

## Investigating PhD Students' Attitudes towards Using Chatbots for Thesis Correction

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### Abstract

This study aims to investigate PhD students' attitudes towards the use of chatbots to provide them with feedback on their theses. It also assesses the effectiveness of the chatbot in delivering timely and constructive feedback, ultimately contributing to the quality and coherence of students' work. Moreover, the integration of chatbots into the thesis writing process represents a promising advancement in academic support, offering students immediate feedback and assistance in managing their writing tasks. While chatbots offer valuable support in the thesis writing process, their current capabilities are insufficient to fully replace or seamlessly integrate with traditional supervisor feedback, highlighting the need for a balanced approach to academic writing support. Accordingly, the findings of this study suggest that while chatbots can enhance the writing process by providing timely and organised feedback, there is a need for ongoing development to improve their contextual understanding and analytical depth, ensuring they meet the diverse needs of students engaged in complex research endeavours.

**Keywords:** Attitudes, Algerian PhD students, Chatbots, feedback, thesis writing

### ملخص

تهدف هذه الدراسة إلى التعرف على ميول طلاب الدكتوراه اتجاه استخدام برامج المحادثة الآلية - البوتات - المختلفة لتزويدهم بملاحظات حول أطروحاتهم. كما تهدف كذلك إلى تقييم فعالية البوتات في تقديم ملاحظات بناءة في الوقت المناسب، مما يساهم في نهاية المطاف في جودة وتماسك عمل الطلاب. علاوة على ذلك، يمثل دمج البوتات الآلية في عملية كتابة الأطروحة تقدماً واعداً في الدعم الأكاديمي، حيث يوفر للطلاب ملاحظات فورية ومساعدة في إدارة مهام الكتابة الخاصة بهم. في حين تقدم البوتات دعماً قيماً في عملية كتابة الأطروحة، فإن قدراتها الحالية غير كافية لتحل محل ملاحظات المشرف التقليدية أو تتكامل معها بسلاسة، مما يسلط الضوء على الحاجة إلى نهج متوازن في دعم الكتابة الأكاديمية. وفقاً لذلك، تشير النتائج إلى أنه في حين يمكن للبوتات أن تعزز عملية الكتابة من خلال تقديم ملاحظات منظمة وفي الوقت المناسب، فهناك حاجة إلى التطوير المستمر لتحسين فهمها السياقي وعمقها التحليلي، وضمان تلبية الاحتياجات المتنوعة للطلاب المنخرطين في مساعي بحثية معقدة.

**الكلمات المفتاحية:** بوتات المحادثة، ملاحظات، طلاب الدكتوراه الجزائريين، الميول، كتابة الأطروحة.

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## Introduction

The advent of Artificial Intelligence (AI) has revolutionized various aspects of education, particularly in enhancing academic writing support. One of the significant generative AI-driven tools is conversational agents, technically known as chatbots (Ahmad et al., 2018). The latter is increasingly being integrated into academic environments to provide timely and accessible feedback to students, especially those pursuing advanced degrees such as PhDs (Evmenova et al., 2024). These tools offer the potential to streamline the thesis writing process by offering immediate feedback on grammar, style, and structure, thereby aiding students in refining their work more efficiently. Major examples of revolutionary AI-based chatbots that depend on large language models are ChatGPT, Gemini and Claude.

Recent studies highlight the multifaceted roles a chatbot can play in assisting PhD students. For instance, chatbots have been shown to improve student engagement and reduce the time spent on revisions by providing instant, automated feedback (Lee et al, 2020; Huang et al., 2022, Guo et al., 2022). Moreover, these tools help in managing and integrating feedback from multiple supervisors, making the thesis writing process more organized and manageable (Zhang & Yu, 2023). However, despite these advantages, there are significant concerns regarding the depth and accuracy of chatbot feedback, particularly in addressing complex academic tasks and providing subject-specific guidance (Huang et al., 2022).

