

**Meeting Academic Writing Needs: Exploring the Perceptions of PhD
Students at El-Oued University on the Efficiency of AI Writing Assisting
Tools**

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Abstract:

This study spots the light on the attitudes of PhD students at El-Oued University towards the effect of including AI tools on enhancing English writing skills. By adopting a quantitative approach to data collection and analysis, 12 participants showed co-operation to responding to the questionnaire implemented in this study. The results reveal that participants acknowledged the value of artificial intelligence tools in enhancing their proficiency in English academic writing and facilitating their varied research requirements; however, they stressed the need to practice the correct and wise use of these tools, since relying on artificial intelligence alone is not an ideal solution for enhancing and accomplishing English writing- dependent activities.

Key words: Artificial Intelligence, AI Tools, PhD students, Writing Skills.

الملخص:

تسلط هذه الدراسة الضوء على موقف طلبة الدكتوراه بجامعة الوادي من تأثير استخدام أدوات الذكاء الاصطناعي في تحسين مهارات الكتابة باللغة الإنجليزية. ومن خلال تبني نهج كمي لجمع البيانات وتحليلها، أبدى 12 مشاركاً تعاوناً في الرد على الاستبيان الذي استخدم في هذه الدراسة. أظهرت النتائج أن المشاركين أقرّوا بقيمة أدوات الذكاء الاصطناعي في تحسين كفاءتهم في الكتابة الأكاديمية باللغة الإنجليزية وتسهيل متطلباتهم البحثية المتنوعة؛ إلا أنهم أكدوا على ضرورة الاستعمال الصحيح والمحكم لهذه الأدوات، إذ أن الاعتماد على الذكاء الاصطناعي وحده ليس حلاً مثالياً لتحسين وإنجاز الأنشطة المعتمدة على الكتابة باللغة الإنجليزية.

الكلمات المفتاحية: الذكاء الاصطناعي، أدوات الذكاء الاصطناعي، طلبة الدكتوراه، مهارات الكتابة.

Introduction:

At the present time, science and technology are growing and expanding tremendously and without limitations. This multidisciplinary cooperation, the growth in scientific understanding across many sectors, and technical developments have all contributed to the fast emergence and immersion of artificial intelligence (AI), which has drawn the interest of researchers in many domains.

Artificial intelligence has transformed scientific research and higher education by presenting new tools, approaches, and opportunities. This has a significant impact on how these areas will develop in the next years, stimulating creativity and tackling difficult problems. As a result, the Ministry of Higher Education and Scientific Research made the decision to create a training program that enables PhD students to be introduced to various artificial intelligence techniques and tools that contribute to facilitating their research pathway. Furthermore, The development of different language skills in general and writing skills in particular among PhD students is one of the most important objectives the ministry seeks to accomplish throughout the training program it offers; since English is widely regarded as the dominant language for scientific research and publishing.

Although most of the scientific activities that PhD students need to accomplish during their academic training require English academic writing, having a strong command of this latter remains a challenging task for them, which leads to searching for suitable solutions that facilitate their mission and reduce the amount of this issue. Accordingly, the current study aims to explore the impact of incorporating AI tools in order to promote English writing skills based on the perceptions of PhD students. The research question around which the present investigation revolves is the following:

- What are the attitudes of the PhD students at El-Oued University towards the impact of incorporating AI tools to enhance the English academic writing skills?

Literature Review:

1. Artificial Intelligence (AI) Tools in Service of Academic Writing.

English academic writing is considered a necessary and effective element in scientific research and one of the most important skills that the researcher must master and constantly work to develop, given that English is the dominant language in the field of scientific research and publishing. Enhancing academic writing skills is essential to the success of PhD students due to

SAKER Chifa, GHEDEIR BRAHIM Mohammed
Meeting Academic Writing Needs: Exploring the Perceptions of PhD Students at El-Oued
University on the Efficiency of AI Writing Assisting Tools

the dependence of various academic activities, such as publishing their work, getting financing, and improving their academic and professional careers, on the mastery of this skill. This can be fulfilled as PhD students become aware of the reasons behind their writing, such as reporting on research that they have done, responding to a question they received or selected, debating a topic of common interest and presenting their perspective, and synthesizing research that has been done by others on the topic, as perceived by Bailey (2011). Therefore, academic writing promotes both the academic performance and the capacity of PhD students to make significant contributions to their fields of investigation.

