

# Assessing Students' Perception of the Effectiveness of ChatGPT in Undergraduate Writing Courses in Tunisia

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## Abstract

This article investigates students' perception of the Chat Generative Pretrained Transformer (ChatGPT)'s effectiveness in undergraduate writing courses. Two research questions were addressed: 1) How do students perceive ChatGPT's effectiveness in English writing? 2) How can ChatGPT contribute to their writing improvement? The study was conducted at the Mediterranean Institute of Technology (MedTech) in Tunis, Tunisia, during the summer of 2023, comprising 21 female and 29 male participants enrolled in English writing courses across various engineering programs. Data collection was carried out through a questionnaire, designed to gather qualitative and quantitative insights, including a combination of open-ended and 5-scale Likert questions. The survey assessed students' perceptions of ChatGPT's effectiveness in various writing aspects and gathered their suggestions for improvement. The results reveal that students find ChatGPT particularly effective in generating ideas and improving grammar. Students appreciate the immediate feedback and suggestions provided by ChatGPT, helping them identify their errors. Additionally, students benefit from ChatGPT's ability to expand their vocabulary and improve writing fluency. However, students also identified areas where ChatGPT could be improved, such as better understanding contextual nuances and providing more reliable and contextually appropriate suggestions. Students emphasized the importance of balancing ChatGPT's use as a writing aid with the development of their own critical thinking and creativity in the writing process. These findings contribute to the ongoing development and implementation of artificial intelligence (AI)-based writing tools, highlighting the importance of balancing technology assistance with students' independent writing abilities and critical thinking.

**Keywords:** artificial intelligence (AI) Integration; Era of artificial intelligence (AI); Higher Education; Learning Experience; OpenAI

## 1. Introduction

Recent developments in artificial intelligence (AI) and natural language processing (NLP) have had a significant impact on various aspects of our lives, including education (Swift, 2023). These innovations have presented new opportunities for both educators and students (Momonov & Mirtskhulava, 2021). According to Huang et al., many computer programs not only assist students in improving their writing skills but also enable instructors to research more effective teaching methods and strategies (Huang et al., 2020).

One of the emerging tools in this field is the Chat Generative Pretrained Transformer (ChatGPT), an AI-based language model that is gaining attention for its ability to produce coherent, consistent, and contextually relevant text responses. It is currently the most advanced chatbot in the world. It can create impressive prose in a matter of seconds, unlike other chatbots, and it has generated a lot of hype and doomsday predictions when it comes to student assessment in higher education and a variety of other issues. ChatGPT is a cutting-edge language model, a variant of OpenAI's Generative Pretrained Transformer (GPT) language model, that can generate text that is indistinguishable from human-written text. It can converse with users in a seemingly natural and intuitive manner (Rudolph et al., 2023). ChatGPT has the potential to be a valuable tool for both educators and students, as they can both benefit from it if employed adequately, enriching the teaching-learning process (Huang et al., 2020).

However, the integration of AI chatbots in education has sparked controversy. On the one hand, some educators view these technological advancements as a threat, fearing that they may supersede traditional teaching methods or inhibit the critical and creative thinking skills of students (Ausat et al., 2023). On the other hand, others recognize the added value of AI chatbots and ChatGPT as additional resources in educational contexts that enhance students' learning experiences (Momonov & Mirtskhulava, 2021). They even urge its incorporation into pedagogies and policies since they believe that prohibiting the use of these platforms and enforcing stringent dismissal practices are not viable solutions (Gleason, 2022).

To gain a better understanding of students' perspectives and shed light on this topic, this study aims to evaluate students' perceptions of ChatGPT's effectiveness in undergraduate writing courses. Two research questions were addressed: 1) How do students perceive ChatGPT's effectiveness in English writing? 2) How can ChatGPT contribute to their writing improvement? The purpose was to determine the extent to which students regarded ChatGPT as a trustworthy resource to rely on during the writing process in different courses where writing essay assignments is required.