Despite the promising potential of chatbot in supporting PhD thesis writing, several critical issues remain inadequately addressed. Key among these is the limitation in the depth and accuracy of feedback provided by the chatbot. Many studies have found that while chatbots can excel at offering instant, surface-level corrections related to grammar and style, they often fall short in providing detailed, insightful feedback necessary for complex academic writing (Lee et al., 2020; Huang et al., 2022). This gap is particularly problematic for PhD students, whose work typically requires sophisticated analysis and in-depth critical engagement.

Moreover, the integration of chatbot feedback with traditional supervisor feedback is another significant challenge. Although chatbots can help organize and summarize feedback from multiple sources, there is a noted lack of coherence between automated feedback and the personalized, context-specific guidance provided by human supervisors (Zhang & Yu, 2023). This disconnect can lead to confusion and inefficiencies in the thesis writing process, ultimately affecting the quality of the final academic work.

Furthermore, the effectiveness of chatbots across different academic disciplines and their ability to adapt to subject-specific requirements remain underexplored. The existing research predominantly focuses on general academic writing, with limited attention given to the diverse needs of various fields of study (Guo et al., 2022; Su et al., 2023). As a result, there is a pressing need for more comprehensive studies that evaluate the role of AI conversational agents in providing tailored feedback that aligns with the specific expectations and standards of different academic disciplines.

In summary, while chatbots offer valuable support in the thesis writing process, their current capabilities are insufficient to fully replace or seamlessly integrate with traditional supervisor feedback. Addressing these limitations is crucial to enhancing the overall effectiveness of chatbots as academic writing aids for PhD students. To this end, this study aims to investigate PhD students' attitudes towards the use of different AI chatbots to provide them with feedback on their theses. Accordingly, this study is significant as it provides a comprehensive understanding of PhD students' attitudes towards chatbots, which can lead to

improved academic practices, better technological integration, and enhanced support for students throughout the thesis writing process. Additionally, it addresses ethical and practical concerns, promoting responsible use of AI in academia and encouraging further innovation and adoption of these technologies.

With this being said, this study also attempts to assess the effectiveness of chatbots in providing timely and constructive feedback on PhD students' thesis drafts. This includes determining how well such AI tools contribute to improving the quality and coherence of students' work. Through answering the following research question: "What are the common attitudes of Algerian PhD students towards using chatbots to correct their theses?"

## Literature Review

AI has been transforming education by offering personalized learning experiences and enhancing administrative efficiencies. AI-driven tools can tailor educational content to individual students' needs, adapting in real time based on their performance and engagement levels, which promotes a more customized learning journey (Alzahrani, 2023). AI can also automate administrative tasks such as grading and scheduling, allowing educators to focus more on teaching and student interaction (Saeed, & Mahmoud, 2023). These advancements suggest that AI has the potential to significantly improve educational outcomes and operational efficiency. In educational settings, AI is reshaping the field of writing by enhancing both the creative and technical aspects of the writing process. Moreover, AI-powered tools can assist with generating ideas, suggesting improvements, and even creating entire drafts, making writing more accessible and efficient for users (Hutchison et al., 2024). Natural Language Processing (NLP) algorithms enable these tools to understand context, improve grammar, and refine style, which can aid writers in producing higher-quality content (Tseng & Warschauer, 2023). However, this technology also raises questions about originality and the role of human creativity in writing. Overall, AI's involvement in writing represents a significant shift towards more interactive and automated writing processes.