Although academic writing is an important element in any research work, mastering and controlling it constitutes a major challenge for PhD students of all specializations, despite their prior knowledge resulting from their study of English for many years, since "learning to write as a credentialed doctoral research scholar is so much more than simply the acquisition of skills," as stated by Carter et al. (2020: 07). Therefore, PhD students rely on a variety of strategies to help them develop their writing abilities and accelerate their research activities. Among these strategies, and in keeping with the current wave of scientific and technological advancement, there is a notable tendency to use artificial intelligence tools as aids to carry out the various research tasks and to improve their academic writing skills among PhD students.

According to Yang (2007), early discussions of artificial intelligence (AI) were in 1956 by John McCarthy; the ultimate goal of investigations within this field was thus to create computers with stimulation of human thinking capacities. Moreover, Allen Newell and Herbert Simon's invention of the GPS system was a significant development that illuminated how individuals approach difficulties through networks, which enabled useful applications like data sorting and stock trading prediction in the middle of the 1980s, which offered popularity to AI use. Furthermore, AI has been used as tutors, discussion starters, and writing tools in the teaching and studying of languages; this creates a desire to develop AI that mimics, which continues among researchers and experts.

Nazari et al. (2021) introduced automated writing evaluation (AWE), automated essay scoring (AES), and automated written corrective feedback (AWCF). These elements are computer-based technologies that are increasingly being used as substitutes to assist in writing. They enhance writing skills that are difficult to grasp among students through conventional instruction. AWE, AES, and AWCF elements are integrated into new writing apps, providing versatile and time-saving teaching opportunities. These AI apps provide opportunities for comprehensive teaching methods, plagiarism detection, and quick feedback to enhance pedagogical flexibility and learning outcomes; thus, they have an effective impact on promoting the various writing functions among researchers to reach more advancement within their research work, which represents the focal point in this study.

AI is witnessing remarkable advancements, among which Joshi (2024) illustrated the following: First, machine learning, which involves both deep learning that boosts the accuracy and effectiveness of the AI instruments transforming voice and image recognition through CNN and RNN systems, and reinforcement learning, which considers the environment as a trainer for machines. Second, natural language processing, which improves models that comprehend and generate responses, stimulates a wide variety of dialects, such as GPT-3, offering opportunities for the exchange between humans and devices. Third,

SAKER Chifa, GHEDEIR BRAHIM Mohammed
Meeting Academic Writing Needs: Exploring the Perceptions of PhD Students at El-Oued
University on the Efficiency of AI Writing Assisting Tools

computer vision provides generative antagonistic systems (GANs). These systems permit the identification, classification, and innovative creation of images, videos, in addition to other features.

According to a study carried out by Khalifa and Albadawy (2024), the ways in which AI tools contribute to the enhancement of academic writing within the field of research can be classified into six main elements: First, generating ideas and suggesting corresponding research designs. Second, constructing and extending the content of any piece of writing. Third, analyzing and synthesizing in order to build a foundational literature review. Also, analyzing and interpreting the data. Additionally, drafting, revising, and facilitating the process of publication. Finally, AI tools allow for sharing the outcomes of research under ethical boundaries. Despite the fact that the previously listed elements lead to flexible academic writing due to the significance of this latter, especially for PhD students, the issues of credibility and quality of written productions are still major obstacles that AI tools raise, as stated by Caffarella and Barnett (2000, cited in Nguyen et al., 2024). These two obstacles serve as an umbrella under which various limitations that can be summarized in the irrelevance of synthesis and analysis that might be provided by AI tools and the inability to replace the critical abilities of the human mind make it crucial to combine both human and AI functions in order to achieve better outcomes.