## 2. Method

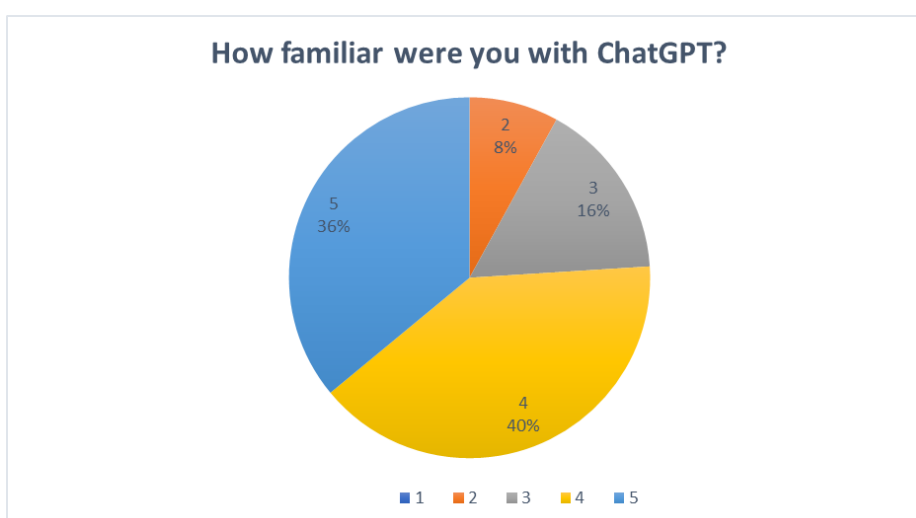
The research was conducted at the Mediterranean Institute of Technology (MedTech), which is in Tunis, the capital of Tunisia. MedTech is a private institution that was established

in 2014 and holds the distinction of being the first engineering university in Tunisia to use English as its main language of instruction. It is part of the larger South Mediterranean University (SMU), which includes other universities such as the Mediterranean School of Business (MSB), and the Language and Culture Institute (LCI). It is a co-educational university with a diverse student body of approximately 515 undergraduate and graduate students from over 10 nationalities. MedTech offers three engineering programs, namely Computer Systems Engineering (CSE), Renewable Energy Engineering (REE), and Software Engineering (SWE). Remarkably, the three programs at MedTech have received the Accreditation Board for Engineering and Technology (ABET) from the Engineering Accreditation Commission (EAC).

The study was conducted in June of the Summer of 2023 to investigate students' perception of the effectiveness of ChatGPT in English writing assignments. The research data was collected through a questionnaire with 50 undergraduate students who took English writing courses. 21 female students and 29 male students responded to the survey. In order to obtain qualitative and quantitative data, the survey included a mix of open-ended questions and 5-scale Likert questions about their familiarity with using ChatGPT, reasons for using ChatGPT, how frequently they use ChatGPT, how credible the information provided by ChatGPT is, whether ChatGPT reduces anxiety, whether using ChatGPT could make the writing experience more enjoyable, and finally how satisfied they are using ChatGPT.

### 3. Results & Discussions

Figure 1: The percentages of students familiar with ChatGPT.



From the students' responses, it is noted that 92% indicated that they are familiar with ChatGPT, while 5% only confirmed that they are not (see Fig.1). The majority of students

reported a positive user experience with ChatGPT as well. Specifically, 62% of the students confirmed that they frequently use it in their English writing assignments (see Fig.3). Despite the relatively recent emergence of ChatGPT, most of the students adopted it and use it frequently. In fact, it should be highlighted that students who took the questionnaire are Generation Z between the ages of 20-25, and according to Emmanuel Bonsu and Daniel Baffour-Koduah in their article (Bonsu & Baffour-Koduah, 2023), Generation Zs are in tune with their surroundings, ensuring that they remain innovative. Generation Zs are the first generation born and raised in the digital age (Shin & Lee, 2021), hence, they quickly learn this new technological innovation, become familiar with it, and adapt to its use.

74% of the students confirmed that the use of ChatGPT made them feel less anxious and consequently increased their self-confidence (see Fig.5). In addition, 87% indicated the use of ChatGPT made the writing process more enjoyable for them (see Fig. 6). The findings are in line with previous literature and studies. For instance, Hidi et al. in their article entitled “Joy of Learning” confirmed that ChatGPT was discovered to increase the enjoyment of learning (Hidi et al., 2004). Additionally, it has been found that ChatGPT is highly beneficial in reducing anxiety levels. According to Rudolph et al. in their article “Bullshit spewer or the end of traditional assessments in higher education?”: “It can be argued that intelligent tutoring systems (ITS) are one of the most promising benefits of AI when it comes to transforming education, as they are one of the most effective tools for personalizing instruction” (2023). This could be explained by the instant feedback students get from ChatGPT, which represents a new experience compared to the conventional process they are used to going through, where they have to wait for the professor’s comments and feedback.

