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EFL Students' Use of AI Chatbots in Academic Writing

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ABSTRACT

Artificial Intelligence (AI) has generated significant debate in higher education, with some researchers calling for greater integration of AI tools in the classroom (Kohnke, 2023), while others insist that it has a negative impact on academic performance (Abbas et al., 2021). Given that these tools are becoming more ubiquitous, this paper seeks to understand how students are using them in their learning. The present study analyzes a university-level English as a Foreign Language (EFL) class, with a unit focused on academic writing. Students from a French university were trained on using AI chatbots to get feedback on their writing and then asked to justify the types of feedback they accepted and rejected. Their responses were coded to identify patterns in how students used chatbot feedback in their writing. Results indicate that, while feedback regarding grammatical precision and word choice was welcomed, students were much more hesitant to accept changes that impacted either their personal writing style or distorted their ideas. Ultimately, findings suggest that these chatbots can be a useful resource for improving student writing, but careful training is necessary to ensure responsible use.

KEYWORDS: Artificial Intelligence, English as a Foreign Language, Writing Confidence, Academic Language, Education Technology

INTRODUCTION

The present study explores how students use Artificial Intelligence (AI) chatbots to improve their academic writing in a university-level English as a Foreign Language (EFL) course and how the use of such tools impacts foreign language (FL) writing confidence. While AI is not a new phenomenon, the release of ChatGPT and similar tools in the 2020s has led to a renewed interest in how these platforms are used in the context of higher education. According to Fui-Hoon et al. (2023), GPTs, or Generative Pre-trained Transformers, refer to "Large Language Models (LLMs) that use deep learning techniques for extensive training with tremendous amounts of data;" given their access to all these data, these chatbots are capable of producing human-like responses in online conversations. Although the text output of ChatGPT and similar tools remains distinct from human-generated texts, they have been found to be useful in assisting humans in written tasks (Imran & Almusharraf, 2023). Numerous

reports illustrate how these tools can be used to help plan lessons, proofread written documents, and even generate authentic-sounding texts (Božić & Poola, 2023; Van Dis et al., 2023).

Nevertheless, concerns regarding AI chabots abound, given the possibility for academic misconduct and plagiarism (Fui-Hoon et al., 2023). Some universities have taken extreme measures by banning tools like ChatGPT completely (De Clerq & Kao, 2023), while other institutions have taken a more cautiously optimistic stance, by tentatively allowing these tools for the purpose of teaching and learning (Leung & Sharma, 2023), even going as far as to offer clear instructions for how to use AI in university courses (Newman, n.d.). Numerous factors impact how potential users feel about AI tools in education, specifically the perceived risk of use, the performance expectancy of the tool, and the presence of facilitating conditions for use (Chatterjee & Bhattacharjee, 2020). Still, further research is needed to better understand how AI can be used in the classroom to advance learning in a way that is guided by a clear framework for responsible use (Božić & Poola, 2023; Chen et al., 2020). This study attempts to respond to this gap in existing research by providing a concrete example of generative AI use in an EFL classroom with a close examination into how students used the tool in their writing. It is guided by the following two research questions:

1. How do students use AI chatbots to improve their English writing skills?

2. What impact do AI chatbots have on students' English writing confidence?

LITERATURE REVIEW

Benefits and Drawbacks of Generative AI

Although some popular AI platforms have appeared only recently, their benefits and added value in the field of education are well-documented. From the teaching perspective, research suggests that AI is already used in curriculum and lesson planning, and that teachers recognize its importance and wish to have more training on it (Chiu & Chai, 2020; Huang & Li, 2023). With their capacity to synthesize information and identify key points, Pavlik (2023) suggests that AI writing tools, such as chatbots, could be very useful in the context of journalism and media education programs. Regarding learning, chatbots have been shown to increase learner engagement, correct errors, and offer students opportunities for practice (Huang & Li, 2023). Chatbots and other AI tools can find patterns in learners' input and use them to provide individualized learning experiences based directly on learner needs and difficulties; learners' experiences with GPTs have been shown to be largely positive, with younger learners being particularly enthusiastic (Fitrianto et al, 2024; Huallpa et al., 2023; Kuleto et al., 2021). Writing specifically about ChatGPT, Firat (2023) explains that learners can use this platform to obtain real-time feedback on their work, without having to wait for an exam or an evaluation from their teacher. It can offer learners some suggestions on how to advance their learning, even proposing specific resources students may wish to consult.

