

POSTGRADUATE EFL STUDENTS' ENGAGEMENT WITH CHATGPT IN ACADEMIC RESEARCH: A QUALITATIVE STUDY IN IRAN

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Abstract

Recent advancements in Artificial Intelligence (AI) have transformed educational practices and research methodologies; however, a deeper understanding of its pedagogical role in postgraduate education is still developing. This qualitative study investigates how Iranian postgraduate students leverage ChatGPT in academic research to enhance the quality of their outputs. Specifically, the study explores how this AI-driven tool contributes to developing research proficiency while highlighting students' satisfaction with its use for research support. Additionally, it describes their perspectives on the benefits and challenges of integrating AI technologies into this process. This research focuses on postgraduates in Applied Linguistics at a university in Shiraz, Iran, seeking to understand their experiences through semi-structured interviews and focus group discussions. The results indicated that participants held positive attitudes toward incorporating ChatGPT into their research workflow, emphasizing its beneficial impact on academic writing, research quality, problem-solving, and motivation. ChatGPT was found to facilitate personalized learning, enhance productive team discussions, and support the comprehension of complex English concepts. Nevertheless, the findings highlighted the importance of maintaining a balance between technological assistance and human guidance and cautioned against over-reliance, which could undermine research skills and language proficiency. Ethical considerations were also identified as a crucial factor in using ChatGPT.

Keywords: academic writing, artificial intelligence, ChatGPT, postgraduate education, research proficiency

Introduction

The progress in computing and information processing technologies has significantly expanded the role of AI in education (Ouyang & Jiao, 2021). AI attempts to emulate human intelligence in machines (Chan & Colloton, 2024; Wang et al., 2023), and its development has propelled computer-assisted learning into a new era (Hwang et al., 2020). More importantly, AI tools such as ChatGPT are



undeniably redefining the boundaries of education and driving a fundamental shift in educational paradigms (Baidoo-Anu & Owusu Ansah, 2023), including in Iranian universities. In fact, the incorporation of AI in education introduces a new dimension to teaching and learning, offering advanced tools that enable personalized learning experiences, adaptable teaching approaches, and more inclusive educational management (Pokrivcakova, 2019). The adoption of this technology in higher education also has the potential to revolutionize conventional teaching and learning methods (Kurban & Şahin, 2024). When technology is utilized appropriately at this level of education, it has significant power to enhance human abilities and expand opportunities for learning, teaching, and research (Popenici & Kerr, 2017).

In addition to these opportunities, the use of emerging technologies such as AI in research also introduces challenges. In academic settings, postgraduate students are expected to perform a range of complex tasks, such as critical appraisal, information synthesis, problem solving, data analysis, and communication (Vieno et al., 2022). While AI tools may facilitate these processes, their use raises concerns regarding the reliability and accuracy of outputs (Kim et al., 2025), plagiarism and academic integrity (Fajt & Schiller, 2025), and the possibility that over-reliance on AI can undermine analytical thinking and academic development (Nelson et al., 2025). Consequently, students' perceptions of technological innovations like AI including their concerns, attitudes, and experiences can influence their willingness to engage with the tool, which, in turn, determines its use in the learning process (Chan & Hu, 2023). This is particularly important in Iranian higher education, as previous studies report that postgraduate students experience difficulties in academic writing (Ebadi & Pourahmadi, 2019; Esfandiari et al., 2022), and exploring their use of ChatGPT can provide insights into how this technology enhances research skills and contributes to research quality.

Despite the growing use of AI in education (Labadze et al., 2023; Shahzad et al., 2024), research on its role in Iranian higher education remains limited. For instance, Zare et al. (2025) conducted a study in Iran to examine the effect of ChatGPT on L2 learners' motivation to write English essays. Similarly, Rezai et al. (2024) investigated Iranian EFL university students' experiences with ChatGPT in language learning, aiming to provide practical insights into its effective integration into language learning programs. In another study, Javahery et al. (2025) explored how Iranian novice EFL teacher trainees perceive and interact with ChatGPT in lesson planning and material development, using a phenomenological approach to investigate their practical experiences. Derakhshan and Ghiasvand (2024) also examined research-active EFL teachers' views on the benefits and limitations of ChatGPT in L2 learning, teaching, assessment, and research. Nevertheless, these studies have primarily concentrated on classroom-based applications, language learning tasks, or instructors' viewpoints, leaving the experiences of Iranian postgraduate students in academic research contexts largely underexplored. Given the importance of ChatGPT in research activities, it is crucial to investigate how these students employ the tool and the challenges they face, as understanding their perspectives elucidates the implications of AI in higher education.

To address this gap, this study aims to explore postgraduate students' satisfaction with incorporating ChatGPT into their research practices, with a particular focus on its contributions to boost the quality of their research outputs. It

also examines their perspectives on the utility, application, and the impact of this technology throughout their research journey, offering insights into how it facilitates their endeavors. Ultimately, it highlights the opportunities that ChatGPT creates for developing students' research proficiency, while also emphasizing the constraints and areas for caution when using this tool. Thus, the study seeks to answer the following research questions.

1. How does interaction with ChatGPT influence students' satisfaction and the quality of their research outputs?
2. What are students' attitudes toward the adoption of ChatGPT for academic research?
3. What are the perceived advantages and limitations of employing ChatGPT in the research process?