Furthermore, AI has the potential to significantly impact thesis writing by offering tools that streamline research, enhance drafting, and improve the overall writing process. AI-powered platforms can assist students in organizing and structuring their theses, generating relevant literature reviews, and suggesting improvements to their drafts based on advanced language models (Ratih & Kastuhandani, 2024). Tools like Grammarly and Turnitin leverage AI to aid in grammar checking, plagiarism detection, and stylistic improvements (Huang, & Tan, 2023). Furthermore, AI-driven systems can help with data analysis and the synthesis of research findings, making the writing process more efficient (Chiu et al., 2023). However, reliance on AI raises critical questions about academic integrity, the role of original thought in scholarly work, and the potential for over-reliance on automated tools (Evmenova et al., 2024; Ratih & Kastuhandani, 2024). Balancing AI assistance with critical thinking and personal input remains essential for maintaining the quality and authenticity of academic research.

Several recent studies showed that chatbots help students stay organized by providing reminders for deadlines and meetings with supervisors (e.g., Huang et al., 2022; Schwenke et al., 2023). Students reported that chatbots are useful for quick grammar checks and initial content feedback indicating a moderate improvement in students' writing efficiency and reducing revision cycles. Similarly, Lee et al. (2020) revealed that there is a significant increase in the frequency of revisions among students using chatbots, suggesting more iterative writing processes. Also, their study observed that chatbots help in maintaining a consistent academic

tone throughout the thesis which indicates that students appreciate the availability of such generative AI tools for immediate consultations all the time.

Moreover, Schwenke et al. (2023) claimed that chatbots significantly reduce the time students spend on mechanical aspects of writing, such as formatting and grammar corrections. In this sense, students feel more confident in their writing with the immediate availability of chatbot feedback as the latter can identify common writing errors, thereby helping students improve their writing habits (Evmenova et al., 2024). Furthermore, chatbots are effective in assisting with literature review sections by suggesting relevant sources and checking citations, the fact that helps students to be more motivated and engaged. They are also found to help identify and correct language issues for non-native English speakers (Su et al., 2023).

However, chatbots sometimes struggle to provide in-depth feedback, often resorting to generic responses that prove insufficient for tasks requiring subject-matter expertise (Evmenova et al., 2024). To overcome such challenges, scholars highlighted the need for better integration of chatbot tools with personalized feedback from supervisors (Su et al., 2023). In this respect, a disconnection between the chatbot's feedback and the specific requirements or expectations of supervisors may occur because a chatbot may struggle to provide insightful feedback on complex arguments and theoretical contributions (Schwenke et al., 2023). In a similar vein, it is found that chatbots often fail to provide constructive feedback on the structure and coherence of complex arguments. Accordingly, there was a limited capability in response generation by such tools for addressing interdisciplinary research topics that require nuanced feedback (Lee, et al., 2020).

## **Methods and Materials**

To answer this study's main question, the researchers opt for a quantitative approach to collect their data. According to Creswell (2014), the goal of quantitative research is to collect numerical data that may be used to measure attitudes, viewpoints, and other factors as well as hypothesis testing. Thus, organized data collection instruments like surveys, interviews, systematic observation, etc., are the foundation of it.

### ***Participants***

The participants of this study are 60 Algerian PhD students from seven different Algerian universities: Khenchela, Oum El Bouaghi, Batna2, Setif2, El Oued, Mostaganem and Algiers2. In terms of sampling procedures, non-probability sampling, more specifically purposive sampling, is the most suitable one for this study.

### ***Research Instruments***

A questionnaire, according to Kothari (2004) and Creswell (2014), is a standardized research instrument made up of a series of questions or items meant to elicit information from participants. In this study, a close-ended Likert scale questionnaire was administered to the aforementioned sample via their emails and different online platforms. It was divided into two sections, the first was about the background information about students' gender and age, while the second contained 15 statements to explore their attitudes toward the effect of using chatbots to correct their theses.

### ***Research Procedures***

The attitudinal questionnaire was administered to the participants via different online platforms and emails, during the academic year 2023-2024. Clear instructions were provided to

ensure participants understood how to complete the questionnaire accurately. In addition, participants were given sufficient time to complete the questionnaire independently. Finally, responses were collected and analyzed to identify patterns, trends, and themes related to students' attitudes towards the effect of using chatbots to correct their PhD theses.