The next finding of the study is related to the aspects in which ChatGPT contributes to the effectiveness of the student’s English writing. The findings showed that they mainly use ChatGPT to generate ideas (66 % of the students). This finding is in line with previous studies, for example, in (Rudolph et al., 2023) the authors prompted a ‘code red’ due to ChatGPT’s potential to upend the dominance of Google search, with Microsoft already using OpenAI technology to improve its own search engine, Bing (Tung, 2023). In addition, AlAfnan et al. in their article titled “ChatGPT as an Educational Tool: Opportunities, Challenges, and Recommendations for Communication, Business Writing, and Composition Courses” maintained that “After conducting 30 theory-based and application-based ChatGPT tests, it is found that ChatGPT has the potential of replacing search engines as it provides accurate and reliable input to students” (2023). A student said “Okay, so it’s basically like searching Google, but this simplifies the information you need to the precise thing you want. It just makes things easy for me” (Bonsu & Baffour-Koduah, 2023: 1-29).

Students also use ChatGPT to suggest vocabulary alternatives, reduce grammatical errors, and improve writing structure. In other words, when students receive immediate feedback, their awareness of grammatical rules, vocabulary alternative choices, and appropriate writing structure is enhanced.



Finally, the credibility of ChatGPT was rated moderately at 65 % concerning generating responses (see Fig.4), which is also confirmed in Table 2. This could be explained by hallucination, which is known as one of the limitations of ChatGPT (Bang et al., 2023). Abdulhadi Shoufan suggests that “ChatGPT, at least at the current time, should not be relied on as a sole resource for learning by students who don’t have sufficient prior knowledge” (Shoufan, 2023:38813).

Figure 2: Students’ reasons for using ChatGPT in English writing.

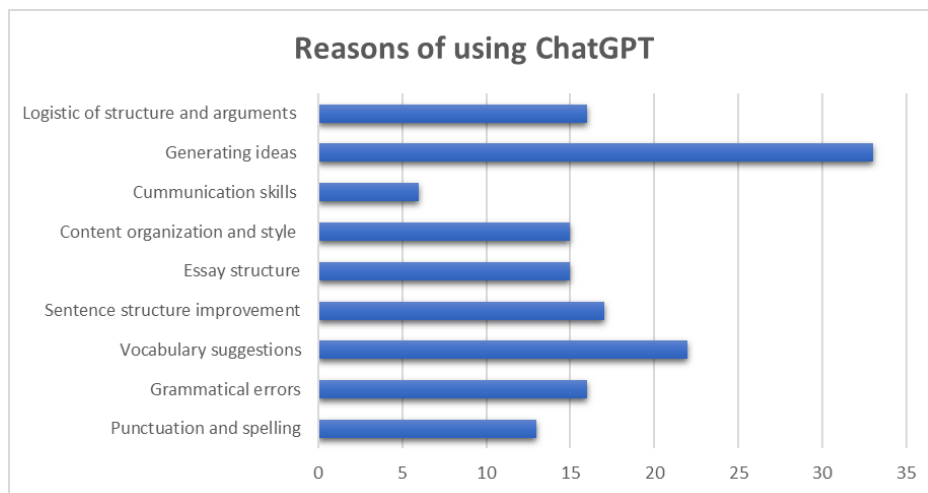


Figure 3: Students reported how frequently they use ChatGPT in English writing.