AI in academic education and research

AI can be understood as the practical ability of artificial systems to perform tasks, solve problems, communicate, interact, and act in ways similar to humans (Gil de Zúñiga et al., 2024). Such systems can also carry out human-like processes, including learning, adapting, synthesizing, self-correcting, and using data to accomplish complex tasks (Popenici & Kerr, 2017), with ChatGPT being a prominent example (Albadarin et al., 2024). Therefore, ChatGPT and similar AI chatbots present a new form of interaction between computers and individuals in educational contexts (Almogren et al., 2024).

Specifically, ChatGPT is transforming higher education by utilizing deep learning models to produce content that resembles human output (Michel-Villarreal et al., 2023). Unlike traditional search engines, this tool excels at maintaining a conversational flow through follow-up questions, allowing it to provide customized responses that meet users' particular needs, personalizing answers by drawing from an existing corpus (Cai et al., 2024). Rahman and Watanobe (2023) also consider that a key benefit of ChatGPT is its capacity to comprehend and address inquiries in natural language. This enables learners to pose questions to ChatGPT as they would to their instructors, making it more user-friendly and intuitive. Therefore, it is suitable for a variety of educational levels, ranging from elementary education to higher education, as well as for professional growth (Rahman & Watanobe, 2023).

The emergence of AI has presented both advantages and obstacles to the traditional education system (Chiu, 2024), and AI chatbots in particular have sparked significant debate among educators (Baidoo-Anu & Owusu Ansah, 2023). Within this context, recent research has examined the use of ChatGPT in higher education, focusing on its applications for academic writing and research-related tasks. Baig and Yadegaridehkordi (2024) note that ChatGPT is applied across educational contexts to assist academic staff, students, and researchers by offering diverse functions and supporting various tasks, although the technology is still in its early stages of effective implementation. Munaye et al. (2025) highlight opportunities associated with personalized educational experiences and enhanced accessibility but also identify challenges such as risks to academic integrity and bias in AI-generated content.

Malik et al. (2024) found that although the researchers noted beneficial aspects of ChatGPT in academic writing and research, some also expressed concerns that it could weaken writing skills and contribute to plagiarism. Mondal

and Mondal (2023) further point out that ChatGPT can assist writers throughout the research and writing process; however, its outputs are not fully reliable, and human judgment remains essential. Although AI offers considerable benefits, it is vital for individuals to be aware of its potential threats and take suitable steps to control them, preserving AI technology as a valuable asset in education (Yu, 2023).

With the ongoing advancement of these technologies, universities should also evolve and adapt by integrating AI tools effectively to aid learning and equip students for the complexities of an increasingly digital world (Sullivan et al., 2023). However, students should be informed about the capabilities and limitations of ChatGPT, along with its potential effects on academic integrity (Lo, 2023). In this context, it is important to investigate how university students employ ChatGPT for their research purposes and how this process contributes to the quality of their work. This exploration also considers the benefits and drawbacks of this tool based on their views to provide a thorough understanding of its role in their research efforts.

The use of ChatGPT in higher education

Since the release of ChatGPT, researchers have explored its influence and the challenges it presents to education, especially in the context of higher education (Rasul et al., 2023). For instance, Chan and Hu (2023) conducted a study in the context of higher education to examine university students' perspectives on AI technologies, emphasizing their familiarity with and willingness to use these tools, potential opportunities and obstacles, and their effective integration to enhance teaching and learning outcomes. Drawing on data from undergraduate and postgraduate students across disciplines in Hong Kong, the study reported generally positive attitudes toward AI in education. Students acknowledged its ability to support personalized learning, facilitate writing and brainstorming, and assist with research and analysis. Nonetheless, concerns were also raised regarding privacy, accuracy, and ethical issues, as well as the effects on career prospects, personal growth, and societal values.

Similarly, Malik et al. (2023) investigated undergraduate students' views on the use of AI in academic essay writing and gathered data from various tertiary institutions in the Eastern and Central Indonesian provinces. The results demonstrated that students responded positively to AI-driven writing tools, recognizing their advantages in areas such as grammar checking, language translation, plagiarism detection, and generating essay outlines. AI was also seen as valuable in improving students' writing skills, self-efficacy, and understanding of academic integrity. However, some students were concerned about its potential effects on critical thinking, creativity, and ethics.

Furthermore, Livberber and Ayvaz (2023) explored the role of ChatGPT in Turkey's academic context, aiming to understand academics' viewpoints on its impact. Through in-depth interviews with academics, the researchers gained valuable insights into the topic. In conclusion, they found that ChatGPT was not only regarded as a useful tool for scientific research and education but also as a source of inspiration for new topics and research areas. However, alongside these benefits, the study also showed that ethical concerns, such as plagiarism and misinformation, were significant for academics. Another study conducted by Malik et al. (2025) examined the benefits and challenges of incorporating AI technology in higher education. Specifically, this study attempted to determine how ChatGPT

influenced learning, teaching, and student assessment, while also considering ethical issues like academic integrity. The researchers used a qualitative approach to collect data via semi-structured interviews with academics from higher education institutions in North America, Asia, and Europe. The findings revealed that ChatGPT has the capability to boost learning outcomes, educational efficiency, idea generation, and creativity, while also underscoring issues concerning authenticity, academic honesty, and the risk of over-dependence. Although ChatGPT has the potential to foster activities such as brainstorming, skill development, and analysis, its unchecked use could hinder learning, critical thinking, and the quality of research.

