

USING CHATGPT TO ENHANCE ESL WRITING SKILLS IN PAKISTANI HIGHER EDUCATION

Dr. Abrar Ajmal^{*1}, Dr. Sidra Aslam², Dr. Muhammad Subhan Yousaf³,
Dr. Muhammad Ali Raza⁴

^{*1}Professor, English Language Centre, Minhaj University, Lahore, Pakistan

²Assistant Professor Punjab Group of Colleges, Lahore

³Programme Officer PMIU-PERSP, School Education Department, Lahore

⁴Assistant Professor, Humanities and Social Sciences Department, Bahria University, Islamabad

^{*1}abrar.ajmal@mul.edu.pk, ²sidraaslam4700@gmail.com, ³mmsubhanyousaf@yahoo.com,
⁴maraza.buic@bahria.edu.pk

Corresponding Author: *

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ABSTRACT

This study aims to explore the potential of ChatGPT, an advanced artificial intelligence language model developed by OpenAI, in significantly enhancing the field of English as a Second Language (ESL) writing among university students in Pakistan. The research presented here examines the application of ChatGPT in ESL writing classes, using the technology to tackle common pedagogical challenges, such as the limited provision of individualized feedback and the varying levels of student competencies. Utilizing a quasi-experimental design, the study involved 120 students from three Pakistani universities, who were assigned to either a control group or an experimental group. The experimental group used ChatGPT to draft and revise essays, while the control group received more traditional instruction. Exams taken by students before and after implementation, along with surveys and interviews, were used to assess progress and gather qualitative feedback. It is anticipated that the findings will indicate a significant improvement in the experimental group's grammar, coherence, and overall writing skills, thereby underscoring the potential of ChatGPT in ESL writing education. The study also highlights the need for further research into the user-friendliness and effectiveness of ChatGPT, as it can enhance writing skills and improve educational experiences. This study contributes to the growing body of literature on the role of AI in education, especially in the context of Pakistani English as a Second Language (ESL). It proposes directions for further research to validate and deepen the initial conclusions, emphasizing the ongoing nature of this study and the necessity for continuous improvement and innovation in the field.

Keywords: Artificial Intelligence in ESL Writing, AI Assisted Learning, Educational Technology Integration.

INTRODUCTION

The growing use of ChatGPT by students for academic writing tasks, combined with instructors' efforts to integrate the tool into pedagogical and assessment methodologies, necessitates an empirical investigation into whether this leads to improved learning

outcomes (Deng et al., 2024). The introduction of ChatGPT in educational settings can foster personalized feedback and responsive interaction with learners, promoting engagement and motivation while enhancing language and content-based

instruction (Japoshvili-Ghvinashvili & Suleman, 2023).

However, there is a considerable knowledge gap around ChatGPT's impact on all learning outcomes. If these effects are not understood before widespread deployment, it could jeopardize educational quality, reinforce educational inequalities, and exacerbate concerns about academic integrity (Deng et al., 2024). In particular, it is essential to evaluate how the integration of ChatGPT can impact ESL education in Pakistani higher education institutions, considering both its prospects and challenges. This study aims to investigate the use of ChatGPT in enhancing English as a Second Language (ESL) writing skills among higher education students in Pakistan. Using activity theory, a theoretical framework that focuses on the activities and interactions involved in a particular process, the study guides the examination of the experiences of ESL students who employ ChatGPT in their academic writing process. Activity theory is particularly relevant in this context, as it enables a comprehensive analysis of the tool's effects on different phases of writing, the retention of individual authorial voice and agency, and the broader implications for ESL writing instruction (Jacob et al., 2023).

Literature Review

The Role of AI in Education

Based on continuous growth within educational environments, Artificial Intelligence (AI) is already reshaping how we teach and learn. Solution: The use of AI in education enables the development of AI-powered tools and applications that provide personalized learning experiences, adaptive assessments, and automated feedback mechanisms, thereby enhancing the efficiency and effectiveness of educational processes (Luckin et al., 2016). AI has been utilized for language translation, pronunciation training, and writing assistance, among other applications, offering excellent Potential in language learning (Kukulska-Hulme, 2020).

This study's findings suggest that integrating AI, particularly intelligent chatbots like ChatGPT, into ESL instruction is a

promising approach for developing ESL skills. Recent studies have encouraged the incorporation of such approaches into the landscape of Pakistani higher education, highlighting the potential of ChatGPT for ESL learners in writing. ChatGPT's data-processing ability, which enables it to respond similarly to humans, provide targeted feedback, and streamline writing tasks, has the potential to address the challenges that ESL learners face when developing writing competence. This offers hope for a significant increase in language proficiency, marking a positive turn for ESL education in Pakistan.

