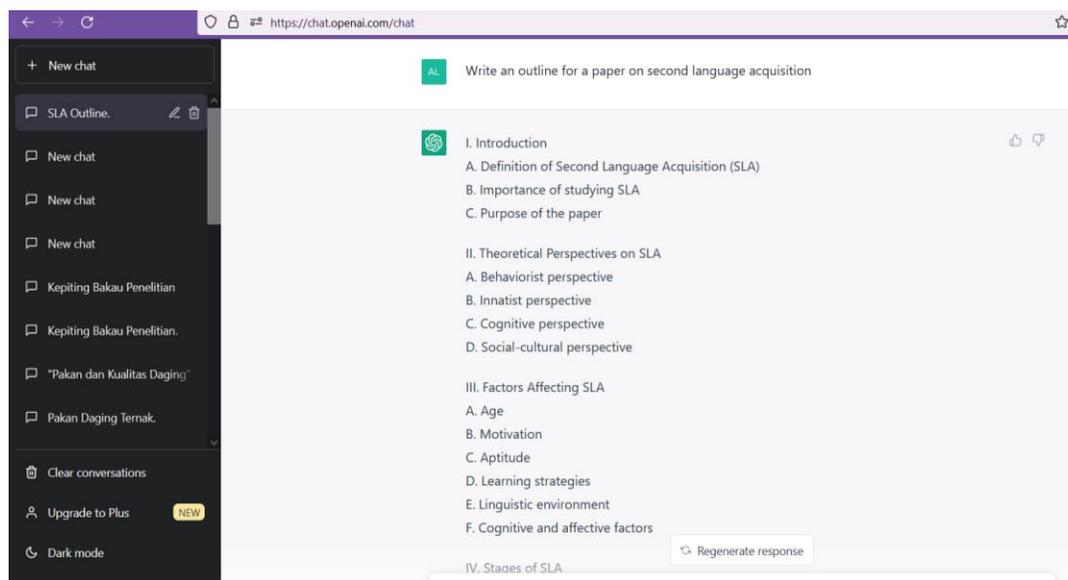
In fact, ChatGPT holds the potential to significantly enhance the teaching and learning process, as well as revolutionize assessment methods. For example, ChatGPT provides a wide range of learning resources (Zhai, 2023) and is available all the time to support independent learning (Lin, 2023). It could also serve as a means to involve students in language practice and exposure beyond the classroom (Mohamed, 2023). In terms of assessment, ChatGPT provides timely feedback (Su & Yang, 2023) and has the capability to produce practice quizzes and questions, aiding students in exam preparation and strengthening their comprehension (Piercey, 2023). Thus, again, the question is not whether to accept the new technology; it is how it should be used judiciously and responsibly (van Dis et al., 2023).

Despite the potential benefits mentioned above, there are caveats that need to be considered when using ChatGPT in academic writing as it may fail to attribute sources of texts it generates. For example, in their 2022 study, Aydın and Karaarslan utilized ChatGPT to generate texts entitled "Digital Twin and Digital Twin in Healthcare". Subsequently, ChatGPT was tasked with writing the literature review section using the texts it had previously generated. Following this, the researchers conducted a Google Scholar search for paper abstracts published between 2020 and 2022, utilizing the keyword "Digital Twin in Healthcare". They then prompted ChatGPT to paraphrase these abstracts and presented specific queries to the chatbot. To validate the results, they employed anti-plagiarism software called Ithenticate. Remarkably, their findings revealed that while the texts generated in response to specific queries exhibited relatively low similarities, there was a notable level of similarity among the paraphrased texts (Aydın & Karaarslan, 2022). This underscores the importance, as previously highlighted, of authors rigorously cross-

referencing all information generated by ChatGPT to ensure proper attribution to the original sources (Arif et al., 2023).

Later in this paper I will show how to get the language model to cite references and sources which would, in turn, enable authors to directly cross-check these sources to ensure trustworthiness. Thus, again, it is of crucial importance that researchers do not rely heavily on ChatGPT's-generated texts without confirming their original sources. Whilst ChatGPT could potentially commit plagiarism, it has been suggested that the language model can actually be configured to refrain from doing so by rephrasing the work of others in a way that is comparable to what human authors do (Salvagno et al., 2023).