In the Iranian EFL context, learners generally perceive ChatGPT as a valuable tool for language learning, with multiple studies reporting its positive effects across different skill areas. The university students noted that interacting with ChatGPT increased their motivation to write English argumentative essays by supporting skill development, providing a supportive and interactive environment, and raising metacognitive awareness through individualized feedback (Zare et al., 2025). Similarly, senior EFL students viewed ChatGPT as enhancing language proficiency, providing interactive practice, facilitating personalized learning, and contributing to an enriched learning environment (Rezai et al., 2024). In pronunciation-focused interventions, Iranian learners who practiced pronunciation with ChatGPT showed greater improvements than those using electronic dictionaries. The findings highlighted the ability of AI tools to support immediate learning and retention in pronunciation instruction, while providing practical guidance for the effective integration of AI into EFL teaching to foster learner autonomy and retention (Xodabande et al., 2025).

Although existing studies in the Iranian EFL context have reported positive perceptions of ChatGPT for language learning, particularly in relation to motivation, skill development, feedback, and autonomous practice, they have primarily focused on instructional and language-focused applications. Despite these findings, insufficient attention has been paid to how students use and evaluate ChatGPT for academic research purposes. In particular, there is limited empirical evidence on their willingness to use ChatGPT, their satisfaction with it, and its perceived contribution to research quality. This gap is particularly pronounced in Iranian higher education, where such experiences remain underexplored. Accordingly, this study investigates postgraduate students' attitudes toward the use of ChatGPT for academic research activities.

Conceptual framework

The present study utilized the model proposed by Almula (2024) as it was the most appropriate for achieving the research objectives (see Figure 1). The model was based on the Technology Acceptance Model (TAM); however, new constructs were incorporated to thoroughly examine how students interact with ChatGPT for various research activities. This new framework introduced factors such as interaction learning, information quality, interaction quality, collaborative learning, learning motivation, and learning satisfaction. These constructs were employed to analyze students' multifaceted interactions with ChatGPT, offering a comprehensive lens for understanding their research experiences.

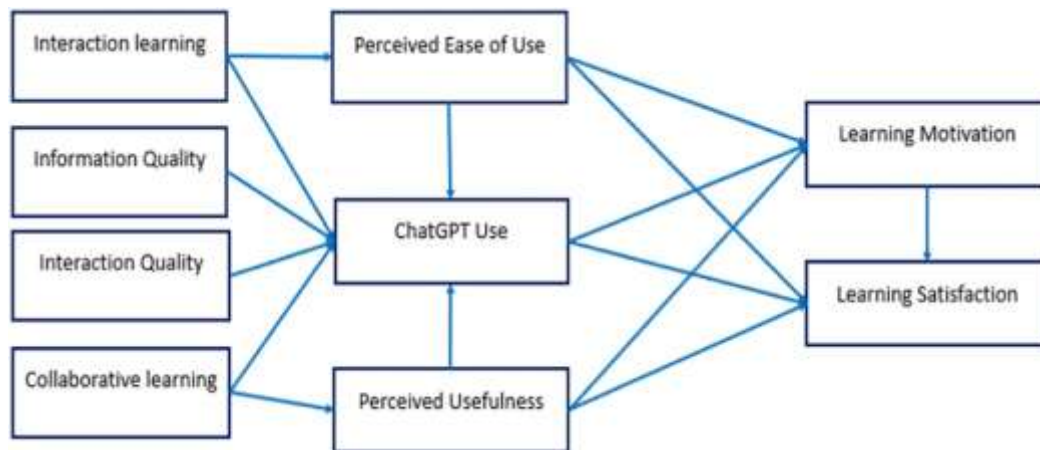


Figure 1. Model for evaluating the role of ChatGPT in research (Almulla, 2024)

Almulla (2024) states that the perceived ease of use is crucial for determining how students accept and employ AI-driven tools like ChatGPT, while the concept of perceived usefulness is significant in shaping their views and behaviors regarding ChatGPT in educational contexts, and ChatGPT use reflects the importance of actual usage behavior in understanding students' acceptance and adoption of this tool. This model also comprises constructs such as interaction with ChatGPT, known as interaction learning, which emphasizes the importance of interaction and engagement with this tool, and information quality which refers to how the reliability and relevance of information impact users' perceptions and behaviors (Almulla, 2024).

According to Almulla (2024), interaction quality involves ChatGPT's ability to understand user questions, provide clear and concise responses, and adapt to different learning styles. Furthermore, collaborative learning underscores how ChatGPT supports collaborative knowledge construction, communication, and research progress among university students. Another key concept is learning motivation, which assesses the effect of learning motivation on students' experiences with this technology. Finally, learning satisfaction in this model aims to examine its impact on students' attitudes and behaviors when using ChatGPT for research (Almulla, 2024). Thus, this model is particularly pertinent to this study as it explores university students' perspectives on various factors, demonstrating how ChatGPT supports their research endeavors and improves the quality of their academic work.

Method

Context

As Persian is the primary language of instruction at universities, there is limited emphasis on the necessity of English, particularly at the bachelor's level (Farhady & Hedayati, 2009). In contrast, at the graduate level, it is viewed as a means for students to access academic resources (Farhady & Hedayati, 2009). Consequently, publishing articles in English in international journals is highly recommended, a process that for some researchers entails writing papers in Farsi before translating or having their English papers reviewed and refined by more skilled English instructors or post-graduate students (Sadeghi & Richards, 2016).

With the growing emphasis on English as the language of scientific communication, it appears that the public sector in the country is currently unable to sufficiently satisfy the needs of learners (Hayati & Mashhadi, 2010). To bridge this gap, the private sector, as a supplementary component of the education system, has taken on the responsibility of aiding the public sector in fulfilling the country's requirements (Hayati & Mashhadi, 2010). Furthermore, Iranian language learners often utilize a variety of pedagogical resources outside formal settings as they find classroom input insufficient for advancing their language skills (Ebrahimi & Chowdhury, 2024).