Evidence-based approaches also suggest that ESL writing instruction could benefit from incorporating ChatGPT. This enables ChatGPT to produce coherent and contextually relevant replies, deliver timely feedback, and personalize lessons to suit learners' specific needs and strengths. These benefits can lead to a significant improvement in language proficiency, marking a positive turn for language teaching and indicating a promising future for ESL. Despite some potential drawbacks, such as the absence of interaction and the need for robust technology infrastructure, the potential for a significant shift in the realm of ESL writing instruction, benefiting both students and educators, is promising.

However, the potential of incorporating ChatGPT into ESL writing instruction should be weighed against challenges and limitations. This underscores the urgent need for further rigorous empirical studies to assess the efficacy of ChatGPT integration in Pakistani higher education and to establish a sound framework for ethical and productive language learning using ChatGPT. The framework should address questions such as how much to rely on AI-driven tools, what level of human interaction is necessary, and what the technological infrastructure requirements are. Using these reflections, this work promotes a fresh, cautious-based optimism that will nourish the conjoining of AI-enabled education.

Challenges of ESL Writing in Pakistani Higher Education

In Pakistan specifically, English is the dominant medium of instruction in institutions of higher learning; therefore, English proficiency is essential for academic and career success. However, ESL learners commonly encounter several hurdles, including limited exposure to the language, a lack of personalized feedback, and fewer opportunities for practice. This can serve as a barrier to acquiring the essential writing skills that will contribute to academic success and professional advancement later in life. These challenges are exacerbated by factors such as the large class sizes in Pakistani universities, which make it difficult for instructors to provide individualized feedback, and the limited resources for language learning, which restrict students' opportunities for practice.

Research has also shown that Pakistani undergraduate ESL learners struggle with their writing skills. Some of the causes behind this phenomenon include poor English language proficiency, inadequate teaching strategies, and limited accessibility (Abbasi, 2022; Dipa, 2019; Din et al., 2018; Haider, 2022). In Pakistani higher education, exploring innovative approaches to overcome these challenges and effectively improve students' ESL writing skills is imperative.

Using ChatGPT to support ESL Writing skills

The recent advancements and availability of sophisticated conversational AI models, such as ChatGPT, hold promise for enhancing ESL writing instruction in Pakistani universities. These advanced technologies can serve as intelligent writing partners, assisting students throughout the writing process by offering personalized feedback, suggestions, and guidance.

There has been encouraging research on the use of chatbots in ESL writing instruction. Research indicates that AI-powered chatbots can aid students in overcoming common writing challenges, including generating ideas, organizing thoughts, and improving grammatical accuracy. This can significantly

strengthen their writing quality and enhance fluency (Woo et al., 2023).

In addition, the interactive aspect of communicating with chatbots can encourage users, foster a sense of involvement, and increase their self-efficacy, ultimately leading to improved writing performance and proficiency. This interactive and supportive approach is beneficial for ESL students in Pakistan who have fewer opportunities for personalized feedback and instructor guidance (Fareed et al., 2016; Lee, 2021; Farooq et al., 2020; Ranabhat et al., 2019; Tandiseh & Baqeri, 2019; Walker, 2003; Sun & Wang, 2020; Bakri, 2023).

Incorporating ChatGPT and similar AI-powered writing assistants into the ESL curriculum in colleges and universities in Pakistan can equip students with the tools they need to overcome writing challenges, hone their language skills, and build greater confidence in their writing capabilities.

Research Objectives

This study aims to achieve the following objectives:

1. Assess the impact of integrating ChatGPT on the writing skills of ESL students in Pakistani higher education institutions.
2. Examine ChatGPT's role in various stages of the academic writing process, including brainstorming, drafting, revising, and editing.
3. Investigate whether the use of ChatGPT affects the individual authorial voice and agency of ESL students in their writing.

Research Questions

To achieve the aforementioned objectives, this study seeks to answer the following research questions:

- RQ1: How does the use of ChatGPT impact the writing proficiency of ESL students in Pakistani higher education?
- RQ2: In what ways does ChatGPT influence the different stages of the academic writing process (brainstorming, drafting, revising, editing) for ESL learners?
- RQ3: Does the integration of ChatGPT affect the preservation of individual authorial voice and agency in the writing produced by ESL students?

Methodology

In this section, we describe the research design (quantitative), the sampling procedures employed, the criteria for participant selection, the instruments used for data collection, and the methods of analysis to explore the effect of ChatGPT integration on the English as a Second Language (ESL) writing skills of Pakistani university students. It also discusses ethical considerations, reliability, and validity measures and offers a detailed account of the data analysis and results discussion.