2. Research Methodology.

The current study is conducted at El-Oued University. A quantitative approach to data collection and analysis is adopted in order to ensure meeting the objectives of this investigation; where a questionnaire is submitted to 12 out of 81 PhD students first registered in the academic year 2023 – 2024 selected through random sampling. The students belong to different specialties because both accomplishing academic writing-related tasks and employing AI tools are common necessities and undeniable facts in the field of research recently; in addition, the diversity of specialties in the sample contributes to raising the representativeness of the overall population.

The aim of opting for a questionnaire is to collect information concerning their attitudes towards the impact of integrating artificial intelligence tools on promoting their writing skills in English; thus, contributing to addressing their needs in terms of raising their writing proficiency. It is divided into 02 sections as following: the first section consists of 05 questions that are concerned with personal information; it provides insights on the different backgrounds of the sampled group of students, whereas the second section consists of 07 questions that gather data on the contribution of artificial intelligence tools to improving writing skills among the PhD students.

2.1. The Analysis and Interpretation of the Questionnaire.

The results of the questionnaire reveal a slightly higher representation of 5% for males 55% over females 45% as shown in the figure below; which reflects the actual gender distribution in the population where males represent somewhat larger category than females. However,

the gender distribution is not sufficiently large to affect the attitudes of the sample of the PhD students.

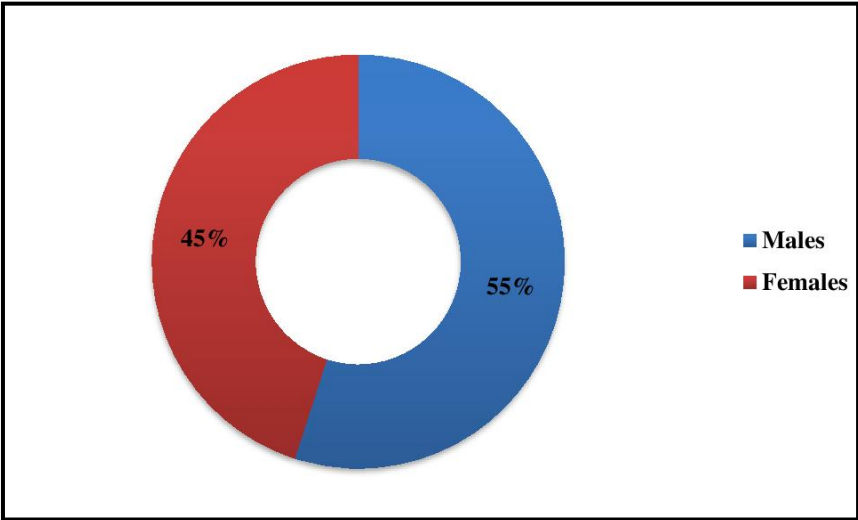


Figure 01. Gender Distribution of Participants

		Number (N)	Percentage
Age	Between 20 and 30 years old.	06	50%
	Between 30 and 45 years old.	03	25%
	More than 45 years old.	03	25%

Table 01. The Age of Participants

The table above shows the age of participants where 50% of participants, representing half of the sample, are between 20 and 30 years old and are considered to be among the youth group; this group is the most familiar with the field of the internet and technology and the most accustomed to various AI means; in contrast, the second half of the sample consists of two equal groups of 25% of people who are between the ages of 30 and 45 and older than 45, which represent smaller categories than the first group that have limited familiarity with the AI tools in comparison to the first group.

SAKER Chifa, GHEDEIR BRAHIM Mohammed
Meeting Academic Writing Needs: Exploring the Perceptions of PhD Students at El-Oued
University on the Efficiency of AI Writing Assisting Tools

		Number (N)	Percentage
Specialty	English Language	7	58%
	Journalism	5	42%
	Islamic Legislation		
	Hydraulics		
	Irrigation		

Table 02. Specialties of Participants

The table 02 presents the distribution of specialties of the sample. It shows that 58% of participants are specialized in English, representing the largest category in comparison to the other half, which is contains equal groups of different specialties such as Journalism, Islamic Legislation, Hydraulics, and Irrigation, formulating 42% of the total number of participants. The remarkable presence of the students of English reflects their interest in the topic of the current study, which can be attributed to the nature of academic writing as fundamental language skill; therefore, the urgent need of developing a high level of accuracy that allows for the proper production of different types of texts.