In addition to the previously mentioned benefits and drawbacks of ChatGPT, its integration into the academic writing process, in particular, offers notable advantages and disadvantages. To begin with, Buriak et al. (2023) provide an in-depth examination on both potential benefits and drawbacks of ChatGPT for academic writing.-According to these authors, ChatGPT may assist with 'writing block' which is a kind of difficulties in writing the first few words, ChatGPT is also useful to enhance manuscript's title, abstract, and conclusion and to locate sources for a particular topic that might be overlooked by standard literature searches (Buriak et al. 2023). The authors also suggest that ChatGPT can offer advice on writing structure by decomposing a challenging subject into manageable chunks. Here is an example of a structure of a paper on 'second language acquisition' suggested by the language model when I entered the following prompt: "Write an outline for a paper on second language acquisition":



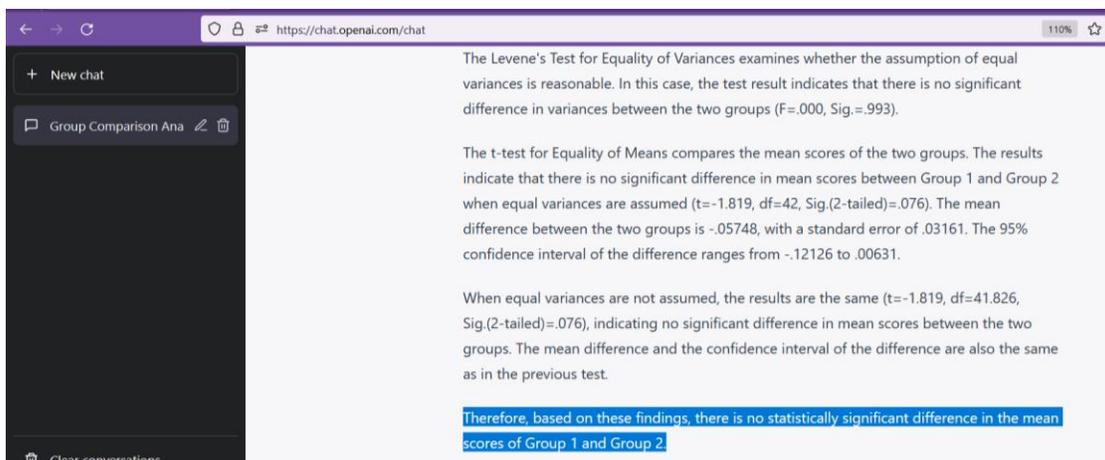
**Figure 1. An outline of a paper generated by ChatGPT**

As seen above, ChatGPT can help provide the structure of a paper. This enables authors to figure out how they should organize their writing based on the feedback provided by the language model. Of course, authors do not need to follow the suggested structure, but at least this structure

helps them to get started and brainstorm ideas. Both beginner and experienced writers may find this useful when writing research papers.

Additionally, ChatGPT enables English L2 researchers to write a paper in English (Buriak et al., 2023; Kim, 2023) and helps to point out details that a writer may have overlooked, enabling them to write about a subject more thoroughly. ChatGPT also offers information in a discipline with which one is unfamiliar in a well-organized, digestible way (Buriak et al., 2023). Needless to say, language barriers constitute one of the significant challenges facing English L2 researchers when they want to publish their work in internationally-referred journals. Since the language model can help with both translation and paraphrasing (although its quality remains unknown, but it looks fairly acceptable to me in most cases), it is now possible for English L2 researchers to write and publish their research articles in English. Whilst some people may disagree with the idea of having ChatGPT do translation or paraphrasing, I believe that this practice is ethically acceptable as long as the bulks of the entire paper have been prepared by the author and, most importantly, this process needs to be explicitly acknowledged in the paper to adhere to academic integrity and transparency. In fact, translation services are normally provided by language centers where research papers written in languages other than English are translated into English for the purpose of publication. The only difference is that the latter charges author for the service and is not always available. Note that there is a whole universe of difference between copying-pasting ChatGPT's-generated texts into a paper and writing a paper first, then get the language model to provide feedback or to do translation or paraphrasing (if it is already written in English).