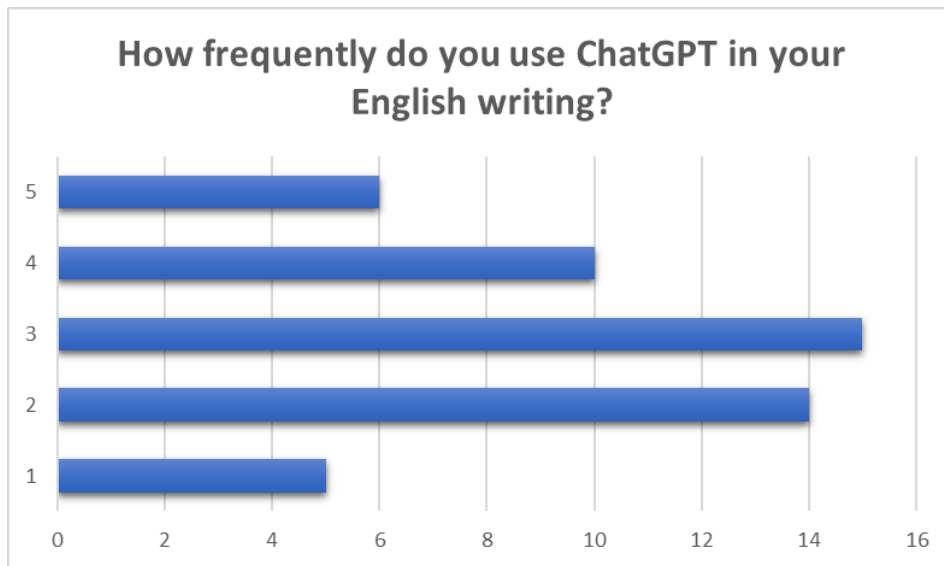
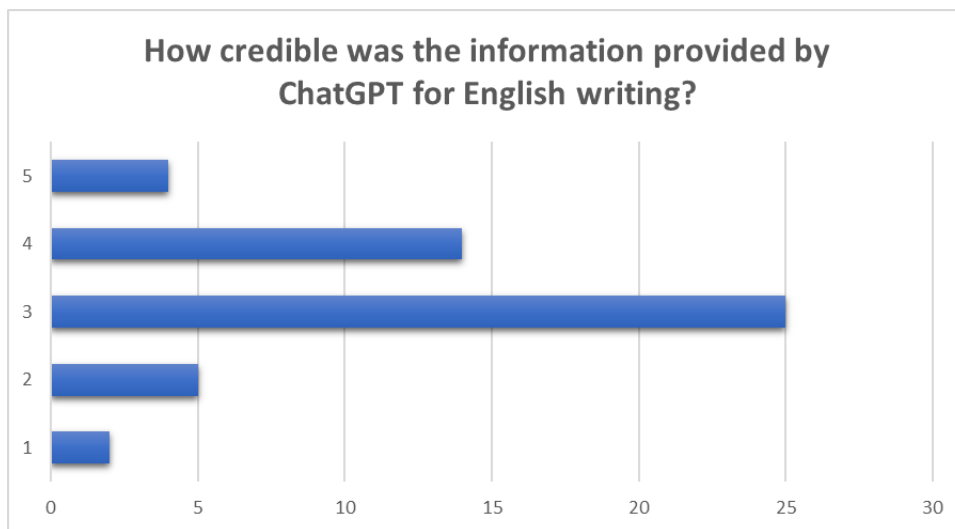


Figure 4: Students reported how credible the information provided by ChatGPT for English writing.



Despite the “false responses” generated by ChatGPT and the limitations mentioned in the previous section, 94 % of the students are satisfied with using ChatGPT in English writing assignments, compared to 6% only expressing dissatisfaction. These findings are in line with previous studies. For instance, according to Shoufan indicates that “Despite the trickiness of prompting and the modest accuracy, the students perceive ChatGPT as a helpful and efficient tool for learning and professional life” (Shoufan, 2023:38813).

Figure 5: Students reported how ChatGPT increase self-assurance and reduce anxiety.

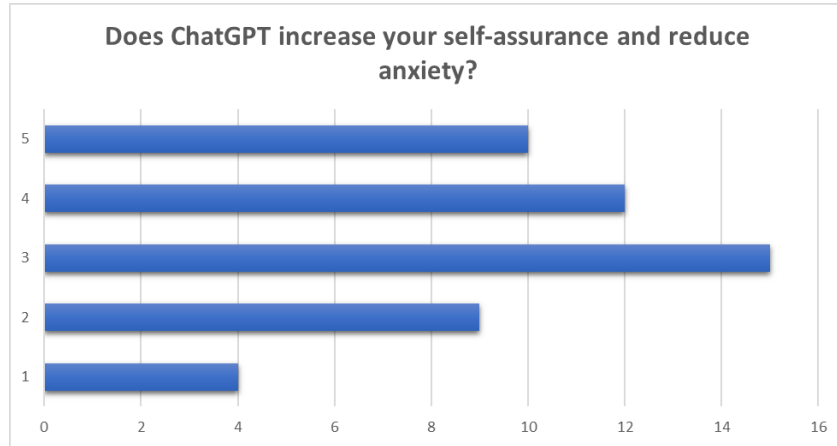


Figure 6: Students reported how ChatGPT made the writing process more enjoyable.