## Results

Before conducting descriptive statistics (mean and standard deviation), the researcher tested the reliability and credibility of the questionnaire's internal consistency by Alpha Cronbach. The table below shows that  $\alpha = .964$  which suggests a high level of reliability, and that the items of the questionnaire are highly correlated with each other.

Table 1. *Reliability statistics*

Cronbach's Alpha	N of Items
,964	15

The data presented in Table Two include mean scores and standard deviation for various statements related to the effects of using chatbots on the writing quality of students' theses. The first statement received a mean score of 4.61 with a standard deviation of 0.499, indicating a very positive reception. Timeliness is crucial in the thesis process, where deadlines are often tight, and students require prompt responses to make necessary revisions. The high score suggests that students appreciate the chatbot's ability to deliver feedback quickly, which is essential for maintaining momentum in their writing process. Following this, the second statement garnered an even higher mean score of 4.70 (SD = 0.480), reinforcing the notion that students find the chatbot's input beneficial. This suggests that the feedback is not only timely but also constructive, contributing positively to the overall quality of the work.

In addition, the statement regarding the chatbot's ability to provide "accurate and relevant suggestions for improving my thesis" received a mean score of 4.73 (SD = 0.503), further emphasizing the chatbot's effectiveness. Accuracy and relevance are critical in academic writing, as they ensure that the suggestions align with the student's research objectives and methodologies. The high score indicates that students feel confident in the chatbot's ability to offer pertinent advice that enhances their work. Moreover, the chatbot's role in helping students integrate supervisor feedback into their theses was rated even higher, with a mean score of 4.83 (SD = 1.023). This suggests that the chatbot excels in bridging the gap between student work and supervisor expectations, facilitating a smoother revision process. The ability to synthesize feedback from multiple sources is invaluable, as it allows students to address concerns comprehensively.

Furthermore, the chatbot's suggestions on writing style and grammar received a mean score of 3.40 (SD = 1.506), which, while positive, indicates a more moderate level of satisfaction. This suggests that while students find the chatbot's input useful, there may be room for improvement in this area. Writing style and grammar are fundamental components of academic writing, and students may desire more robust support in these aspects. In terms of organizational support, the sixth statement received a mean score of 3.63 (SD = 1.281), indicating a very positive response. Effective time management is crucial for thesis success, and the chatbot's ability to assist in this regard is appreciated by students. This functionality likely alleviates some of the stress associated with managing multiple tasks and deadlines.

Also, the chatbot's user-friendliness was highlighted in the seventh statement which received an impressive mean score of 4.94 (SD = 0.364). This indicates that students find the interface intuitive and accessible, which is essential for encouraging engagement with the tool. A user-friendly design can significantly enhance the overall experience, making it more likely that students will utilize the chatbot regularly.

Table 2. *Descriptive statistics of students' attitudes*

Statements	Mean	Std. Deviation	Interpretation
1. The chatbot provides timely feedback on my thesis drafts.	4.61	,499	Very Positive
2. The feedback provided by the chatbot helps improve the quality of my thesis.	4.70	,480	Very Positive
3. The chatbot provides accurate and relevant suggestions for improving my thesis	4.73	,503	Very Positive
4. The chatbot effectively helps me integrate supervisor feedback into my thesis.	4.83	1,023	Very Positive
5. I find the chatbot's suggestions on writing style and grammar to be useful.	3.40	1,506	Positive
6. The chatbot helps me stay organized and manage deadlines for my thesis tasks.	3.63	1,281	Very Positive
7. The chatbot is easy to use and understand for my thesis-related queries.	4.94	,364	Very Positive
8. I prefer using the chatbot for feedback and revision tasks over traditional methods.	3.89	1,102	Positive
9. The chatbot effectively summarizes and organizes feedback provided by my supervisor.	4.55	1,170	Very Positive
10. The chatbot helps me understand and address specific comments made by my supervisor.	3.69	1,440	Positive
11. The chatbot alerts me to any unresolved issues or feedback from my supervisor that I need to address.	4.85	,529	Very Positive
12. The feedback provided by the chatbot lacks depth and detailed analysis compared to human feedback.	2.50	1,114	Neutral
13. The chatbot's feedback sometimes fails to understand the context or nuances of my thesis.	2.38	,917	Negative
14. The chatbot does not adequately address complex or nuanced issues that arise in my thesis.	1.45	1,235	Very Negative
15. Chatbots may lack the capability to provide personalized feedback based on the specific goals of my research.	2.15	1,876	Negative