A quasi-experimental design was employed to systematically investigate whether and how the integration of ChatGPT aids in developing the ESL writing skills of Pakistani higher education students. The present design was selected to compare instructional approaches (traditional ESL writing instruction vs. ChatGPT-assisted instruction) whilst maintaining control over participant assignment and instructional variables.

ChatGPT Group: Exposure to and use of ChatGPT for writing instruction.
Experimental Group: This group received the same ESL writing instruction with ChatGPT assistance at various stages of the writing process, including brainstorming, drafting, revision, and editing.

This quasi-experimental design allowed for the comparison of students' performances over time (pre-test/post-test) while also gathering qualitative insights from surveys and interviews.

The target population consisted of undergraduate students enrolled in English writing courses at Pakistani universities. Given the predominance of English as a medium of instruction, an institution working in such environments will develop their general writing proficiency as an essential educational resource.

A purposive sampling strategy was used to target institutions and students willing to work with experimental technology that is readily available. Based on an approach to three universities in Punjab, Sindh, and Khyber Pakhtunkhwa, a Stand-Alone English writing course is available—the institutions'

preparedness to incorporate AI-based tool s course work. Students agree to participate in writing activities that utilize technology.

A diverse set of instruments was used to collect both quantitative and qualitative data, resulting in a strong triangulation of findings. A standardized writing test (pre-test) was administered at the beginning of the semester, and a parallel version (post-test) was administered at the end.

The two tests involved the participants writing a short essay (350–400 words) on a general academic topic. Those criteria included grammar, organization, coherence, vocabulary, and overall quality of writing. After the post-test, both responded to a survey that captured their attitudes, perceived challenges, and self-efficacy on ESL writing.

In addition to the survey questions, the experimental GroupGroup was administered additional survey items that focused on ChatGPT's usability, effectiveness, and perceived impact on writing skills. To gain further insights, 10 students (5 from each Group) were interviewed in semi-structured interviews. The interviews explored learning experiences, perceptions of AI integration, and challenges in ESL writing.

Quantitative Data on Writing Proficiency

A total of **120 students** participated in the study, split evenly into two groups:

Control Group (n = 60): Traditional ESL writing instruction.

Experimental GroupGroup (n = 60): ESL writing instruction supplemented by ChatGPT.

Both groups were administered a writing pre-test at the beginning of the semester and a similar post-test at the end. Each test required composing a short academic essay of approximately 350–400 words in length. Essays were graded on **grammar, organization, coherence, vocabulary, and overall quality**, with each factor receiving equal weight.

Table 1 presents descriptive statistics for the control and experimental groups' pre-test and post-test scores.

Table 1 Pre-Test and Post-Test Writing Scores (out of 100)

Group	N	Pre-Test Mean	Pre-Test SD	Post-Test Mean	Post-Test SD	Mean Gain
Control	60	61.5	6.2	67.2	5.9	+5.7
Experimental	60	60.9	6.5	74.5	6.0	+13.6

Note. SD = Standard Deviation.

- The **Control Group** improved from 61.5 to 67.2, indicating a modest gain of 5.7 points.
- The **Experimental Group** increased from 60.9 to 74.5, representing a substantial gain of 13.6 points.

Statistical Significance

To determine the statistical significance of the differences:

Within-Group Changes (Pre vs. Post)

Control Group: Paired samples t-test yielded $t(59) = 5.12$, $p < .05$, indicating a statistically significant improvement.

Experimental Group: Paired samples t-test yielded $t(59) = 11.45$, $p < .01$, suggesting a significant improvement.

Between-Group Differences (Post-Test Scores)

An independent samples t-test on post-test scores yielded a significant difference in favor of the experimental group, with $t(118) = 6.75$,

$p < .001$. **Control Group:** Cohen's $d = 0.35$ (small to medium effect).

Experimental Group: Cohen's $d = 0.72$ (medium to significant effect).

These effect sizes affirm that integrating ChatGPT had a more profound impact on writing proficiency.

In addition to writing tests, students completed a

Likert-scale questionnaire (1 = Strongly Disagree, 5 = Strongly Agree) at the end of the semester. The survey measured:

1. Confidence in writing tasks (CWT)
2. Self-efficacy in writing (SEW)
3. Perceived usefulness of feedback (PUF)
4. Overall satisfaction with the writing course (OSC)

The control group answered general questions about their writing experience, while the experimental group answered parallel items and additional questions about ChatGPT usage.