Despite the perceived benefits of AI chatbots, teachers and researchers alike have noted several risks associated with their use that also demand further exploration. Just as Imran & Almusharraf (2023) explain that AI-generated texts differ significantly from human-generated texts, Kocoń et al. (2023) found that ChatGPT was not always able to satisfactorily perform complex tasks; an evaluation of

ChatGPT's output for a variety of prompts revealed losses in quality. Furthermore, chatbots are often unable to cope with requests that require pragmatic knowledge or the ability to adapt a response for a given context (Fuchs, 2023). It is therefore unsurprising that Selwyn (2022) insists that AI's impact on education will not be inherently positive; teachers need to carefully research the advantages and shortcomings of these tools before deciding on their place in the classroom.

Another major issue with the output of these LLM chatbots is the presence of significant biases. As the database from which these tools generate responses is based on existing language use, the output will necessarily contain several of the same biases as the source data. Unfortunately, at least in the case of ChatGPT, it is not always clear where the data come from, and so the biases can be difficult to anticipate (Sharma & Yadav, 2022; Van Dis et al., 2023). The issue of biases is compounded by the presence of blatantly false or out of date information (Fuchs, 2023). Users therefore need to proceed with caution when deciding whether to accept the output of a GPT.

Naturally, many of the concerns focus on the impact AI can have on learning. Abbas et al. (2021), for example, conducted a study that revealed that users of generative AI often had lower performance records, reported higher levels of procrastination, and exhibited difficulties retaining information. Shidiq (2023), on the other hand, describes fears regarding the impact GPTs can have on students' creative writing skills; as writing is interactive, involving regular exchanges between students, and between students and the teacher, tools like ChatGPT must not play too large of a role in the process. Barrot (2024) explains that ChatGPT, despite some authentic language use, lacks the emotional depth and cultural sensitivity to offer effective feedback on its own. Susnjak (2022) paints a troubling picture of the impact of AI on online learning. As more universities offer online or hybrid learning programs, instances of academic dishonesty and plagiarism are on the rise. Susnjak's (2022) study revealed that ChatGPT could provide passable exam answers and critically analyze complex topics, which raises obvious concerns for the future of online evaluations.

Despite the various risks involved with implementing AI in academia, evidence continues to demonstrate a positive impact on student learning and a desire for teachers to learn more about these tools (Chiu & Chai, 2020; Huallpa et al., 2023). Conflicting beliefs about the value of AI have led to an intense debate in the field of education, accompanied by a call for a clear framework to guide AI use (Holmes et al., 2022; Holmes & Tuomi, 2021).

AI in the Context of Foreign Language Learning

One of the most obvious implications for AI use in education is to facilitate language learning. As GPTs are able to imitate human language with respectable accuracy, students can use them for conversation practice, error correction, and the creation of practice exercises to drill grammar rules or new vocabulary. Language learners at various levels have reported using AI tools to improve their writing skills, for example, insisting that such platforms can make learning easier and more effective (Zaghlool & Khasawneh, 2023). Research in this subfield is therefore constantly growing, particularly with reports on students' opinions on uses for AI tools in their language learning.

Regarding language skills, chatbots have been observed to have a positive impact on students' writing. When given explicit training on how to properly use AI to request feedback and correct errors, EFL

students in China made substantial improvements in their English writing skills, including a more varied vocabulary, more precise grammar, and a clearer organization; these gains were not seen as clearly in the control group which simply received teacher feedback on their writing (Song & Song, 2023). Similar findings were found in a German foreign language class in Greece; after a training session on how to use the AI tools for corrections, students' writing contained a wider variety of vocabulary and generally longer sentences (Athanassopoulos et al. 2023). These studies are consistent with analyses in other contexts, highlighting students' ability to use AI effectively to improve their writing skills (Hwang et al., 2023). Such findings are very promising, given the importance of providing valuable feedback to learners. As teachers are often faced with numerous demands on their time, training students to pursue other avenues for getting useful feedback and error correction could be beneficial for learners and teachers alike.