As shown in Table Two, the 8<sup>th</sup> statement received a mean score of 3.89 (SD = 1.102), suggesting a positive inclination towards the chatbot as a preferred method of receiving feedback. This preference may stem from the chatbot's efficiency and the convenience it offers compared to traditional feedback mechanisms, such as in-person meetings with supervisors. Moreover, the chatbot's effectiveness in summarizing and organizing supervisor feedback was

rated highly, with a mean score of 4.55 (SD = 1.170). This capability is crucial for students who may struggle to distil complex feedback into actionable items. Furthermore, the 9<sup>th</sup> statement received a mean score of 3.69 (SD = 1.440), indicating a positive perception of the chatbot's role in clarifying supervisor comments. However, this score suggests that while the chatbot is helpful, there may be instances where students still require additional support in fully grasping nuanced feedback. The chatbot's ability to alert students to unresolved issues or feedback from their supervisor received a high mean score of 4.85 (SD = 0.529), indicating that students value this feature. Being notified of outstanding concerns is essential for ensuring that all feedback is addressed before submission, thereby enhancing the quality of the final thesis.

Conversely, the 12<sup>th</sup> statement received a mean score of 2.50 (SD = 1.114), reflecting a neutral stance. This suggests that while students appreciate the chatbot's feedback, they recognize its limitations in providing the depth that human feedback can offer. Similarly, the 13<sup>th</sup> statement received a mean score of 2.38 (SD = 0.917), indicating a negative perception of the chatbot's contextual understanding. This limitation is further emphasized by the 14<sup>th</sup> statement which received a very low mean score of 1.45 (SD = 1.235). These scores highlight a significant area for improvement, as the ability to navigate complex academic discussions is vital for effective feedback. Lastly, the last statement received a mean score of 2.15 (SD = 1.876), indicating a negative perception of the chatbot's ability to tailor its feedback to individual research objectives. Personalization is a key aspect of effective academic support, and the inability of the chatbot to provide this may limit its overall effectiveness.

## Discussion

Regarding the aforementioned analysis of the scores related to the different statements of the questionnaire, the selected sample reflected positive attitudes towards the use of various chatbots in the course of formulating, revising and editing their writing, particularly throughout the process of thesis correction. In recent years, the integration of AI and generative AI chatbots into academic support systems has gained traction, particularly in the realm of thesis writing. This paper summarizes the findings from a scale assessing the usefulness of chatbots in drafting and revising PhD theses. The survey results provide insights into the perceived strengths and weaknesses of the chatbot, as well as its overall impact on the thesis writing process. The results of the survey underscore the potential of chatbots as valuable tools in academic support, particularly for thesis writing. The high mean scores in several categories indicate that students appreciate the convenience and efficiency offered by such tools. However, the limitations identified in the feedback suggest that while chatbots can serve as effective supplementary resources, they cannot fully replace the nuanced understanding and personalized feedback that human advisors provide.