Specifically, research activities in Iranian higher education involve multiple challenges. TEFL postgraduate students reported experiencing substantial pressure in their research performance while receiving limited support, including inadequate guidance and practical research preparation (Yousefi et al., 2019). A review of academic literacy further highlighted the challenges Iranian students face in English writing, identifying major issues such as gaps in the curriculum, the lack of a comprehensive academic literacy framework, and teaching methods that are inadequately effective (Jafary et al., 2024). Research on thesis writing in Iranian EFL contexts revealed that postgraduate students lacked research skills, including difficulties in academic writing and the use of academic vocabulary, a limited understanding of research design, and insufficient skills in selecting researchable topics (Ebadi & Pourahmadi, 2019). These findings demonstrate the significant challenges Iranian students encounter in conducting research and emphasize the need for effective approaches to strengthen their research skills.

In recent years, the use of technology has gained increasing attention in Iran's EFL context (Dashtestani & Hojatpanah, 2022), and the rapid development of AI has profoundly influenced the core aspects of services in higher education (Popenici & Kerr, 2017). Thus, recent developments in AI have promoted interest in examining its impacts on different areas (Firat, 2023) and countries, such as Iran. Within this context, the exploration of AI's potential can offer valuable insights into its transformative power. Such efforts contribute to a deeper understanding of how this technology is reshaping the research paradigm in higher education.

Research design and participants

A qualitative approach was adopted in this study to determine the significance of ChatGPT in streamlining research processes and contributing to the enhancement of research work. It also aimed to gain university students' perspectives on how its use supported the efficient completion of research activities. Qualitative research, which focuses on understanding how meaning is formed and how individuals make sense of their experiences (Merriam & Tisdell, 2016), is especially well suited to this study as it allows a detailed exploration of students' interactions with ChatGPT.

A total of 20 postgraduate students (MA) from Islamic Azad University, Shiraz, Iran, were initially invited to participate via email or phone. Of these, 16 students agreed to participate. All were familiar with different stages of research as they had completed their university courses and were conducting a thesis project in English. The group consisted of 12 females and 4 males, all pursuing fields related to language studies. Their ages ranged from 27 to 39, and they were enrolled in either English Language Teaching or Translation Studies, as shown in Table 1. The participants were selected based on active engagement with research, experience

with academic writing in English, and familiarity with ChatGPT. They had prior experience using this tool for tasks such as generating text, refining their writing, and organizing research ideas, which indicated that they possessed the essential skills to contribute meaningfully to the study. These students participated in interviews to express their attitudes toward the effects of ChatGPT on their research practices. However, only 10 students volunteered to join focus group discussions, as participation depended on their availability and willingness to take part in discussions, allowing them to further share and debate their viewpoints.

Table 1. Participant information

Participants	Gender	Age	Field of Study	Thesis Stage
Hadis	Female	30	English Language Teaching	Results
Sana	Female	29	English Language Teaching	Literature Review
Zahra	Female	32	English Language Teaching	Method
Farnaz	Female	29	Translation Studies	Method
Shadi	Female	28	English Language Teaching	Method
Maryam	Female	36	Translation Studies	Conclusion
Amir Ali	Male	34	Translation Studies	Literature Review
Milad	Male	39	English Language Teaching	Discussion
Nazanin	Female	28	English Language Teaching	Literature Review
Dorsa	Female	27	English Language Teaching	Literature Review
Hasti	Female	29	Translation Studies	Results
Arman	Male	32	Translation Studies	Method
Ehsan	Male	37	Translation Studies	Conclusion
Baran	Female	28	English Language Teaching	Method
Yas	Female	28	English Language Teaching	Results
Tina	Female	29	English Language Teaching	Discussion

In addition, ethical approval was informally obtained, and participant anonymity was preserved through the use of pseudonyms. All participants were informed about the purpose of the study, the data collection procedures, and their rights, and they provided consent. They were assured that their responses would be used solely for research purposes, stored securely, and reported in a way that protected their identities. They were also informed that their participation would not affect their academic status or evaluation in any way.

Data collection

The primary questions for gathering data were derived from Almulla’s (2024) research and adapted to fit the context and objectives of this study. The development of the instruments involved reviewing the original questions, modifying the wording, and making iterative refinements through team discussions to elicit rich and meaningful responses. These inquiries focused on how students integrated ChatGPT into their research workflows and how its use impacted the quality of their research outputs. For instance, the participants were asked about the benefits and challenges they experienced, how ChatGPT supported their understanding of complex research concepts, the reliability and relevance of the information it provided, and its perceived usefulness in achieving their research objectives and enhancing their research experience. Complementing this, focus group discussions offered a dynamic, interactive environment where participants could share

experiences, compare perspectives, and discuss differences in how the tool supported learning, motivation, collaboration, and overall satisfaction. Follow-up questions were also posed to allow the students to elaborate on their attitudes or expand on their initial responses.

To ensure all topics were covered, the guidelines were meticulously designed to provide clear direction and maintain a consistent structure throughout interviews and the discussion session. The guidelines included planned questions as well as potential follow-up prompts to encourage participants to expand on their responses, facilitating the collection of detailed insights. The participants were informed about the steps involved, their roles and responsibilities, and the overall goals of this study prior to the commencement of data collection. The interviews lasted approximately 30 minutes and the focus group discussions extended to 95 minutes, both conducted in person and in a comfortable setting. For this study, data were collected over several weeks; throughout this period, all sessions were recorded for accurate transcription and analysis.