Additionally, the language model may help to interpret the results of data analysis output from popular statistical software packages such as SPSS. For example, I conducted an independent samples t-test using SPSS. Upon running the analysis, I copied the SPSS output tables for both 'Group Statistics' and 'Independent Samples Test' into the ChatGPT chatbot, one after the other. Then, I provided the following prompt at the beginning of the text copied: "*Interpret these findings*". Chat GPT generated the following text:



**Figure 2. ChatGPT interpreting data output from SPSS**

Note that, as seen above, the language model provides a detailed statistical explanation and, most importantly, helps to provide a conclusion regarding the analyzed data (data generated: 23 March 2023). In the above example, it concludes that "...there is no statistically significant difference in the mean scores of Group 1 and Group 2." Obviously, this can be very useful for researchers who are not very numerate. To my knowledge, no previous articles on ChatGPT have demonstrated ChatGPT's ability to interpret data from SPSS output. Thus, not only is ChatGPT valuable in terms of text writing in general, but it is also useful for interpreting data output generated by data analysis software. However, when ChatGPT is used for this purpose (data interpretation), it is important to ensure that it provides valid and reliable interpretation.

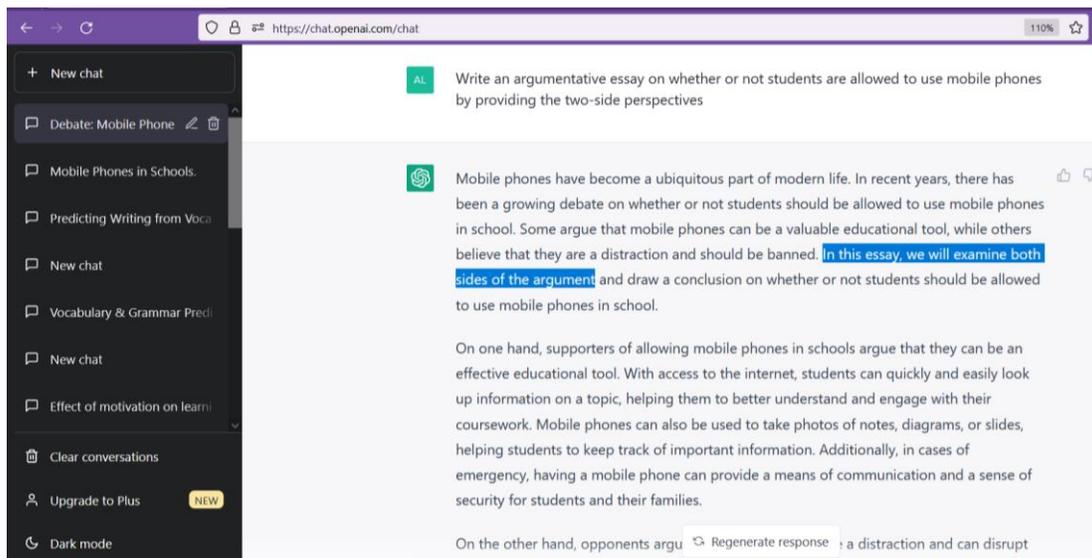
Furthermore, according to Alkaissi and McFarlane (2023), the current version of the chatbot can assist with academic writing in two ways. The first way is that when the author conducts a literature review and takes brief notes or bullet points for each reference, they can request ChatGPT to arrange and convert these notes into a well-structured text. The second way is that ChatGPT can be useful for sorting and managing references and citations. Similarly, it has been argued that the language model may be able to aid with the drafting of scientific papers; it can help with the literature review, identify research issues, give an overview of the state of the subject today, and help with such tasks as formatting and language review (Salvagno et al., 2023). ChatGPT can obviously be quite helpful because it can help to save time and effort by swiftly generating messages that would otherwise take a human a lot of time to generate (Halaweh, 2023). All in all, ChatGPT can be very useful for researchers when writing a research paper since not only can it generate an outline of the paper, thus giving researchers some insights regarding how they will structure their papers, but it will also help with the writing of initial draft papers. However, as argued earlier, this new technology should be used judiciously as a number of drawbacks have also been reported in the literature.