The duration of the exposure of participants to English varied from 4 to 7 years, with a reservation for one of the participants who did not have English courses within their curriculum. This indicates that the majority of respondents are proficient in both written and spoken English, which explains that the majority of them are able to control the language use as clarified in the figure below, where the largest category of participants, 66%, perceive their current level in English as good, 8% view themselves as excellent in English, and 1% view their level as acceptable, while a quarter of participants, 25%, consider their level as poor, which might impede their performance of certain tasks that require academic writing in English.

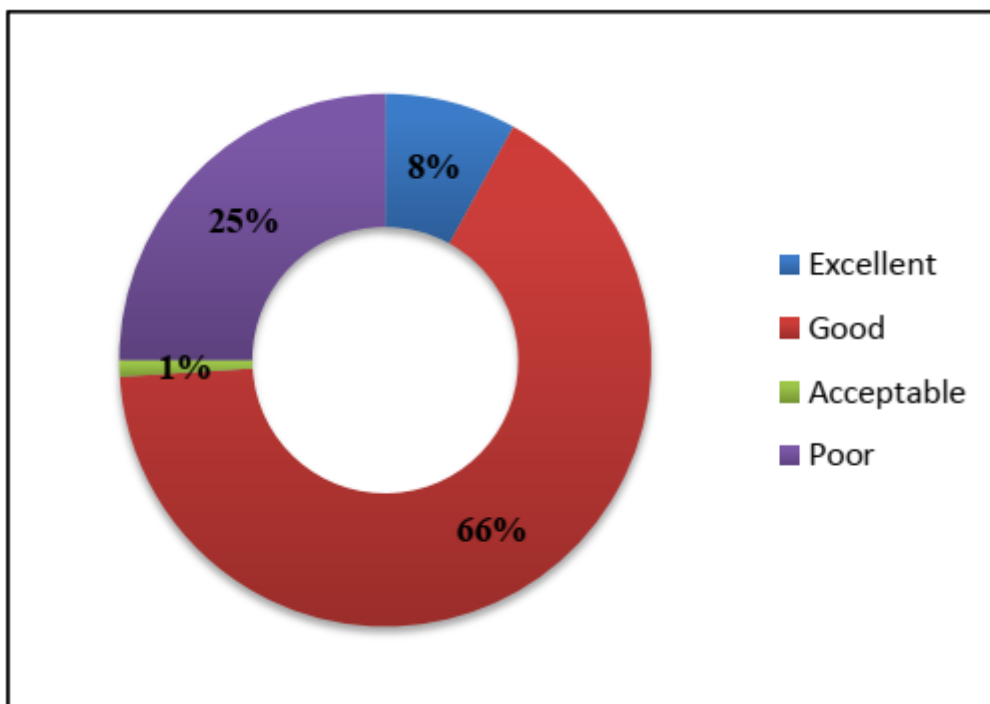


Figure 02. Perceptions on the Current Level in English

However, what was mentioned above did not prevent that 73% of the participants agree to consider English academic writing a challenging task in general and within the scope of research in particular regardless of their varied specialties, which justifies the remarkable tendency of the majority of participants, 75%, to rely on AI tools in order to aid them to fulfill the research activities that require English academic writing as shown in the figure below:

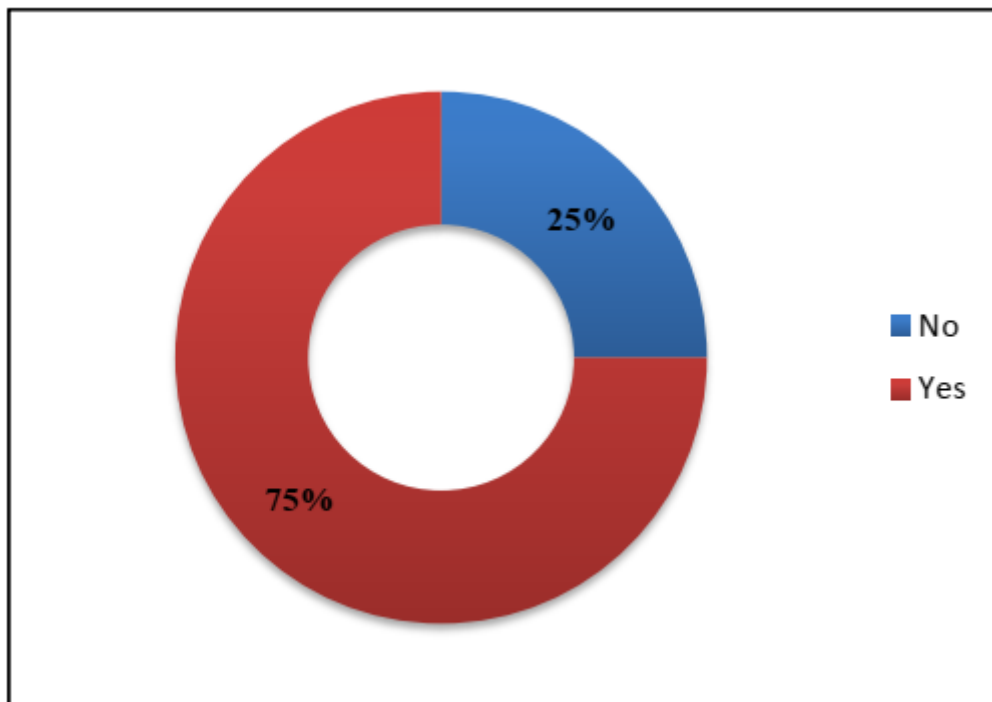


Figure 01. The Use of AI Tools to Fulfil Academic Writing Related Tasks

Justifying their previous answer, the participants attributed their use of AI tools to the efficiency of these tools in saving the time and energy in order to perform further research activities; hence, accelerating the research process. Additionally, they agreed upon the feasibility of these tools in terms of brainstorming, refining the structure and content of ideas, and redirecting their focus to suit the academic writing style.

SAKER Chifa, GHEDEIR BRAHIM Mohammed
Meeting Academic Writing Needs: Exploring the Perceptions of PhD Students at El-Oued
University on the Efficiency of AI Writing Assisting Tools