Several studies have analyzed the impact of AI tools on the psychological aspects of language learning. First, research shows that using AI chatbots in the language classroom elicits a sense of excitement, engagement, motivation, and satisfaction with the learning environment (Kohnke, 2023; Nghi et al. 2019). These positive reactions to AI should not be taken lightly, as research consistently highlights the important role of motivation and enjoyment in language learning (Anjomshoa & Sadighi, 2015; Dörnyei, 2001).

As much of the AI use in the context of FL learning concerns written language, this study expands on existing research by exploring not only what students use AI chatbots for, but also the impact the chatbots have on FL writing confidence. While the concepts of learner anxiety and confidence have received significant attention in the field of oral production, writing confidence and anxiety has received comparatively less attention (Cheng, 2002). It remains nevertheless a very present force in language learning, with some evidence suggesting that anxiety increases as students advance in their language studies and that those with low writing confidence are higher in FL writing anxiety (Cheng, 2002; Shang, 2013). The concept of FL writing confidence deserves attention, given that a lack of writing confidence can result in learners not performing at their level (Gondree & Alem, 2018).

Bao (2019) used AI chatbots to help learners manage their FL anxiety over a 4-week period. Results indicated that the chatbots were perceived as non-threatening language users and therefore allowed users to reduce their inhibitions and communicate more freely. Learners reported gains in confidence after their experience using the AI tool. Likewise, when using chatbots during an 8-week project in a Korean language class, Kim & Su (2024) found that learners gained in willingness to communicate and communication confidence. Tahir & Tahir (2023) reported similar findings; the use of Amazon's Alexa helped learners gain confidence and become more autonomous in their language learning.

Initial findings indicating the capacity of GPTs to help students become more autonomous, improve their writing skills, and gain confidence require further exploration. The present study aims to respond to this need, while taking into consideration calls to use a clear framework for AI use in the classroom (Holmes et al. 2022; Ouyang & Jiao, 2021).

Towards a Framework for Responsible AI Use

As stated previously, though research on the use of AI in education is growing rapidly, the lack of a

framework for use in learning remains a cause for concern. Of course, some reports have offered guidance on how to use GPTs effectively, such as by having teachers model responsible and ethical use (Cooper, 2023). Others present case studies of successful use, such as the personalized virtual tutor described in Cheung et al. (2003). It is nevertheless important to note that, while AI seems to have the potential to positively impact learning, the mere use of these tools does not guarantee success (Ouyang & Jiao, 2021). Studies have reported conflicting findings regarding how valuable students find these tools (Ajlouni et al., 2023; Huallpa et al., 2023), and reports seem to indicate that the feedback provided by AI is not universally considered useful and accurate (Calvo et al., 2011).

In response to these calls for a clear framework, Su & Yang (2023) propose the IDEE (Identify – Determine – Ensure – Evaluate) Framework, as shown in Figure 1.

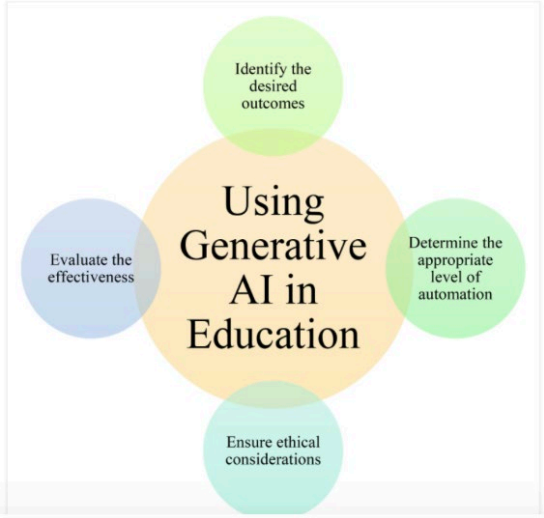

Figure 1: IDEE Framework, Su & Yang (2023)