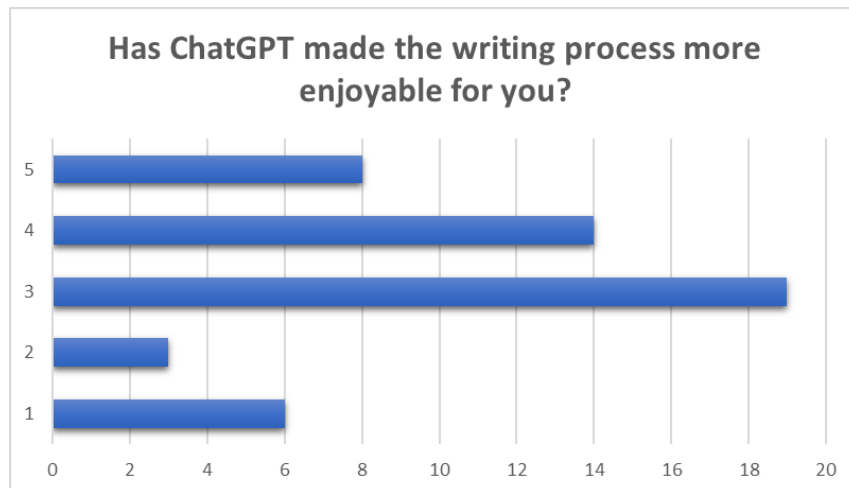


Figure 7: The percentages of students' overall satisfaction using ChatGPT.

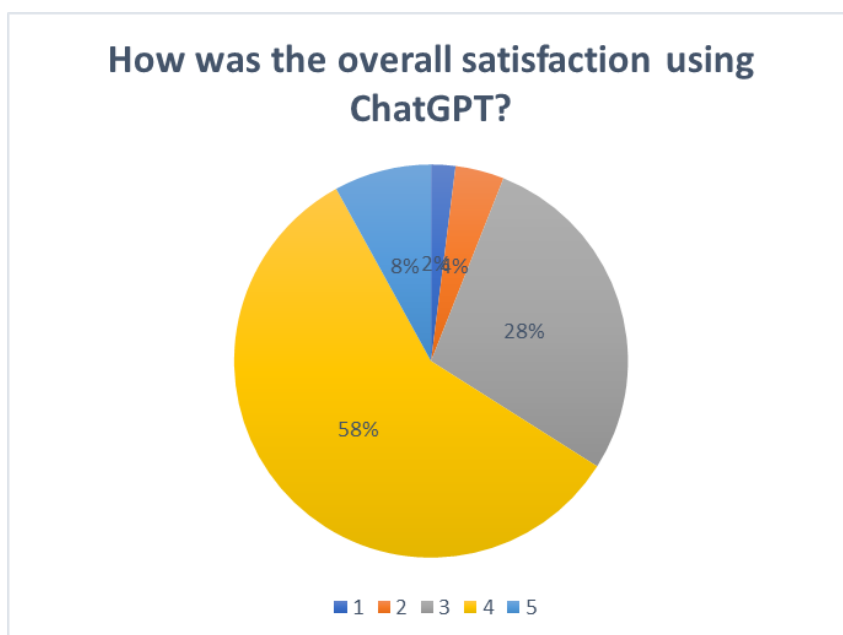


Table 1 and Table 2 show students' responses to the open-ended questions for the positive and negative themes respectively:

Table 1: Some examples of students' positive comments.

Theme	Examples of students' comments
Effectiveness and Precision	Effective, clear, and precise
	It provides really specific content related to the given prompt
	Amazing ability to comprehend the user's precise questions
Practicality and Versatility	More practical in finding information or generating ideas than using Google or a regular browser
	The versatility of ChatGPT as a helpful tool
	Useful for asking questions without having the correct vocabulary or technical terms
Powerful	Powerful and can be of significant use
	ChatGPT is very powerful since it provides specific responses from a large amount of information
	Very strong and can help in many things



Writing Assistance	Helps get rid of "blank page syndrome" when writing
	Recognizable style in writing and regenerating answers
	Provides various ideas and helps start essay writing
Idea Development	Good suggestions for developing an idea
	Helps develop and add examples based on a brief description

Table 2: Some examples of students' negative comments.