The combination of data from semi-structured interviews and focus group discussions profoundly enriched the findings, providing a more nuanced and holistic understanding of the participants' experiences. Semi-structured interviews allow for the elicitation of more detailed stories from participants and the exploration of specific topics in greater depth (Qu & Dumay, 2011). Focus group discussions are used in this study as a time-effective method for gathering views from multiple individuals simultaneously (Glesne, 2016), while also providing the opportunity to observe the interactions on the discussion topic (Berg, 2001). Hence, the focus group discussions revealed both differences and shared perspectives regarding participants' use of ChatGPT in their research.

Data analysis

Thematic analysis was utilized to detect patterns in the data regarding participants' experiences and viewpoints, presenting a systematic and accessible method for creating codes and themes in qualitative data (Clarke & Braun, 2017). This study applied the six-step process proposed by Braun and Clarke (2006) to analyze the data, generate codes, and identify key themes through reflective thematic analysis. After transcribing the data, multiple readings were performed as this iterative process is vital for deeply engaging with the data to gain a comprehensive understanding of its aspects and details (Braun & Clarke, 2006).

Following familiarization, the data were systematically coded to create initial codes (Braun & Clarke, 2023). This coding process is essential for transforming raw data into meaningful findings while preserving coherence between the research objectives and results (Linneberg & Korsgaard, 2019). Major ideas and patterns were carefully identified to generate these initial codes, forming the basis for subsequent analysis and interpretation. To ensure reliability and rigor, the other two authors independently coded a subset of the transcripts, and any discrepancies among the three researchers were discussed and resolved through consensus. The codes and emerging patterns were reviewed and refined through multiple rounds of reading and discussion, ensuring consistency and accuracy in the analysis. This process facilitated the discovery of significant insights that directly relate to the research questions of the study.

The identification of themes began in the next step when all data had been coded and organized (Braun & Clarke, 2006). Similar codes were grouped based on frequency and relevance, allowing initial themes to emerge. All themes were carefully reviewed, revised, and refined through multiple cycles, with discussions among the researchers helping to clarify ambiguities and identify potential new themes (see Table 2). The final themes were confirmed to accurately represent the core ideas in the data, providing a coherent and detailed representation of participants' experiences and perspectives.

Table 2. Examples of the thematic analysis process

Data Excerpt	Code	Category	Theme
I use ChatGPT to check grammatical errors in my thesis.	Grammar Checking	Writing Support	Theme 1
This technology is incredibly useful for developing my academic writing skills.	Writing Skill Development	Writing Support	Theme 1
ChatGPT helps me notice errors in my sentences, correct them, and improve my writing.	Error Correction	Writing Support	Theme 1
I use ChatGPT to find answers to my questions and learn more.	Knowledge Development	Research Support	Theme 2
It's really important to me not to copy its exact words.	Avoiding Plagiarism	Ethical Awareness	Theme 3
If we use it too much and don't learn from it, we can't improve our research skills or even our language skills.	Over-Reliance Concern	Risk Awareness	Theme 3
Some complex texts confuse me, but ChatGPT explains them in a clear and simple way.	Comprehension Support	Academic Learning	Theme 1
It is also my responsibility to be careful with everything I use in my thesis.	Responsible Use	Ethical Awareness	Theme 3
Whenever I ask ChatGPT for support, it usually helps me solve some of my research problems quickly.	Problem-Solving Support	Research Support	Theme 2

Lincoln and Guba (1985) also argue that qualitative research highlights key elements such as credibility, transferability, confirmability, and dependability. Following these principles, this study obtained and analyzed data in accordance with its objectives and employed thematic analysis to strengthen the rigor of the results. To ensure dependability, detailed records of data collection and analysis were maintained for transparency, and methodological triangulation through interviews and focus group discussions enhanced reliability. During the coding process, initial codes and emerging patterns were refined through multiple rounds of discussion. The thematic analysis was also reviewed by two experts in the field. In response to their feedback, the analytical framework was refined, including the reorganization of codes and themes, which enhanced the coherence and clarity of the findings.

Findings and Discussion

Findings

Theme 1: Enhancing academic writing and research efficiency

The participants in this study were familiar with and employed ChatGPT at various stages of their research processes, recognizing its benefits despite certain limitations. They considered it a valuable resource for academic writing as it contributed to enhancing the quality of their research outputs. In this regard, Hasti explained:

I've been using ChatGPT for my thesis and previous research projects. I think this technology is incredibly useful for developing my academic writing skills and increasing the quality of my work.

Specifically, the participants described how they applied ChatGPT in similar ways to refine sentence structure, identify grammatical errors, and develop overall coherence. They also valued its capability to provide diverse paraphrasing options and suggestions, which enabled them to express their ideas more accurately. In addition to writing support, ChatGPT was reported to assist with research-related challenges, demonstrating its usefulness in helping students resolve complex issues. Hadis, another participant, explained:

ChatGPT is a great tool for both university students and researchers these days, especially for students writing in foreign languages like English. This AI can quickly find errors, suggest better word choices, analyze the sentences, and provide useful explanations. ChatGPT has become an important part of my research as it can speed up my research process and save me time. I don't need to ask my professors all the time or even wait for their feedback because I can find the answers to many of my questions alone.