The IDEE Framework highlights the necessary steps one must take to ensure proper and effective AI use in the classroom. The Identify phase requires the teacher to clearly define their learning objectives and the role the AI tool plays in reaching them, the Determine phase requires reflection on how much of the learning will be carried out by the AI tool, the Ensure phase is a necessary step to make certain that students are using the AI tool in such a way that eliminates biases and is appropriate for the task, and, finally, the Evaluate phase occurs when the teacher and students judge how useful the tool was in reaching the learning objectives. This framework is applicable to Generative AI tools, such as ChatGPT or Gemini, and ensures the value of such tools in creating personalized learning experiences and offering relevant feedback (Su & Yang, 2023); it is therefore highly relevant to dictating the use of the GPTs in this study.

METHODOLOGY

Research Context

The present study analyzes students' use of GPTs to improve their academic writing in English. The context is two groups of a B2-level English course taught at a large public university in France, for a total of 54 students. Part of the course was a 5-week sequence on writing a four-paragraph essay,

composed of an introduction, two development paragraphs, and a conclusion in which the students had to discuss which changes they expected to see in their major fields in the next 10 years. To give one example, a student interested in fashion may discuss how the fashion industry is moving towards more sustainable materials as well as gender-inclusive options. Instructions were given on how to structure such an essay including writing an effective introduction, organizing ideas into development sections, and synthesizing information for an appropriate conclusion. It was explained to students that the project was meant to train them on responsible AI use and gather data to analyze how chatbots could be useful in their learning. Anonymity in data reporting was ensured and students who did not wish to work with AI had the opportunity to choose an alternative project focusing on the same skills.

Throughout the 5-week sequence, students were trained on how to use GPT chatbots to obtain feedback on their written expression, particularly as it pertained to grammar, structure, and vocabulary use. Participants were given guidelines on how to properly use GPT chatbots, including ground rules for responsible use, formulating appropriate questions, and evaluating the chatbot's output for accuracy in terms of grammar and vocabulary. Students had time in class to work on their writing and ask a GPT for feedback, during which the teacher was constantly circulating around the classroom to monitor progress, offer advice, and answer questions. Two chatbots with similar functions were used for this project: ChatGPT and TalkAI. While many students were already familiar with ChatGPT, others were uncomfortable giving their name and email to create an account. TalkAI provides a comparable service without the need for creating an account and was seen as a satisfactory alternative for these students. Participants could either use the chatbots on their own devices or one of the instructor's devices.

In line with the IDEE framework seen in Figure 1, the use AI chatbots in this sequence was carefully considered. The desired outcomes were to allow students to get feedback on their language use in real time with a tool that would explain errors, thereby giving them some information to guide their decision on whether to accept the correction; developing language skills and strengthening learner autonomy are the principal desired outcomes here. To avoid overreliance on the tool, the proper level of automation was carefully explained; students were to prepare an original version of their essay and were given class time to do so. The generative AI was therefore a tool to provide feedback, as a complement to the teacher's guidance. Ethical considerations were considered by making sure students were aware of the potential flaws inherent to these tools. The reflective task at the end then allowed students to examine the effectiveness of the tool and think about how and if they would use it in the future.

Data Collection

At the end of the 5-week sequence described above, in addition to their essays, students had to submit a reflective report detailing their use of the chatbot's feedback. In this document, students listed the changes that the chatbot suggested to their original draft. They then described which changes they decided to include in their final draft, and which changes they decided not to include, with explanations. In the end, 52 students submitted a reflective report.

The information included in this reflective document constituted a primary source of qualitative data for answering Research Question 1. To analyze responses, the reflective reports were coded. A coding

guide was created to facilitate the analysis of the data, in line with recommendations from Decuir-Gunby et al. (2011). After an initial reading of students' reflections, 5 open code categories were established, reflecting the major themes present in the responses: vocabulary, grammar, content, style and other. A second round of coding resulted in the creation of more refined, specific subcategories into which data could be grouped. This coding guide can be found in Appendix 1 and presents a clear description for each subcategory as well as an example response that was coded in that subcategory. In total, 254 comments were coded.