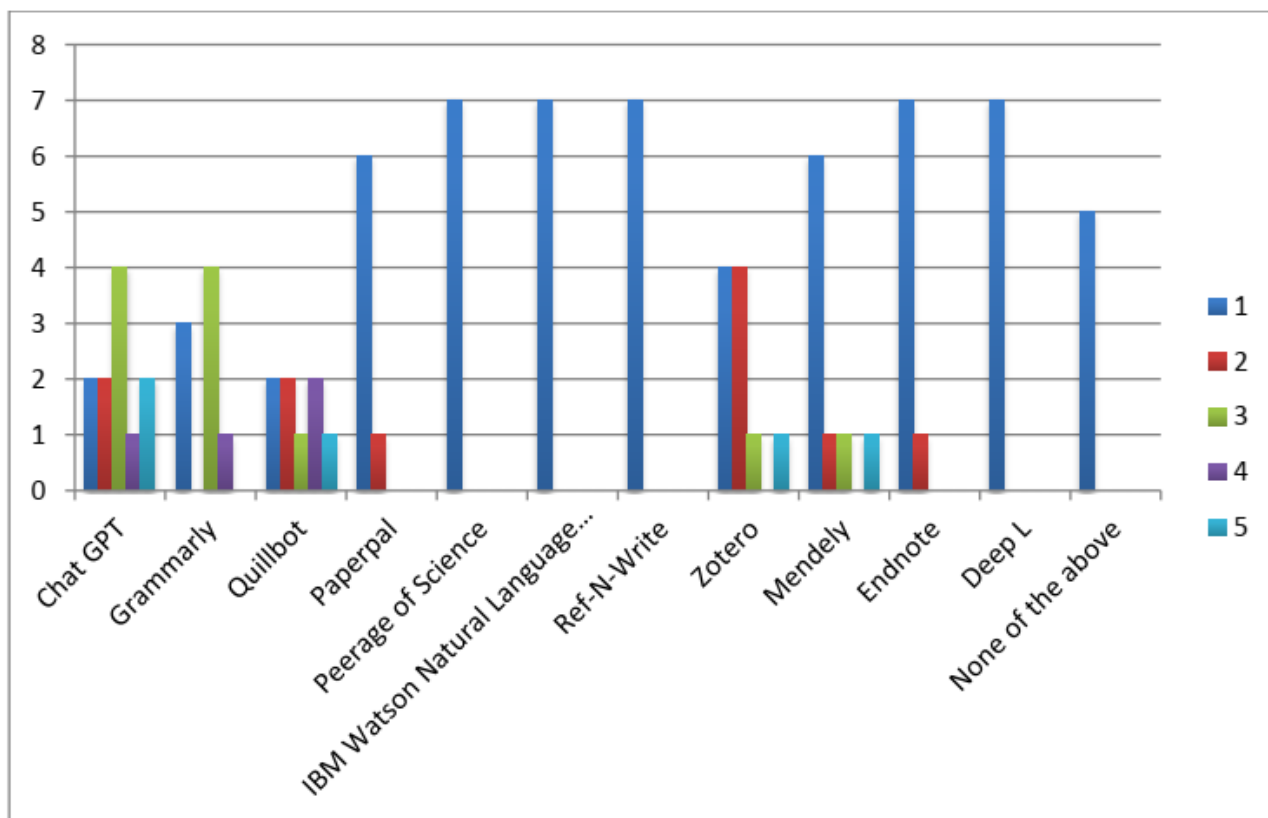


Figure 02. AI Tools Used Most (Never:1, Rarely:2, Sometimes:3, Often:4, Always:5)

According to the figure above, the most frequently utilized tools for English academic writing, as stated by the participants, are ChatGPT, Grammarly, QuillBot, Zotero, Mendeley, EndNote, and Google (64%), which are used for preparing research proposals, articles, abstracts, citations and referencing, literature reviews, and full dissertations. The use of these tools facilitates academic writing during the research process by adjusting terminology and linguistic proofreading to be consistent with the academic style of writing, as well as to avoid various linguistic and syntactic errors, in addition to controlling cohesion and coherence and simplifying the understanding of some passages. It also enables participants to paraphrase, summarize, and synthesize information from various sources. Moreover, these tools help save time and effort, which allows for more progress in research.

Due to the integration of AI tools into their various research activities, the majority of participants (82%) have made remarkable improvements in their English academic writing in terms of style, appropriateness and vocabulary selection, self-correction and evaluation, clarity, and critical thinking in comparison to their writing performance before implementing AI tools, as shown in the figure below, attributing this improvement to the availability and accessibility of these tools.