This view indicates that the students have incorporated ChatGPT into their research process as its capabilities boost the efficiency and quality of their research tasks, such as academic writing, research efforts, and language proficiency. Other participants expressed similar views, emphasizing that ChatGPT empowered them not only to expand their knowledge but also to overcome difficulties in various domains, particularly when teacher assistance was unavailable and self-directed learning was vital for their progress. In fact, its role as a virtual instructor enhanced personalized learning and enabled an in-depth exploration of research interests without constant reliance on teacher guidance.

Furthermore, the participants explained that ChatGPT was useful for expanding team members' knowledge of their research fields. They believed that in addition to the core research resources, it could offer extra information to reduce uncertainty and foster a deeper understanding of different concepts in most situations. ChatGPT also encouraged the exchange of ideas and the critical analysis of differing viewpoints. For example, Shadi explained:

ChatGPT is useful for teamwork. It gives explanations and examples that make difficult ideas easier to understand and helps when team

members aren't sure what to do. It's also helpful when the team is debating or can't agree on something.

This interaction enriched the quality of discussions within the team and enabled them to make more confident decisions in their collaborative efforts. Thus, ChatGPT contributed to the achievement of their research objectives and the overall success of their project. Amir Ali also explained:

It is very easy to use ChatGPT, and it answers my questions based on what I ask. I feel like I get feedback from a real person as it can understand my questions properly. When I struggle to understand some complex ideas in English or I'm unsure about something, ChatGPT can break down the sentences and explain them in simpler language. This ability helps me comprehend concepts more effectively, which has a positive impact on my research work.

They valued ChatGPT for its user-friendly interface and instant responses. They observed that it significantly reduced the time required for their research tasks and improved the quality of their research outputs. The students also enjoyed interacting with this tool for their research activities as it allowed them to engage in meaningful conversations and exchange perspectives within a dynamic learning environment. One of the most notable aspects was its ability to provide contextually relevant responses, whether in simple or more complex language. When encountering challenging concepts or language barriers, students sometimes sought clearer and more accurate explanations based on their language proficiency. This flexibility allowed them to effectively comprehend intricate materials and supported them in bridging knowledge gaps, particularly when writing research in English as a foreign language. Regarding other benefits, Nazanin noted:

I sometimes need to translate some sentences to make sure I fully understand their meanings, and ChatGPT is helpful for providing clear translations quickly. But I know that its translations are not always accurate.” Similarly, Amir Ali explained: “When I'm not sure how to explain an academic concept in English, ChatGPT gives me suggestions that I can easily understand. It really helps me write more clearly, improve my writing skills, and save me a lot of time.

Some participants, like Nazanin and Amir Ali, believed that the translations and suggestions offered by ChatGPT were helpful as they facilitated a deeper understanding of obscure concepts and supported clearer expression of their ideas in research. Therefore, they were able to overcome difficulties that might have otherwise hindered their research journey.

Theme 2: Supporting motivation and strengthening confidence

While they have developed foundational skills, some participants emphasized the significance of gaining further research experience as research is an evolving process that demands ongoing learning. Zahra explained:

I already have some basic research skills, but I know I need more experience because in research you always need to update your knowledge. To get better, I have to improve my skills and learn more things. I think ChatGPT is really helpful for understanding difficult concepts and different views. It's also useful for finding more information about new areas and for asking questions about different parts of research studies. When I'm working on my thesis, I sometimes don't know what to do, especially with parts like research methods or data collection. I use ChatGPT to find answers to my questions and learn more. This way, I can gradually improve my research knowledge.

The students with similar views to Zahra believed that acquiring expertise in research involves not only refining existing skills but also actively seeking new perspectives and expanding knowledge. This inherent curiosity motivated them to explore new areas and encouraged them to obtain information from diverse sources, leveraging tools like ChatGPT to find relevant and accurate insights. In this context, ChatGPT could enhance their research proficiency and support their growth as researchers. The data further revealed that this technology also facilitated the research process by providing practical assistance. As Baran explained:

I sometimes feel confused, stressed, or frustrated during my thesis. The process of writing my thesis has been tough lately. Whenever I ask ChatGPT for support, it usually helps me solve some of my research problems quickly. It guides me step by step, points out things I might have missed, and checks different parts of my work. I also think it's amazing that I can use it anytime and get quick answers. This helps me feel more confident and keeps me motivated to continue my work.

The students, like Baran, reported that ChatGPT streamlined the research process and offered essential guidance that would have been challenging to obtain without such assistance. This technological tool appeared to be a significant motivator as it helped students perform their research tasks in a more organized manner, alleviated many of their concerns, and ultimately boosted their confidence and motivation. Despite these benefits, some students experienced frustration during moments of difficulty or confusion, particularly when they needed immediate solutions or suggestions. They emphasized that these moments of difficulty highlighted the importance of accessible and responsive support to facilitate the research process. Another participant, Maryam, explained:

I believe that ChatGPT is effective in increasing motivation and confidence at every stage of research. For example, before I started writing my thesis, I asked ChatGPT to give me more information about my topic which definitely influenced the objectives and research questions. During my thesis, I have been using it to find more suitable academic words, check the structure of my sentences, better understand different parts of the research, and get guidance. I will also use it after completing my thesis to identify and correct errors to enhance its

overall quality. Therefore, this process helps me learn more and feel less stressed.

Such viewpoints demonstrate that ChatGPT helped students explore their areas of study in detail prior to commencing the research tasks to gain a more comprehensive understanding of their work, allowing them to identify potential gaps in existing knowledge and assess various dimensions relevant to their projects. As a preliminary tool, it also provided valuable insights that helped shape both the scope and objectives of their research. Throughout the process, they turned to this tool to modify their academic writing and consistently relied on its support, which played a crucial role in promoting their motivation and advancing their work. After completing their investigation, they employed ChatGPT as a post-analysis tool to review their entire work for consistency and enhance the precision of their findings. This ongoing engagement with ChatGPT empowered them to conduct their research with greater assurance, contributing to the rigor and integrity of their work.