To respond to the second research question regarding students' writing confidence, a brief pre- and post-questionnaire was used including 10 questions on a 5-point Likert scale. Questions 1-5 asked students about their attitudes towards using GPT chatbots and were adapted from the questionnaire used in Ajlouni et al. (2023). Questions 6-10 asked students about their confidence in writing in English and were based on findings in Shang (2013). The questions can be found in Appendix 2. The pre-questionnaire was administered at the start of the 5-week course sequence and received 43 responses. The post-questionnaire, which also contained 2 open-ended questions about the experience, was administered at the end of the semester and received 11 responses. Given the course and semester had ended by this point, the low response rate was expected.

For each of the two measures, comfort using the chatbot and writing confidence, a score was calculated by determining the mean of the responses for all the items in each measure.

FINDINGS

Research Question 1: How do students use AI chatbots to improve their English writing skills?

The first question of this research study focused on how students use AI chatbots to improve their English writing. After students completed a task which used a generative AI tool to obtain feedback on their writing, they were asked to prepare a brief, written report explaining which of the AI's modifications they would keep in their updated version of their paper, and which modifications they would reject. Responses were coded based on the categories presented in Appendix 1 and results can be found in Table 1 below.

Table 1: Students' Uses for AI Chatbots in writing in English

VOCABULARY	**FREQUENCY**
VR+	37
VC+	14
VM+	36
VUR-	2
VUS-	5
VC-	2
GRAMMAR	**FREQUENCY**

GCor+	38
GCon+	9
GR+	5
GUR-	1
GUS-	4
CONTENT	**FREQUENCY**
CI+	20
CP+	8
CI-	13
CC-	8
STYLE	**FREQUENCY**
S+	27
SA-	3
SI-	9
OTHER	**FREQUENCY**
O+	11
O-	2

As indicated in Table 1, the majority of the chatbot feedback used by students was to correct their grammar (GCor+), use a more expansive vocabulary (VR+), and modify the vocabulary used to formulate certain ideas (VM+). In all three of these cases, participants spoke of their uses in very similar ways. In the case of VR+, many spoke of wanting a more enriched or advanced vocabulary, added words, or appreciating the richness or variation in the vocabulary suggested by the chatbot, as illustrated by the comment below:

"Overall, ChatGPT is a good way to enhance the writing essay, because it had more vocabulary that you wouldn't think of."

With regard to GCor+, participants generally spoke of their appreciation for the correction of their grammatical oversights, often referencing specific verb tenses or word forms that they had used incorrectly. The following comment coded in this category shows this tendency:

"I decided to change some grammar error[s] that Chat GPT helped me to correct"

Such findings are consistent with the types of modifications kept in the Style and Content categories; in the S+ category, students talked about their use of the chatbots to improve clarity, fluidity, structure

or cleanliness. For CI+, comments generally centred around the inclusion of ideas that were considered better, more interesting, different, or reinforced:

"It is more understandable while providing more elements, while keeping the general idea of my though[t]."

The results also show an interesting trend in the type of modifications that students rejected. In their explanations, responses highlighted a desire to keep their essay human-sounding and preserve their own style and voice. In both GUS- and CC-, responses indicated that learners were aware when their own ideas and opinions were being distorted and acted to fight against that, as shown in the comments below:

"I also eliminated proposals that didn't seem interesting or that didn't allow me to better express the substance of my thoughts."

"It recommended me some formulations, expressions that I didn't keep because I felt like it was 'too much'"

Additionally, in SI- and CI-, responses showed an awareness of the limitations of chatbots when faced with the constraints of academic tasks, as the AI tools had trouble respecting word limits and staying on topic. Additionally, as suggested by the presence of the categories SA- and VUR-, students still wanted an essay that was representative of their own style.