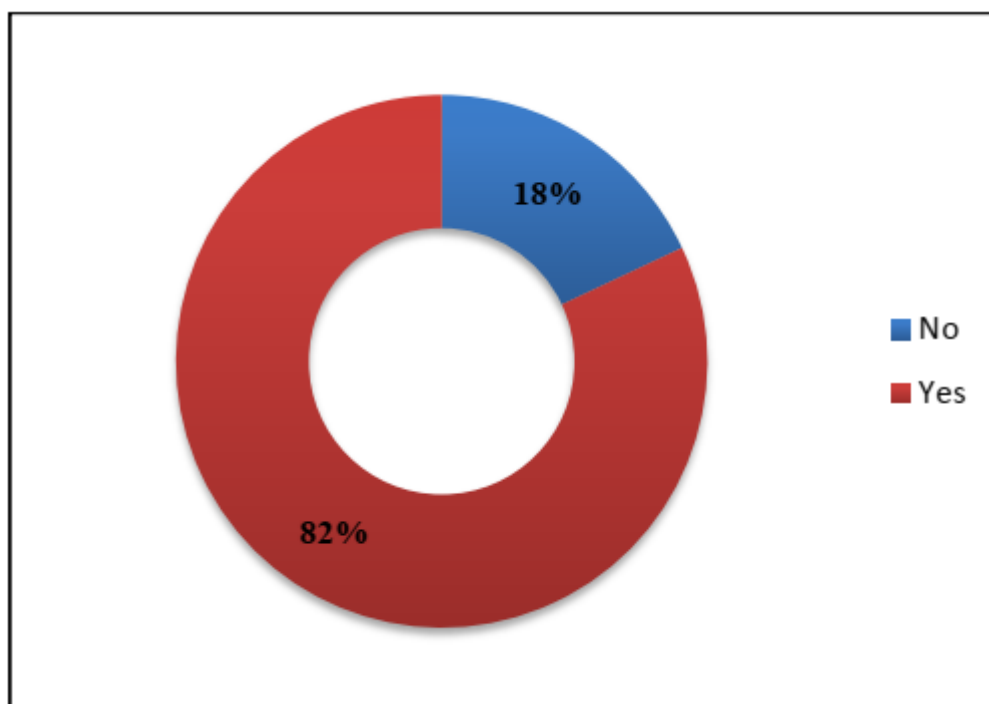


Figure 03. Perceptions on the Improvement in Writing Using AI Tools

By the end of the questionnaire, participants were requested to provide any further suggestions or comments on the topic of this study. The participants appreciated the importance of integrating AI tools and their effective role in facilitating and improving the quality of academic writing, which is considered one of the basics of conducting research. They also highlighted the importance of training on the correct use of these tools in order to achieve more effective results. However, they stressed the need to clarify limits for the use of these tools so as not to affect the quality of the research content, as well as to avoid falling into the trap of plagiarism and violating the ethics of scientific research.

3. Discussion of the Findings.

The interpretation of data presented above reveals the attempts of the new generation of researchers to keep pace with the technological advancements within the field of scientific research. Despite the variation of their specialties, academic backgrounds, and level of proficiency in English, the participants agreed to consider AI tools as effective aids for accomplishing various tasks that require academic writing due to their contribution to enhancing writing, promoting the quality and the feasibility of their research works; hence, ensuring their expansion and accessibility while conserving time and efforts for further academic production.

These tools assist in academic writing during the research process through enhancing terminology and linguistic proofreading to be consistent with the academic writing style, as well as to avoid various linguistic and syntactic errors, control cohesion and coherence, and simplify the understanding of some passages. Furthermore, they can facilitate paraphrasing,

SAKER Chifa, GHEDEIR BRAHIM Mohammed
Meeting Academic Writing Needs: Exploring the Perceptions of PhD Students at El-Oued
University on the Efficiency of AI Writing Assisting Tools

summarizing, and synthesizing data from different sources; in addition to fixing the different issues related to citing and referencing.

The participants recognized the value of incorporating AI technologies and their usefulness in facilitating and promoting academic writing. They also emphasized how crucial it is to receive training on how to utilize these tools properly in order to have better outcomes. Yet, they emphasized the necessity for clear guidelines for how to utilize these tools in order to prevent harming the standard of the research outputs and to stay clear of plagiarism and other ethical lapses.

Based on the findings above, AI tools play a significant role in responding to the need of PhD students in terms of enhancing the quality of their academic writing. Accordingly, training these novice researchers on the adequate utility of such tools should possess a considerable position in the PhD students training programs emphasizing the necessity of organizing workshops dedicated for academic writing. Moreover, reconsidering and updating the rules of the proper use of AI tools is highly demanded. Furthermore, raising the awareness of PhD students towards the importance of preserving the role of human intelligence rather than enslavement to AI; and adhering to the ethics of scientific research is required for better functioning in the academic environment.