As educational institutions increasingly adopt AI technologies, it is crucial to recognize the strengths and weaknesses of these tools. On one hand, the findings revealed that chatbots are effective in categorizing and summarizing supervisor comments, aiding students in better understanding and implementing feedback. Similarly, Zhang and Yu (2023) revealed that, according to students, chatbots help manage and organize feedback from multiple supervisors. Similarly, Golinkoff and Wilson (2023) found that AI conversational agents were effective in helping students keep track of research milestones and deadlines. This paper's findings also suggest that chatbots can enhance the writing process by providing timely and organized feedback. In addition, students reported that chatbots reduced the administrative burden, allowing them to focus more on research and writing. Indeed, generative AI tools are important

as they provide immediate, on-demand feedback, which is particularly useful for students working remotely or outside regular office hours. They also helped students maintain consistency in writing style and adherence to academic standards as it is echoed by Schwenke et al. (2023). Besides, the results revealed that chatbots significantly improved students' engagement with their writing tasks as they provided instant feedback on writing style and grammar, which helped reduce the time spent on revisions. In a similar vein, Evmenova et al. (2024) claimed that students reported increased satisfaction with the writing process due to the immediacy and accessibility of feedback.

On the other hand, there is a lack of detailed comparison between the effectiveness of chatbot-assisted feedback integration and traditional methods. To this end, there was no examination of how chatbot feedback impacts the overall quality of the thesis (Zhang & Yu, 2023). In addition, there is a need for ongoing development to improve their contextual understanding and analytical depth. Future iterations of chatbot technology should focus on addressing these limitations, potentially through advanced natural language processing capabilities or by incorporating more sophisticated algorithms that can better interpret the complexities of academic writing. With this being said, scholars did not explore the quality of academic content produced with the help of chatbots. Also, there was a lack of focus on how such tools impact the iterative process of feedback and revision specific to thesis writing (Evmenova et al., 2024).

In brief, the use of chatbots for thesis writing and revising represents a promising advancement in academic support. However, to maximize their effectiveness, it is essential to continue refining these tools to ensure they meet the diverse needs of students engaged in complex research endeavours.

### **Pedagogical Implications**

The integration of technology in education has transformed traditional pedagogical approaches, with chatbots emerging as significant tools in this evolution. While they offer innovative solutions for enhancing learning experiences, their role should be carefully defined within the educational landscape. Firstly, chatbots should be regarded as supplementary tools rather than substitutes for human feedback. Their primary function lies in assisting with routine tasks and providing initial feedback, which can streamline the educational process. However, the nuanced understanding and detailed guidance that human educators offer cannot be replicated by generative AI tools. Secondly, for the effective utilization of AI tools in educational settings, comprehensive training for educators and institutions is essential. This training should focus on how to leverage chatbot technology effectively while ensuring that students are aware of the limitations inherent in these tools. In this sense, educators must guide students on how to integrate chatbot feedback with traditional learning methods, fostering a balanced approach that maximizes the benefits of both human and technological resources.

Furthermore, the development of hybrid support systems is vital for optimizing the use of chatbots in education. These systems should combine chatbot technology with regular human supervision to create a balanced framework that enhances both efficiency and the depth of feedback provided to students. Furthermore, to maintain the relevance and accuracy of the feedback generated by chatbots, continuous refinement and calibration of their algorithms are necessary. This process involves regular updates based on user experiences and feedback, which can significantly enhance the effectiveness of the tool. Finally, an essential pedagogical implication of chatbot integration is the encouragement of critical thinking among students.



Educators should promote an environment where students are motivated to critically evaluate and cross-check chatbot feedback against their understanding and human advice. This practice fosters a more comprehensive learning experience, as students learn to discern the quality and applicability of the feedback they receive.