All things considered, the OTHER category being higher for O+ seems to suggest that the overall evaluation of chatbots in EFL writing is positive, with many recognizing that they can be valuable for completing certain activities.

Research Question 2: What impact do AI chatbots have on students' English writing confidence?

The second research question focuses on how AI chatbots can impact students' confidence when writing in EFL. Questionnaire data collected before and after the 5-week writing sequence were collected and the results are summarized below.

Table 2: Writing Confidence and Attitudes Towards AI Chatbots

Measure	Pre-Questionnaire	Post-Questionnaire
Attitudes Towards AI Chatbots	Mean: 3.02	Mean: 3.51
	Standard Deviation (SD): 0.05	SD: 0.39
Writing Confidence in EFL	Mean: 3.07	Mean: 3.13
	SD: 0.29	SD: 0.35

**All values are rounded to the nearest 100th*

As Table 2 indicates, a noticeable increase can be observed in students' attitudes towards AI chatbots, while a smaller increase is seen regarding the gain in writing confidence. Although these changes may

seem insubstantial, the changes seen in the individual items provide some interesting nuance. The specific item values can be seen in Table 3 below.

Table 3: Values for Each Questionnaire Item

	Pre-Questionnaire	Post-Questionnaire
1) I feel comfortable using ChatGPT in my personal life	3.09	3.64
2) I feel comfortable using ChatGPT for my school work	3	3.36
3) I know how to correctly formulate questions in ChatGPT	2.98	3.91
4) ChatGPT can help me develop my writing skills	3	3.73
5) I believe that ChatGPT can be a good tool for learning a new language	3.04	2.91
6) I can write an essay in English with minimal mistakes	3.32	3.36
7) I have a good level in written expression	3.26	3.55
8) I am comfortable having my written work (in English) posted publicly for other students to read	2.59	2.73
9) I need to use a proofreading service or translation service to write longer texts in English**	3.05	2.82
10) I can write about many topics with ease, in English.	3.1	3.19

**All values are rounded to the nearest 100th*

***Values for Question 9 were reversed so that a score closer to 5 indicates higher confidence, consistent with the other items.*

Regarding students' attitudes towards chatbots (items 1-5), the largest gains were seen in items 3 and 4, suggesting that as students became more comfortable with the tool, they also became more convinced of its potential for improving one's writing. Noteworthy increases were absent from the values regarding students' writing confidence (items 6-10), but the largest changes can be observed in items 7 and 8, suggesting that students may feel more confident regarding their writing skills in some contexts. Possible reasons for these changes are discussed in the following section.

DISCUSSION

In students' reports on their use of AI chatbots, they often described using the feedback to correct their grammar and vocabulary as well as to add some variety and sophistication to their texts, as can be seen in Table 1 (VR+ and GCor+, in particular). This finding is consistent with recommended practices for using AI tools (Newman, n.d.; Sharma & Yadav, 2022), as well as with the findings in other recent studies (Athanassopoulos et al., 2023). In a sense, such results underscore the value of this approach and in training students to use AI tools to improve their writing. It is well established that providing students with clear, constructive feedback on their writing is necessary to help them improve (Srichanyachon, 2012). Nevertheless, with large class sizes and often heavy teaching loads, it can be

difficult for teachers in many contexts to provide significant feedback before a final, graded evaluation. By training students on how to get and analyze feedback from another source, teachers are encouraging learner autonomy, a highly useful practice in language teaching (Busse, 2013). The fact that students naturally took to using these tools to help with the grammar and vocabulary in their writing highlights the value of AI chatbots; with 11 comments coded as O+, it appears that students were aware of the added value of the device.