4. Conclusion.

Through the introduction of new tools, strategies, and possibilities, artificial intelligence has revolutionized scientific research and higher education. This will have a significant impact on the way these fields grow over the coming years, encouraging innovation and solving challenging issues. Since English is usually recognized as the primary language for scientific research and publishing, PhD students frequently use artificial intelligence techniques and technologies to aid in their research activities, which require academic writing in English.

Through assisting PhD students to make decisions related to the appropriate lexical items and linguistic features, correcting their errors, refining their academic style, and saving their time and effort, AI tools play a significant role in promoting academic writing skills, guiding the novice researchers throughout their academic journey. However, the proper training and the careful implementation of these tools are imperative in order to remain remote from plagiarism and ethical issues.

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SAKER Chifa, GHEDEIR BRAHIM Mohammed
Meeting Academic Writing Needs: Exploring the Perceptions of PhD Students at El-Oued
University on the Efficiency of AI Writing Assisting Tools

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6. Appendix.

PhD Students Questionnaire

Meeting Academic Writing Needs: Exploring the Perceptions of PhD Students at El-Oued University on the Efficiency of AI Writing Assisting Tools

Dear receivers,

This questionnaire is a part of a research study that aims at measuring the different attitudes of PhD students towards the use of AI tools as aids for meeting their academic writing needs in English. It is assured that the information resulting from this questionnaire will be treated professionally and used exclusively to achieve the objectives of this study.

Thank you for your cooperation.

Part (01): Personal Information

1. What is your gender?
 - Male.
 - Female.
2. How old are you?
 - Between 20 and 30 years old.
 - Between 30 and 45 years old.
 - Older than 45 years old.
3. What is your specialty?
4. How long did you study English at University?
5. How do you evaluate your current level in English?
 - Excellent
 - Good
 - Acceptable
 - Poor

SAKER Chifa, GHEDEIR BRAHIM Mohammed
Meeting Academic Writing Needs: Exploring the Perceptions of PhD Students at El-Oued
University on the Efficiency of AI Writing Assisting Tools

Part (02): Artificial Intelligence Tools Use for the Improving Writing Skills among the PhD Students.

6. *Do you face any challenges when you write academically in English?*
- Yes.
 - No.
7. *Do you use AI writing assistant tools to fulfil academic writing related tasks? Please justify.*
- Yes.
 - No.

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8. *What AI tools do you use most to accomplish the research tasks that requires writing in English?*

	<i>Never</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>
<i>ChatGPT</i>					
<i>Grammarly</i>					
<i>Quillbot</i>					
<i>Paperpal</i>					
<i>Peerage of Science</i>					
<i>IBM Watson Natural Language Understanding</i>					
<i>Ref-N-Write</i>					
<i>Zotero</i>					
<i>Mendeley</i>					
<i>EndNote</i>					
<i>DeepL</i>					

SAKER Chifa, GHEDEIR BRAHIM Mohammed
Meeting Academic Writing Needs: Exploring the Perceptions of PhD Students at El-Oued
University on the Efficiency of AI Writing Assisting Tools

None of the above					
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Please, mention any other AI tools you use to enhance your writing production.

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9. Which tasks that require English academic writing do you use AI tools for?

	Never	Rarely	Sometimes	Often	Always
Research Proposals					
Research Paper/Article					
Essays					
Literature Review					
Full Thesis/Dissertation					
Conference Paper					
Abstract					
Book Review					
Writing for search engines					
None of the above					

Please, mention any other tasks you use AI tools for.

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SAKER Chifa, GHEDEIR BRAHIM Mohammed
Meeting Academic Writing Needs: Exploring the Perceptions of PhD Students at El-Oued
University on the Efficiency of AI Writing Assisting Tools

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10. *Have you made any improvements in your English academic writing after using AI assisting tools?*
- Yes.
 - No.

11. *If the previous answer is “yes”, please clarify the facets of improvement.*

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12. *Please, provide any suggestions or further remarks.*

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