Theme 3: Ethical use and critical thinking

The students expressed overall satisfaction with ChatGPT's support in academic writing, highlighting its pivotal role in improving their research abilities and language skills. They also noted that it fostered their confidence in producing high-quality work and provided practical suggestions throughout the entire process, from the initial brainstorming phase to final revisions. Nonetheless, the students emphasized the importance of integrating AI support with other resources, such as peer collaboration and instructor feedback as it fostered a more effective learning experience. For instance, Arman remarked:

While I am satisfied with the overall support from ChatGPT, this doesn't mean that the assistance I receive from professors, experienced researchers, or even my friends isn't necessary for my research studies.

While AI tools like ChatGPT were helpful throughout their research journey, they could not fully replace the nuanced insights and critical guidance offered through human interaction. This combination of technological assistance with human interaction could optimize the research process, ensuring that students feel adequately supported and empowered throughout their research endeavors. Baran also explained:

I know that ChatGPT is a powerful tool, and it can help me get quick feedback when I face challenging situations in my research thesis. But, it's really important to me not to copy its exact words. I always try to critically evaluate the information ChatGPT provides as I have to be sure of the reliability and accuracy of this information. It is also my responsibility to be careful with everything I use in my thesis.

Although the participants acknowledged ChatGPT's contribution to the research workflow, they emphasized the importance of ethical considerations and plagiarism concerns. Since ChatGPT is an AI-powered tool, it is ultimately the responsibility of researchers and students to utilize it appropriately, ensuring

adherence to ethical principles and maintaining academic integrity. Such a careful approach prevents unintentional reliance on biased or incorrect information, thereby preserving the originality and reliability of their studies. The respondents further highlighted this balance. For example, Hadis stated:

ChatGPT can speed up my thesis process and improve its quality. For me, it's really effective, and I like using it. But if we use it too much and don't learn from it, we can't improve our research skills or even our language skills.

This points to the concern that over-reliance on AI tools, such as ChatGPT, could negatively affect their research skills and language competence. While AI can significantly support research processes, it should be viewed as a supplementary tool that increases the productivity of researchers' output rather than replacing the critical thinking and effort required in research work.

The data analysis demonstrated that ChatGPT could appropriately support students in achieving their research goals. In fact, it proved useful for refining their writing, providing information, explaining complex ideas, and offering feedback, thereby empowering students to enhance their research quality, develop their learning experiences, and overcome their obstacles with greater independence. ChatGPT's ability to respond to inquiries immediately, along with its capacity to adjust the complexity of language to suit diverse needs, further enhanced its utility. Since ChatGPT was also beneficial in reducing uncertainty and confusion, it could positively influence students' motivation and foster their confidence throughout research endeavors. Overall, students expressed satisfaction with ChatGPT's contribution to streamlining their research process. However, they underscored the importance of human feedback, suggesting that ChatGPT should be employed as a complement, not a substitute, for human expertise.

Discussion

The findings of this study provide insight into how postgraduate students incorporate ChatGPT into their research. The participants in this study were generally satisfied with using ChatGPT throughout their research, recognizing its usefulness despite certain drawbacks. These responses directly reflect students' satisfaction with integrating ChatGPT into their research practices. They reported that the tool was valuable for academic writing, as it improved the quality and efficiency of their research outputs. This finding is corroborated by Song and Song (2023), who conducted a mixed-methods study to assess the influence of AI-supported language learning on the writing skills and motivation of Chinese EFL students. The quantitative analysis showed substantial advancements in both writing skills and motivation among students exposed to AI-assisted instruction, compared to the control group. The qualitative findings presented a variety of viewpoints, emphasizing the positive effect of AI on writing abilities and motivation, alongside concerns about contextual accuracy and dependency. While their research examined the effects of guided AI-supported activities in an instructional setting, the present study extends these findings by demonstrating that students can also benefit from using ChatGPT independently to support their own research writing processes. This highlights that AI tools like ChatGPT can be

effectively integrated into self-directed learning, providing flexible support beyond formal environments.

In addition to its role in writing, the participants described how ChatGPT supported their learning and enhanced the quality of their research, highlighting its key benefits in practice. ChatGPT also contributed to participants' knowledge development and problem-solving, especially in situations where teacher support was limited and independent learning was essential. As stated by Kurban and Şahin (2024), ChatGPT can provide quick and individualized feedback, offering students real-time assistance and guidance. Therefore, it enabled students to adapt the process to their specific needs while reducing their reliance on direct instruction. This growing reliance on AI reflects a broader shift toward leveraging technology to support independent learning, enhance problem-solving abilities, and improve overall research performance, particularly in contexts where immediate guidance from instructors is not available.

ChatGPT was also helpful in broadening the team's knowledge by providing supplementary information that complemented primary resources, thereby reducing ambiguity and enhancing comprehension during the research process. It also facilitated the exchange of ideas and encouraged critical analysis of differing viewpoints, which, in turn, enriched team discussions and supported more confident decision-making in collaborative efforts. These results highlight Rahman and Watanobe's (2023) study, which suggests ChatGPT can assist in group discussions by offering personalized support to participants throughout the interaction. Regarding other practical benefits, the respondents noted that ChatGPT's user-friendly interface and prompt responses positively influenced their research work. From their point of view, this technological tool generates contextually appropriate answers, helping students tackle difficult concepts and overcome language barriers, particularly when conducting research in English as a foreign language. This immediate and accessible support allowed students to work more efficiently, reduced frustration when facing complex tasks, and encouraged greater engagement with challenging materials.