Of course, there is some concern that chatbots might be used for plagiarism and in place of original, critical thinking (Fui-Hoon et al., 2023). The findings of this study, as presented in Table 1, suggest that this risk can be mitigated by carefully crafting an activity so that students understand how to use AI tools as a complement in their writing. As suggested by the number of comments coded in the minus (-) categories, particularly CI- and CC-, students realize the necessity of preserving their own voice and writing style. Even in the VUR- and GUR-, several students showed that they did not wish to incorporate chatbot modifications that were clearly beyond their level; one student, for example, described changing "but," to "however," in line with the GPT bot's recommendation. With a B2 level, the student had surely seen this word numerous times before but had still not adopted it into his/her regular vocabulary repertoire; the chatbot helped remind the student of a word he/she likely knew. Future research should explore this phenomenon further and try to examine the impact of chatbot feedback on vocabulary and grammar retention. Still, it is promising that students were able to critically analyze the feedback they received, especially considering the presence of false information and inaccuracies in the output of GPT chatbots (Iman & Almusharraf, 2023).

The goal of the second research question was to identify the impact of GPT bots on students' writing confidence. While Table 2 indicates a slight positive impact, as students showed a small increase in writing confidence between the pre- and post-questionnaires, a closer look at the individual items reveals a more nuanced picture. The comparatively larger changes in items 7 and 8, for example, shows that students' attitudes towards their writing are changing. One possible explanation is that their writing was better than they anticipated and so the chatbot did not make excessive corrections. Responses to item 9, however, seem to call this into question; the decrease highlights that students felt more dependent on the proofreading tools as opposed to their own writing skills. This phenomenon may be due to a push for perfectionism from the students. Such an attitude has been thought to be associated with language anxiety in other cultures (Tòth, 2009); it is therefore possible that students were comforted by the fact that their writing did not contain a lot of errors, while they simultaneously depended on the tool to correct whatever few errors were present. As FL writing confidence can clearly change overtime, future research will need to include longer-term studies with more frequent checks of FL confidence. Additionally, the relations between FL confidence and FL writing accuracy could also use additional attention in light of these new tools.

CONCLUSION

The present study sought to analyze how university EFL students use AI chatbots to improve their writing and how the use of these chatbots impacts their FL writing confidence. An examination of students' reflections on their chatbot use revealed that they were able to use these tools to enhance their vocabulary and perfect their grammar, and occasionally to help with developing and structuring

their ideas. It was nevertheless important for several of the participants to use the AI-proposed modifications in moderation to remain authentic in their writing and true to their own style and English capabilities; this tendency underlines the point that AI tools should be used cautiously, as a complement to classroom learning, as outlined by Barrot (2024). Table 2 data coded as O+, in addition to the open-ended questions in the post-questionnaire revealed generally positive attitudes towards AI chatbots; students enjoyed the novelty of the experience and appreciated having the extra support to formulating their ideas, all while showing an awareness of the need to produce original work.

Limitations of the study are those typical of small-scale and short-term studies. Findings are generally consistent with similar reports, such as Athanassopoulos et al. (2023) and Song & Song (2023), though given the small sample size, and the difference between the number of respondents to the pre- and post-questionnaires, it is difficult to generalize the results to other contexts. Still, these findings paint a promising picture on the incorporation of artificial intelligence in the foreign language classroom, which is something most language teachers will be faced with sooner rather than later.

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Appendix 1: Coding Guide for Qualitative Data

Vocabulary	Example
VR+ Student kept a proposed modification because it allowed them to show off a wider range of vocabulary and avoid repetitions	*"I've reworded to avoid too many repetitions of words"*
VC+ Student kept a proposed modification because they realized their original word use was erroneous	*"I decided to change 'promess' to 'promises'"*
VM+ Students allowed the modification because they felt it improved the flow or clarity, despite the original being acceptable	*"People are often unaware: 'often' is not necessary and for direct impact. [So, it was eliminated]"*
VUR- Students refused the proposed vocabulary change because it was too advanced for their level to the point of being unrealistic	*"If I did not add them, it is…because the level of English was too complicated"*
VUS- Students refused the vocabulary change because the new word was not satisfactory or did not fully capture what they wanted to say	*"For the last ten years - Over the past decade: [The GPT] recommends "Over the past decade," but I think "the Last ten years" is more straightforward."*
VC- Students refused the proposed change because it would have altered their meaning	*"[The GPT] recommended to changing modal 'should' to 'could' but if I do that, the article would no have the same principal idea"*
Grammar	**Example**
GCor+ Students kept the proposed changes because they realized they had made a mistake in the original version.	*"So it corrected the form of the adjective 'diverses' to 'diverse' for grammatical accuracy."*
GCon+ Students kept the proposed modification because it ensured greater consistency or coherence across the text, such as making sure there were no illogical mixing of past and present tenses.	*"'increase creative possibilities' changed to 'increased creative possibilities': adjusted verb tense to match the previous phrases 'improved special effects' and 'increased creative possibilities.'"*