Buriak et al. (2023), for example, identify a number of drawbacks of ChatGPT when used to write a research paper. According to these authors, not only could over reliance on ChatGPT in writing inhibit writers' capacity for intellectual development and self-assurance, but it could also be detrimental to critical thinking required when conducting in-depth literature review. Genuine learning or inquiry, according to these authors, requires both critical thinking and creativity of thought. In fact, this is the reason why a paper should be written by human authors, not by ChatGPT. As a tool, ChatGPT may help improve the quality of the paper by commenting on the paper's grammar, cohesion, coherence, mechanic, or even ideas. Whereas the language model is good at performing these tasks, researchers should not leave ChatGPT to do all the work.

Additionally, at all times, authors need to cross-check the original source of ChatGPT's-generated texts and to refer to this source in the paper by paraphrasing the texts generated by the technology (Halaweh, 2023). Arguably, the language model may turn to be a very useful tool which can assist English L2 researchers (Buriak et al., 2023; Kim, 2023). The idea is not to rely solely on the application to write an entire research paper, but rather to use it as a tool for gathering necessary information such as the writing structure, relevant sources, and new insights about the topic. Authors may also ask ChatGPT to provide feedback on their draft papers. So, the process is really similar to when a research student consults their papers with a supervisor or a paid language editor. The only difference is that, as mentioned earlier, the language model is

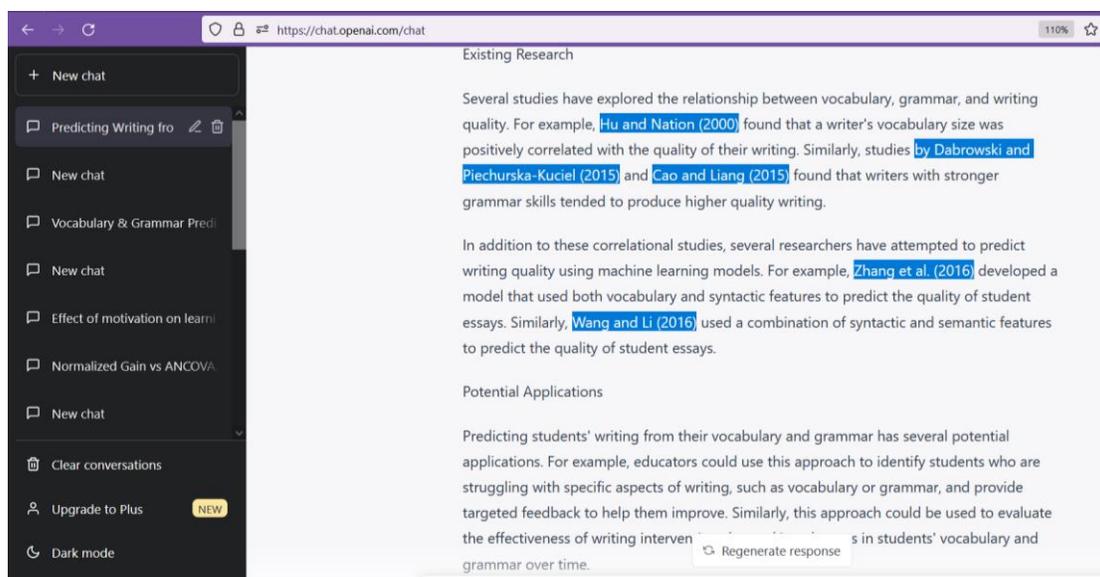
available all the time and it can provide unlimited information and ideas, anytime – anywhere and, above all, it is free of charge. If ChatGPT is used this way, the new technology can potentially foster writer’s capacity and intellectual development. So, strictly speaking, it is not really the use of ChatGPT that should be debated (i.e., whether or not to use ChatGPT in academic writing), but rather it is how this new technology should be best utilized to support research. Chat GPT is like a knife; it is not the tool itself that should be debated (whether a knife is good or bad for humans), but rather how the tool should be utilized in the best interests of humans.