As ChatGPT provided essential guidance, it reduced students' concerns, particularly when immediate solutions were required, which in turn fostered both motivation and confidence in their research activities. In this context, Song and Song (2023) emphasize the integration of AI tools into their writing tasks to boost the academic writing abilities and motivation of EFL learners. Supporting this, the findings of the current study demonstrated that throughout the various stages of the research process prior to commencing, during the investigation, and after completing their analysis ChatGPT played a significant role in refining their writing and increasing the quality of their work. Alongside supporting writing, ChatGPT functioned as a motivational resource, enabling students to reduce uncertainties and remain focused on complex research activities. It encouraged students to adopt more reflective and self-directed approaches, strengthened their ownership of the research process, and contributed to higher-quality research outcomes. The findings suggest that this AI tool extends beyond simple writing assistance, providing meaningful support for independent learning, analytical thinking, and sustained academic growth, especially in contexts with limited immediate instructor feedback.

Although the students expressed their satisfaction with ChatGPT's support in academic writing and research, they emphasized the need for combining AI assistance with peer and instructor feedback for more effective learning experiences. As such, it is important to treat AI as a tool rather than a replacement for human teachers (Bedford et al., 2024; Strzelecki, 2024), taking into account the essential role of human judgment and contextual awareness in the process of education (Strzelecki, 2024). Consequently, a balanced integration of technology with human feedback offers the necessary guidance and support to excel in their research work. This approach ensures that students benefit from the efficiency and accessibility of AI while maintaining rigorous academic standards, developing critical thinking skills, and fostering deeper understanding of their research topics. Therefore, they can integrate AI into their workflow, enhancing decision-making and maximizing the impact of their research outcomes.

More importantly, the ethical use of AI and the prevention of plagiarism are crucial in academic research. The participants emphasized that researchers and students must take responsibility for the proper use of AI tools, ensuring alignment with ethical standards and academic integrity. In fact, researchers must critically assess AI-generated content and verify it through independent analysis and avoid over-dependence on such tools which could diminish their research capabilities and language proficiency. These reflections highlight the challenges and limitations students faced when using ChatGPT. According to Yu (2023), the extensive application of AI tools like ChatGPT has introduced various ethical concerns and legal risks, alongside its convenience. In light of these issues, students should carefully reflect on questions in relation to the responses provided by ChatGPT and use their reasoning skills to refine and enhance their answers (Yu, 2023). Moreover, an over-reliance on AI tools can result in adverse outcomes for students (Chan & Colloton, 2024; Farrokhnia et al., 2024), as depending too heavily on them for answers may impede students' ability to think critically and solve problems, while also undermining their motivation for independent learning and research (Chan & Colloton, 2024).

Conclusion

This study investigated postgraduate students' satisfaction with integrating ChatGPT into their research activities, particularly its role in enhancing the quality of their academic work. It also examined their views on the usefulness and impact of this tool throughout their research process to understand how it supported their efforts. The results indicated that ChatGPT supported various research stages by helping students overcome challenges and reduce reliance on instructors, while enhancing motivation and problem-solving.

This study demonstrated that the participants were generally satisfied with the support provided by ChatGPT and its use in their research workflow. This technological tool enhanced the quality of their academic writing by refining sentence structure, identifying grammatical errors, and improving overall coherence. It also offered instant responses, enabled interactive exchanges, and supported personalized learning. ChatGPT also facilitated collaborative knowledge-building and productive discussions, contributing to more confident decision-making. One of ChatGPT's key strengths was its ability to generate contextually relevant responses based on students' language proficiency, assisting

in the comprehension of complex English concepts. Despite these advantages, the participants believed that ChatGPT cannot replace the thoughtful and critical guidance of instructors, and a balanced integration of technology and human feedback is necessary to optimize research progress. They also raised ethical and plagiarism concerns and warned that over-reliance on AI may hinder research skills and language development.

The implications of this study suggest that students, researchers, and educators need to transcend traditional research practices and familiarize themselves with both the benefits and challenges of AI tools to leverage them effectively. While the results show that ChatGPT can be useful in academic research, it should complement, not replace, human guidance. The findings particularly underscore the significance of ethical principles, considering that ChatGPT must be used appropriately within the established ethical frameworks. Thus, AI tools should be employed responsibly to maintain academic integrity, ensure the credibility of research outputs, and prevent misuse. Additionally, excessive dependence on AI could negatively impact research skills, emphasizing the need to integrate AI with traditional learning to promote comprehensive academic growth. Such an integrated approach also enables students to actively apply and consolidate their knowledge, ensuring continuous development of research skills while benefiting from AI support. Overall, this study offers a novel perspective on integrating AI tools into EFL postgraduate research and sheds light on how ChatGPT has disrupted conventional research practices in recent years.

Along with these contributions, this study has certain limitations. As a qualitative investigation, it provides an in-depth exploration of university students' experiences; however, the findings may not be broadly generalizable. Future research could adopt mixed-methods approaches to achieve a more comprehensive understanding of how AI-driven tools reshape the research process. This study focuses on postgraduate EFL students, and future studies could expand to include perspectives from other disciplines. Given the rapid evolution of AI, more research is vital to assess not only its role in streamlining research practices but also the challenges it poses for researchers, educators, and universities over time.

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