GR+ Students kept the proposed modification because it allowed them to vary their sentence structure and avoid repetitions.	*"I especially tried to change the sentences that were repeated in my original text by integrating a different syntax"*
GUR- Students refused the grammatical proposed change because it was too advanced for their level to the point of being unrealistic	*"It recommended me some formulations, expressions that i didn't keep because i felt like it was "too much"*
GUS- Students refused the grammatical change because the new word was not satisfactory, did not fully capture what they wanted to say, or was simply incorrect.	*"I rejected certain grammatical corrections because they were badly formulated and could be replaced by shorter forms."*
Content	**Example**
CI+ Students accepted the modification because it gave them new, relevant ideas to support their arguments.	*"[The AI] Provided a specific example of a medicinal benefit derived from corals, mentioning prostaglandin's potential in fighting cancer."*
CP+ Students accepted the proposed changes that kept their original ideas, while improving the presentation of them.	*"It does not change my ideas and keeps the origin of what I wanted to say but without flaw"*
CI- Students refused the proposed content changes because they were ineffective, overly simplistic, or needlessly complex.	*"However, the first argumentative paragraph seem to ignore a lot of details necessary to fully grasp the extent of the situation"*
CC- Students refused the proposed content changes because they departed too much from the original version or presented something the student did not agree with.	*"it changed what I wanted to say originally"*
Style	**Example**
S+ Students accepted stylistic changes or appreciated the AI's suggestions in terms of style.	*"I accepted the changes as he retained the structure and content but made slight adjustments for better flow and coherence."*
SA- Students refused the proposed changes because they considered that the changes were inauthentic or that their own voice was lost in the new version.	*"I rather keep some of my own expressions, even though they're not the best ones."*
SI- Students refused the proposed changes because they were ineffective, overly simplistic, or needlessly complex.	*"It was either too short or too long, and the middle ground wasn't complete."*
Other	**Example**
O+ General comments indicating that students appreciated the role of the chatbot in the assignment	"This is a faster and easier way to write a text, and it's nice to have other options for what I already wrote."
O- General comments indicating that students did not like the role of the chatbot in the assignment	*"I am not a fan of AI, when I write an assignment, I prefer to use my words or do my own research than to give an assignment to an AI."*

*Some slight alterations were made to the example sentences to ensure clarity, such as correcting verb conjugations when the students' document contained incorrect language use.

Appendix 2: Pre- and post-questionnaire used to collect data on students' comfort levels using GPT chatbots and writing confidence.

Directions: For each of the following statements, please indicate a score between 1 and 5.

1 = strongly disagree, 2 = disagree, 3 = neutral/unsure, 4 = agree, 5 = strongly agree

1.	I feel comfortable using ChatGPT in my personal life.
2.	I feel comfortable using ChatGPT for my schoolwork.
3.	I know how to correctly formulate questions in ChatGPT.
4.	ChatGPT can help me develop my writing skills.
5.	I believe that ChatGPT can be a good tool for learning a new language.
6.	I can write an essay in English with minimal mistakes.
7.	I have a good level in written expression.
8.	I am comfortable having my written work (in English) posted publicly for other students to read.
9.	I need to use a proofreading service or translation service to write longer texts in English.
10.	I can write about many topics with ease, in English.

**The post-questionnaire also included 2 open-ended questions:

11. In your opinion, did ChatGPT impact your writing skills? Or your writing strategies? Explain.
12. In your opinion, did ChatGPT impact your writing skills? Or your writing strategies? Explain.