Theme	Examples of students' comments
Not accurate and not reliable	It can give false information or limited information
	Cannot provide articles from Google Scholar
	The language module of ChatGPT could get things wrong
	Sometimes it can provide wrong information
	Its information is not very reliable
	It also has the potential of leading the user down a misleading route if the user does not have a minimum level of understanding of a topic or a prompt
Repetition	Text generated can feel repetitive, especially for narrow topics
	ChatGPT repeats the same ideas and structure over and over again
	The data set used by ChatGPT has limitations, especially for topics beyond 2021
	if the topic is not broad enough the text generated will feel very repetitive.

From the abovementioned comments, the following could be concluded:

- Students expressed overall positive perceptions: effectiveness and precision, practicality, versatility, powerful writing assistance, and idea development.
- Most of the comments belong to positive themes. Hence, the students showed stronger agreement about the positive features of ChatGPT.

- Students highlighted ChatGPT's versatility and practicality compared to conventional search engines such as Google and ordinary browsers for finding information or generating ideas.
- Students recognized its value in bridging language gaps by enabling them to express their questions without having to resort to specialized vocabulary or technical terms.
- Students appreciated the model's suggestions for developing ideas and adding examples based on a brief description.
- Some students voiced concerns about ChatGPT highlighting several limitations in terms of accuracy, reliability, occasional mistakes, false information, and repetition in text generation and providing accurate answers or accessing up-to-date information.

### **Conclusion & limitation**

The findings of the present study are consistent with the results and findings of previous existing literature, mainly highlighting the positive user experience of integrating ChatGPT into the educational context and more specifically into English writing courses and assignments. According to the study's findings, students highly value ChatGPT as a tool for generating ideas and improving their grammar skills. They compare ChatGPT to an advanced search engine in terms of its reliability as a source of ideas. Students appreciate ChatGPT's immediate feedback and suggestions since they are to help them identify and correct their errors effectively. Furthermore, students benefit from ChatGPT's ability to increase their vocabulary and writing fluency. Hence, as indicated by Kalla and Smith in their article entitled "Study and Analysis of ChatGPT and its Impact on Different Fields of Study" ChatGPT has similarly shown potential as a learning tool in English writing, especially because it offers personalized feedback and support for students, helping them to promptly improve their writing (Kalla & Smith, 2023: 831). Many students mentioned that "It is used primarily for coding and generating ideas".

In addition, several researchers have demonstrated that the generative nature of ChatGPT enables it to develop new ideas and concepts by producing sentences, paragraphs, or texts based on a given context and definition of problems (Stevenson et al., 2022). Moreover, ChatGPT demonstrates its creative potential by coming up with ideas and offering solutions. By presenting fresh viewpoints and insights, it can help users during brainstorming sessions. Research, problem-solving, and content creation are just a few of the areas where this capability has major implications (Dwivedi et al., 2023).

However, while students recognize the benefits of ChatGPT, they also voiced a few concerns and highlighted some areas for improvement. Students emphasize the need for ChatGPT to better understand contextual nuances to provide more accurate and contextually



appropriate suggestions, they also highlight the importance of critically evaluating and verifying ChatGPT outputs, particularly for more complex or specific topics.

It could, therefore, be concluded that it is important to find a balance between using chatbots and preserving a student-centered interactive learning environment while at the same time being able to adapt to these emerging technologies. Especially that, as confirmed by Kalla and Smith the use of ChatGPT won't be limited to one specific field, and it will eventually be integrated into almost every single aspect of our lives, including academia, research, healthcare, etc. (Kalla & Smith, 2023: 831).

Overall, the findings show that students regard ChatGPT as a useful tool for generating ideas and improving various aspects of English writing. Nonetheless, it emphasizes the importance of furthering ChatGPT's refinement, particularly in terms of context sensitivity. These findings contribute to the ongoing development and implementation of AI-based writing tools, emphasizing the importance of combining technological assistance with students' independent writing abilities and critical thinking skills. By addressing the identified areas for improvement, AI-based writing tools such as ChatGPT can continue to assist students in their writing endeavors while also empowering them to become more proficient and self-sufficient writers.

The low number of participants in the present study could be considered as a limitation, even though the gender distribution among engineering students was satisfactory, a larger sample size would have allowed for quantitative analysis of the data and perhaps make the findings more relevant to contexts outside of Tunisia too.

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