## Conclusion

This study's main aim was to investigate PhD students' attitudes towards the use of various chatbots to provide them with feedback while drafting their theses. In the contemporary academic landscape, the integration of technology into the research process has become increasingly prevalent. Among these technological advancements, chatbots have emerged as valuable tools for students, particularly in the context of thesis writing. With this being said, this paper also aimed to reflect a comprehensive evaluation of a chatbot's effectiveness in assisting students with their thesis drafts by administering an attitudinal questionnaire to different Algerian PhD students. To this end, the evaluation of the chatbot's performance in supporting thesis writing reveals a generally positive reception among students, particularly regarding its timeliness, helpfulness, and user-friendliness. However, significant limitations exist, particularly in the areas of depth, contextual understanding, and personalization of feedback. As technology continues to evolve, addressing these shortcomings will be essential for enhancing the usefulness of chatbots in academic settings. Lastly, the pedagogical implications of integrating such tools into education are multifaceted and require careful consideration. By viewing chatbots as supplementary tools, providing adequate training, developing hybrid support systems, calibrating feedback mechanisms, encouraging critical thinking, fostering interdisciplinary development, and implementing regular monitoring and evaluation, educational institutions can harness the potential of chatbot technology to enhance learning experiences.

## About the Authors

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## Declaration of AI Refined

This research paper has undergone language correction using AI-powered tools like Grammarly to address grammatical, spelling, and stylistic errors. It is acknowledged that the use of such tools may introduce standardised patterns typical of AI-generated content. Consequently, a certain percentage of content may reflect AI-generated language structures. Yet, the intellectual content and the analysis remain entirely the work of the authors.

**Statement of Absence of Conflict of Interest:**

The authors mentioned above hereby solemnly declare that they are not and shall not be in any situation that could give rise to a conflict of interest in what concerns the findings and recommendations contained in this academic article.

**References**

- Ahmad, N. A., Che, M. H., Zainal, A., Abd Rauf, M. F., & Adnan, Z. (2018). Review of chatbots design techniques. *International Journal of Computer Applications*, 181(8), 7-10. <https://doi.org/10.5120/ijca2018917606>
- Alzahrani, L. (2023). Analyzing students' attitudes and behavior toward artificial intelligence technologies in higher education. *International Journal of Recent Technology and Engineering (IJRTE)*, 11(6), 65-73. <https://doi.org/10.35940/ijrte.F7475.0311623>
- Chiu, T. K., Xia, Q., Zhou, X., Chai, C. S., & Cheng, M. (2023). Systematic literature review on opportunities, challenges, and future research recommendations of artificial intelligence in education. *Computers and Education: Artificial Intelligence*, 4, 100118. <https://doi.org/10.1016/j.caeai.2022.100118>
- Creswell, S. J. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4<sup>th</sup> ed.). Nebraska: SAGE.
- Evmenova, A. S., Regan, K., Mergen, R., & Hrisseh, R. (2024). Improving Writing Feedback for Struggling Writers: Generative AI to the Rescue. *TechTrends*, 68, 790–802. <https://doi.org/10.1007/s11528-024-00965-y>
- Golinkoff, R. M., & Wilson, J. (2023). *ChatGPT is a wake-up call to revamp how we teach writing*. Available at <https://www.inquirer.com/opinion/commentary/chatgpt-ban-ai-education-writing-critical-thinking-20230202.html>
- Guo, K., Wang, J., & Chu, S. K. W. (2022). Using Chatbots to Scaffold EFL Students' Argumentative Writing. *Assessing Writing*, 54, 100666. <https://doi.org/10.1016/j.asw.2022.100666>
- Huang, J., & Tan, M. (2023). The role of ChatGPT in scientific communication: writing better scientific review articles. *American journal of cancer research*, 13(4), 1148.
- Huang, W., Hew, K. F., & Fryer, L. K. (2022). Chatbots for Language Learning—Are They Really Useful? A Systematic Review of Chatbot-Supported Language Learning. *Journal of Computer Assisted Learning*, 38(1), 237-257. <https://doi.org/10.1111/jcal.12610>
- Hutchison, A., Evmenova, A., Regan, K., & Gafurov, B. (2024). Click, see, do: Using digital scaffolding to support persuasive writing instruction for emerging bilingual learners. *The Reading Teacher*, 77(6), 810-824. <https://doi.org/10.1002/trtr.2310>
- Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New York: New Age International.
- Lee, J. H., Yang, H., Shin, D., & Kim, H. (2020). Chatbots in EFL Classrooms. *ELT Journal*, 74(3), 338-344. <https://doi.org/10.1093/elt/ccaa035>
- Ratih, M. C., & Kastuhandani, F. C. (2024). Students' Lived Experiences in Utilizing Artificial Intelligence for Thesis Writing. *NUSRA: Jurnal Penelitian dan Ilmu Pendidikan*, 5(2), 760-769. <https://doi.org/10.55681/nusra.v5i2.2696>