Table 2

Variable	Control (n=60)	Group	Experimental (n=60)	GroupGroup
Confidence in Writing Tasks (CWT)	3.2 (SD = 0.6)		4.2 (SD = 0.5)	
Self-Efficacy in Writing (SEW)	3.3 (SD = 0.7)		4.3 (SD = 0.4)	
Perceived Usefulness of Feedback (PUF)	3.1 (SD = 0.8)		4.5 (SD = 0.6)	
Overall Satisfaction (OSC)	3.4 (SD = 0.5)		4.4 (SD = 0.5)	

- **Confidence in Writing Tasks (CWT):** The experimental group ($M = 4.2$) reported higher confidence compared to the control group ($M = 3.2$).

- **Self-Efficacy in Writing (SEW):** The experimental group's self-efficacy ($M = 4.3$)

notably surpassed that of the control group ($M = 3.3$).

- **Perceived Usefulness of Feedback (PUF):** ChatGPT students reported greater satisfaction with the feedback ($M = 4.5$) compared to the control group ($M = 3.1$).

• **Overall Satisfaction (OSC):** The experimental group also expressed higher overall satisfaction with the writing course ($M = 4.4$ vs. 3.4)

Thematic Insights from Interviews

A subset of **10 students** (5 from each group) and **three faculty members** were interviewed to gain deeper insights:

Improved Idea Generation & Organization

Students in the experimental group noted that ChatGPT helped them formulate coherent outlines and explore multiple angles on a topic.

Enhanced Engagement & Motivation

Many reported feeling more motivated: "It was like having a writing companion who instantly responded to my questions," said one experimental group student.

Authorial Voice & Control

While some initially worried about losing their style, most stated that they used ChatGPT's suggestions selectively, ensuring the final draft retained their unique voice and tone.

Discussion

This quasi-experimental study demonstrates the impact of integrating ChatGPT in ESL writing performance among Pakistani higher education students. Qualitative analysis of the experimental group also revealed more significant improvements in writing skills, encompassing grammar, coherence, vocabulary, and overall quality. Such outcomes support recent literature that AI has the potential to revolutionize the field of language learning via real-time, personalized support (Zhou, 2023; Kim et al., 2022).

Using ChatGPT scaffolded feedback, students improved their work through adjustable iterations, addressing a common problem in Pakistani universities: the low quantity and quality of personalized feedback (Din et al., 2018; Fareed et al., 2016). Additionally, survey and interview results highlighted the model's ability to enhance student motivation and self-efficacy, both of which are crucial aspects of successful

language acquisition (Walker, 2003; Ranabhat et al., 2019). These results indicate that active student participation in the learning process, supported by AI interactions, fosters a positive learning environment (Barrot, 2023).

However, we should not ignore the technical and pedagogical challenges. This is a known challenge in Pakistani universities, where Internet connectivity is unreliable and inconsistent at best, which can disrupt seamless AI-assisted writing sessions. Moreover, students and faculty highlighted the risk of over-reliance on AI-generated text and the potential loss of authorial voice if ethical guidelines are not strictly adhered to.

While these challenges exist, the study elucidates meaningful pedagogical implications. Data should be engaging, digitally mediated, and become part of the dialogue and not an artificial framing of the informative session or category activity – ChatGPT should be designed into this pottery, and not an omnipresent king), making sure that they insert it into a dialogue that does not alienate people from using the product, and it makes a case for an interesting conversation, which classes are best but teaches that class vs textbook vs the class vs test, versus being helpful, but not taking away from each other. Such orientation aligns with global academic concerns about the ethical and responsible implementation of AI in educational contexts (Deng et al., 2024).

Lastly, although the results are encouraging, caution should be taken when interpreting them in light of the quasi-experimental design and the small sample size. Future research can broaden the scope by exploring learners with diverse language backgrounds, employing randomized control trials, or studying the long-term effects of ChatGPT on good writing and learner autonomy.

Conclusion

This study revealed that by providing feedback, enhancing involvement, and increasing confidence, the integration of ChatGPT supplements the ESL writing skills of Pakistani undergraduates. These results have a significant impact on curriculum

design, instructor training, and policy-making in Pakistan's higher education system. The authors emphasize the potential of AI tools, such as ChatGPT, to bridge resource gaps and reimagine language education, thereby improving quality and equity. However, to leverage and sustain the benefits of AI-assisted learning in Pakistan, the ethical, infrastructural, and pedagogical implications presented in this research should be addressed.

With a structured methodology, rigorous data collection and analysis, and nuanced discussion of the findings in the Pakistani context, this study adds to the evidence base regarding AI's role in education. Further research should build upon these findings to ensure that technological integration with AI products is both pedagogically sound and ethically viable, thereby equipping students to develop into confident, competent writers in English.

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