Buriak et al. (2023) also argue that ChatGPT tends to repeat information unnecessarily and is poor at recognizing and producing unique outcomes. Whereas frequent repetition is clearly one of the shortcomings of ChatGPT, this concern is envisaged to be minimized as the algorithm continues to be improved and more data corpus has been pre-trained. The authors also point out that ChatGPT could generate unreliable information or conclusion regarding certain sources and this could be misleading when used to back up the authors’ views in a paper (Buriak et al., 2023; van Dis et al., 2023). As Buriak et al. (2023) suggest, which I agree with, all information generated by ChatGPT needs to be cross-checked and validated with its original sources. What is more, Buriak et al (2023) contend that ChatGPT fails to present opposing viewpoints on contentious issues, especially without user intervention. In fact, ChatGPT can easily provide opposing views if prompted properly. For example, I have provided the following prompt: *“Write an argumentative essay on whether or not students are allowed to use mobile phones by providing the two-side perspectives”*. Note that the phrase *“by providing the two-side perspectives”* has been included. It turns out that ChatGPT does provide the requested task by providing arguments from both sides. Thus, with appropriate prompts, ChatGPT can provide opposing arguments as seen in the following graph:



**Figure 3. ChatGPT provides arguments from both sides**

Furthermore, it has been argued that the ability of AI content production technologies to automatically provide accurate citing sources is currently not available (Chen, 2023; Haleem et al., 2023). However, as discussed earlier, with appropriate prompts, ChatGPT could easily include in-text references. Here is an example of a generated text when I entered the following prompt: “Write a paper **with in-text references** on predicting writing skills from vocabulary and grammar” (data generated: 18 March 2023):



**Figure 4. ChatGPT provides in-text references**

However, as mentioned earlier, it is critical that the accuracy and reliability of such references be confirmed with the original sources referred to in the paper (Arif et al., 2023; Buriak et al., 2023). More importantly, as the text is generated by ChatGPT, authors need to paraphrase and refer to original sources as discussed earlier (Halaweh, 2023), rather than to copy-paste the texts as they are. Failure to do so should be viewed as academic dishonesty and plagiarism (Halaweh, 2023). It is also important to acknowledge the contribution of ChatGPT in the paper or to cite it as a reference when appropriate. However, academic writing regulations regarding when and how to cite content from AI are still being developed by educational institutions and style manuals. Although APA, for example, does not yet have a set structure for citing ChatGPT content, it is said in a tweet that it should be mentioned as ‘a personal communication’ because the text is not retrievable (conversations are specific to each user, so one cannot provide people a URL to view chats). A reference entry is not necessary for APA personal communication citations. Instead, those citations are placed in parentheses following the paraphrased texts from ChatGPT. More style manuals will soon be released pertaining to how to cite sources from AI, including ChatGPT.

Finally, Buriak et al. (2023) also noticed that ChatGPT is biased when citing references, as it tends to prioritize references with high citations or predominant theories, while ignoring those

with low citations. To test this contention, I have entered the following prompt: “*Write a paper with in-text references on the effect of learning motivation on achievement*”. Interestingly, ChatGPT does, in fact, provide references whose citations are extremely high as shown in the following table (data generated: 18 March 2023):

**Table 1.** References generated by ChatGPT when asked to write a paper

References generated by ChatGPT	Number of Google Scholar citations
Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. <i>American psychologist</i> , 55(1), 68.	56,845
Deci, E. L., & Ryan, R. M. (2000). The” what” and” why” of goal pursuits: Human needs and the self-determination of behavior. <i>Psychological inquiry</i> , 11(4), 227-268.	38,958
Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. <i>Psychological bulletin</i> , 125(6), 627.	10,797
Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. <i>Annual review of psychology</i> , 53(1), 109-132.	9,917