Saeed, A. M., & Mahmoud, I. A. (2023). Students’ Attitudes toward Using Chatbot in EFL Learning. *Arab World English Journal (AWEJ)*, 14(3), 15-27. <https://doi.org/10.24093/awej/vol14no3.2>

Schwenke, N., Söbke, H., & Kraft, E. (2023). Potentials and Challenges of Chatbot-Supported Thesis Writing: An Autoethnography. *Trends in Higher Education*, 2(4), 611-635. <https://doi.org/10.3390/higheredu2040037>

Su, Y., Lin, Y., & Lai, C. (2023). Collaborating with ChatGPT in Argumentative Writing Classrooms. *Assessing Writing*, 57, 100752. <https://doi.org/10.1016/j.asw.2023.100752>

Tseng, W., & Warschauer, M. (2023). AI-writing tools in education: If you can’t beat them, join them. *Journal of China Computer-Assisted Language Learning*, 3(2), 258-262. <https://doi.org/10.1515/jccall-2023-0008>

Zhang, R., & Yu, J. (2023). Integrating supervisor feedback through chatbots: A study on PhD students. *Higher Education Research & Development*, 42(1), 103-119.

**Appendices**

**Appendix A**

**Students’ Attitudinal Questionnaire**

Dear PhD students of the Department of English at different Algerian universities, you are kindly asked to answer the following questions. The questions were designed to scrutinize your attitudes towards using Chatbots to correct your thesis. You are supposed to carefully read every single question, and then select the most appropriate option that honestly and truly reflects your personal perspective. Your contribution will be highly and heartfelt appreciated, and doubtlessly your answers will be treated confidentially.

**Section 1**

- 1- Gender: .....
- 2- Age: .....

**Section 2**

According to your experience in writing your PhD thesis, please choose the appropriate option.

SA= Strongly Agree, A= Agree, N= Neutral, D= Disagree, SD= Strongly Disagree

Statements	SD	D	N	A	SA
1/ The chatbot provides timely feedback on my thesis drafts.					
2/ The feedback provided by the chatbot helps improve the quality of my thesis.					
3/ The chatbot provides accurate and relevant suggestions for improving my thesis.					
4/ The chatbot effectively helps me integrate supervisor feedback into my thesis.					
6/ I find the chatbot's suggestions on writing style and grammar to be useful.					
6/ The chatbot helps me stay organised and manage deadlines for my thesis tasks.					
7/ The chatbot is easy to use and understand for my thesis-related queries.					
8/ I prefer using the chatbot for feedback and revision tasks over traditional methods.					
9/ The chatbot effectively summarises and organises feedback provided by my supervisor.					

10/ The chatbot helps me understand and address specific comments made by my supervisor.					
11/ The chatbot alerts me to any unresolved issues or feedback from my supervisor that I need to address.					
12/ The feedback provided by the chatbot lacks depth and detailed analysis compared to human feedback.					
13/ The chatbot's feedback sometimes fails to understand the context or nuances of my thesis.					
14/ The chatbot does not adequately address complex or nuanced issues that arise in my thesis.					
15/ Chatbot tools may lack the capability to provide personalised feedback based on the specific goals of my research.					

Thank you for your collaboration.

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