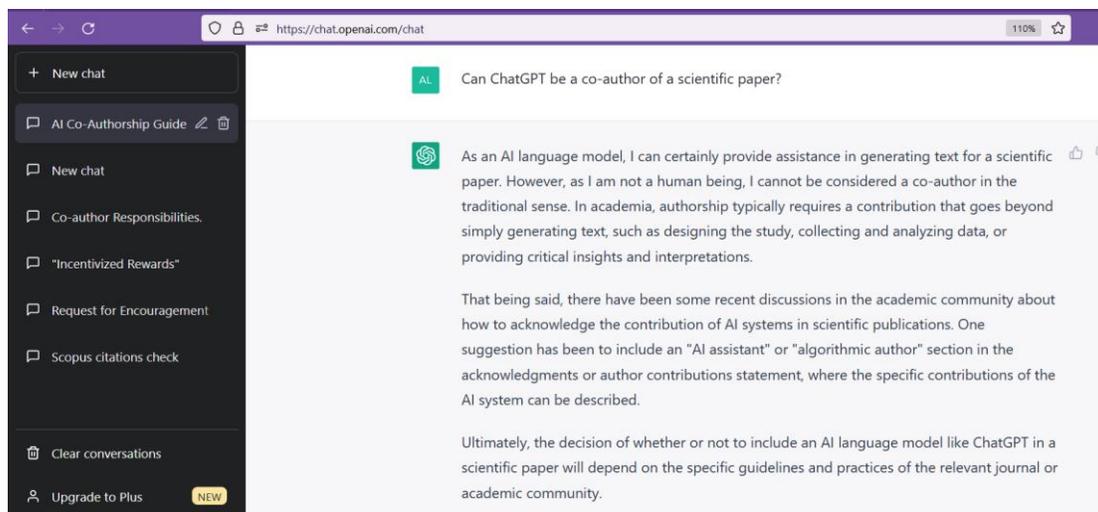
Note that of all references cited, none has low citations whereas it is entirely possible that these lowly cited papers may provide new insights and novelties as far as science and technology is concerned. This is particularly true for newly published papers.

## THE ISSUE OF AUTHORSHIPS

ChatGPT can write a fairly decent paper, including literature review, if given appropriate prompts. Thus, with this cutting-edge technology, humans can work together with ChatGPT to write a scientific paper as suggested by Halaweh (2023). The ensuing question is whether ChatGPT can be a valid author for papers if it contributes a significant portion to those papers (Macdonald et al., 2023; Marchandot et al., 2023). Whereas a recent article (i.e., King & ChatGPT, 2023) has decided to include ChatGPT as a co-author, this decision has also incited debates in the world of academia (Macdonald et al., 2023) and this debate has just begun.

As far as I am concerned, ChatGPT should not be given co-authorship rights for a number of reasons. First, a co-author should be accountable for the paper he/she writes and it is hard to imagine how to get this language model to be accountable for what it generates (van Dis et al., 2023). Second, as argued earlier, as a researcher, I believe it is unethical to use texts generated by ChatGPT (copy-paste) as they are in a paper, for this will give rise to plagiarism. Instead, an author should first confirm the original sources of such texts and, when found to be valid and reliable, refer directly to these original sources by paraphrasing them. However, the contribution of ChatGPT in terms of providing the initial information should also be explicitly acknowledged in the paper, but simply providing this information alone does not make ChatGPT a valid author.

Whereas the language model can also be used to paraphrase texts, this work cannot make ChatGPT a valid author either. In fact, this service is similar to what professional language editors do in most language centers; yet, this does not make them legitimate authors. To explore this issue further, I decided to ask what ChatGPT thinks about this issue by providing the following prompt: “*Can ChatGPT be a co-author of a scientific paper?*” and here are ChatGPT’s responses (data generated: 19 March, 2023):



**Figure 5. ChatGPT’s responses to questions regarding co-authorship**

Interestingly, ChatGPT itself concurs with the idea that, whereas it can provide various types of assistance as discussed above, it considers itself to be unqualified author. However, it makes an interesting statement that whether AI can co-author a paper also depends crucially on the journal tradition and specific academic community. In other words, some journals and academic educational institutions may well consider including AI, such as ChatGPT, to be a valid co-author for a paper. As the debate is still in its infancy, it is hard to tell which directions we are heading to. It is for this reason that on-going discussion and debates pertaining to the issue of AI in the world of academic are strongly encouraged to enable us to make informed decisions.

In addition to the issue of co-authorship, there is also a need for a clear policy when an institution seeks to embrace AI. The following section will briefly touch on this issue.

### **THE NEED FOR A POLICY**

There are speculations that ChatGPT will dramatically change how research is conducted and how research papers are written (Alkaissi & McFarlane, 2023; Gilat & Cole, 2023). The unprecedented potential of ChatGPT in research requires that a clear-cut policy and guidelines regarding its use in the world of academia be established, as using AI in this particular context could potentially introduce various ethical concerns (Halaweh, 2023; Salvagno et al., 2023). For

example, a policy regarding the extent to which a researcher could utilize AI sources in their papers, a policy pertaining to how AI should be utilized, a policy regarding whether AI could co-author a paper, a policy regarding copyright and fair use, and a policy regarding plagiarism, to name a few, should all be in place. These policies are particularly relevant for journal editors, authors, students, researchers, and educational institutions at large.

With the use of AI in academic writing, a change in the policy and procedure for assessing scientific papers for journals and conference proceedings may soon be required (Alkaissi & McFarlane, 2023). For example, researchers may need to provide full disclosure of any usage of these technologies and the inclusion of output detectors for AI in the editorial process (Alkaissi & McFarlane, 2023). At the moment, no regulating organization has yet been established, and there are no set guidelines or restrictions on the extent of AI use (Arif et al., 2023). Because of this, a decision on how to control chatbot usage in scientific writing will soon be needed (Salvagno et al., 2023). Given the fact that AI such as ChatGPT has been growing at an almost exponential rate, we would expect to see these policies in place in the not-too-distant future. Some people have even recommended that international academic laws be made in place to control the use of chatbot tools in scientific writing and that systems for identifying and sanctioning unethical usage be provided because AI will soon be extensively implemented in various fields (Salvagno et al., 2023).

## CONCLUSIONS

This paper has critically scrutinized the potential benefits and drawbacks of AI such as ChatGPT in academic writing. It argues that although there are various issues and caveats that need to be considered, ChatGPT could potentially revolutionize how research is conducted and how research papers are written, and that we need to embrace this new technology cautiously and responsibly while adhering to academic integrity and academic honesty.

ChatGPT offers numerous possibilities for researchers as it could potentially boost research performance by shortening the writing time of research papers. The language model also provides writing assistance and helps generate ideas related to the research topic. Thus, it makes the writing process more efficient. Additionally, ChatGPT could help generate paper outline, synthesize literature when prompted appropriately, and even write up a draft paper, which in turn, save researchers' precious time and improve the writing quality. What is more, not only is ChatGPT valuable in terms of text writing in general, but it is also useful for interpreting data output generated by data analysis software such as SPSS.

However, the new technology also raises a number of ethical concerns, such as plagiarism, the potential for degraded researcher autonomy, and the threatened academic integrity of researchers. There are also concerns regarding the trustworthiness of ChatGPT-generated text as there is some evidence that text is not always reliable and accurate. It is the responsibility of the researchers to confirm with the cited resources regarding the trustworthiness and accuracy of the information provided by the language model. There are also concerns that the language model may be biased towards citing highly-cited papers and ignoring those with lower citation counts.

This paper has also argued that it is unethical to use ChatGPT's-generated texts in the paper as they are. At the end of the day, ChatGPT is just a tool which may help researchers in writing

research papers, but researchers should not rely solely on this tool. Obviously, if used judiciously and responsibly by adhering to international academic writing standards and ethical guidelines, the use of the language model in the world of academia can provide numerous benefits in academic writing. Thus, again, the major question is not whether or not to accept the new technology in the world of academia, but rather, how this new technology should be utilized properly, responsibly, and ethically to support research and publication.

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