THE EFFICACY OF CHATGPT IN ENHANCING WRITING PROFICIENCY AMONG UNIVERSITY STUDENTS

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Abstract

This study examines the efficacy of ChatGPT as an AI-assisted learning tool to improve undergraduate English department students' academic writing skills at Bumi Persada University in Indonesia. Twelve participants participated in the study, which used a mixed-methods research methodology. Lexical complexity, grammatical precision, and textual coherence are three important aspects of writing proficiency that were quantitatively measured using a pre-test and post-test paradigm. A deeper understanding of the student experience was made possible by qualitative data collected via semi-structured interviews and comprehensive questionnaires. The results show that there were notable benefits to including ChatGPT in the writing process. Notably, students' writing quality significantly improved, they became more motivated and involved in writing assignments, and they became more capable of learning on their own. However, the study also discovered a significant challenge: an overreliance on AI-generated ideas, which may impede the development of autonomous critical thinking and unique composition skills. The study finds that, while ChatGPT is a beneficial additional tool for second language writing pedagogy, its adoption necessitates careful instructional design to reduce the hazards of dependency and maximize the advantages for long-term skill acquisition.

Keywords: *AI in Education, ChatGPT, Educational Technology, English learning, Writing Skills*

INTRODUCTION

The fast growth of artificial intelligence (AI) over the last decade has dramatically altered the educational landscape. AI-based applications are rapidly being integrated into schools for language acquisition, providing innovative techniques that supplement standard pedagogical methods. Language acquisition, which requires ongoing practice, feedback, and interaction, benefits greatly from AI-powered systems that can provide rapid support and personalized learning experiences (Zawacki-Richter et al., 2019). Among the four fundamental English language skills, listening, speaking, reading, and writing, writing is arguably the most complex for non-native speakers. Writing requires not only a wide range of vocabulary but also mastery of grammatical accuracy, syntactic variety, and the ability to organize ideas into coherent and cohesive structures (Hyland, 2019). Writing develops critical thinking abilities, creates cogent arguments, and pays attention to proper syntax and structure (Muntazar & Hajar, 2025). Effective academic writing demands critical thinking, logical reasoning, and cultural awareness, skills that many learners find difficult to acquire without extensive practice and guided feedback (Grabe & Kaplan, 2014). Traditional methods of teaching writing also often face limitations. Classroom settings rarely provide sufficient time for personalized feedback due to large class sizes and restricted instructional hours (Bitchener & Ferris, 2012a). As a result, learners may struggle with persistent writing difficulties and lack the opportunities to refine their skills outside of class. In this context, AI tools such as ChatGPT emerge as promising solutions. ChatGPT, developed by OpenAI, is an advanced large language model (LLM) capable of generating human-like text, responding to queries, and offering contextually relevant feedback in real time. As an interactive platform, ChatGPT allows learners to generate ideas, receive instant corrections, explore alternative sentence structures, and practice academic writing tasks flexibly and engagingly (Kasneci et al., 2023). Unlike static resources such as textbooks, ChatGPT simulates conversational exchanges, thereby offering an adaptive learning environment where students can refine their writing

iteratively. Integrating ChatGPT into learning activities is a great possibility for Bumi Persada University's English Department students to improve their academic writing. As these students prepare for professional and intellectual communication, they must understand the intricacies of English writing. They can utilize ChatGPT to practice independently, explore with language use, and acquire confidence in writing well-structured texts. Furthermore, ChatGPT provides scaffolding to promote vocabulary development and grammatical correction, two significant areas of difficulty for second language (L2) learners (Dwivedi et al., 2023).

However, the employment of artificial intelligence in writing is not without obstacles. Excessive reliance on AI-generated texts may limit students' critical thinking and creativity. Other problems include ethical issues with plagiarism, authenticity, and the accuracy of AI advice. Thus, while ChatGPT has great promise as an educational tool, its implementation must be backed by explicit pedagogical guidelines and academic integrity norms. This study is set within these rising discussions, with the goal of investigating how ChatGPT might be used to improve the writing skills of Bumi Persada University students. The study focuses on the gains students acquire in vocabulary, grammar, and coherence, as well as potential issues such as reliance and ethical usage. It did so by adding to the expanding corpus of research on AI-assisted language acquisition and by offering useful advice to teachers wishing to incorporate AI into EFL classes.

LITERATURE REVIEW

The incorporation of AI into education has received significant scholarly attention in recent years, owing principally to its potential to change established pedagogical practices. The value of AI-based tools is their capacity to provide tailored feedback and enable independent learning, both of which are sometimes difficult to do in traditional classroom settings. AI apps can give learners real-time corrections, targeted suggestions, and personalized skill development routes by processing massive volumes of linguistic data and adjusting to learner input (Zawacki-Richter et al., 2019; Holmes et al., 2019). In the specialized domain of language learning, AI solutions provide immediate and interactive assistance to learners in overcoming the obstacles of vocabulary acquisition, grammar accuracy, and discourse organization. Dwivedi et al., (2023) highlight ChatGPT's significance in increasing student autonomy by offering quick solutions to linguistic queries and generating diverse examples of writing across numerous situations. This accessibility enables students to experiment with sentence patterns, academic writing genres, and stylistic choices without relying on teacher involvement. Such characteristics are especially useful for English as a Foreign Language (EFL) students, who frequently face a lack of authentic input outside of the classroom.

Furthermore, the interactive character of AI systems such as ChatGPT encourages students to engage in self-directed learning, in which they take greater responsibility for their own progress. This independence encourages metacognitive strategies like as self-monitoring and self-correction, which are essential for long-term language acquisition, and allows students to practice at their own pace. In this sense, AI systems function as online language tutors, supplementing traditional training with continuous practice and feedback. Despite these benefits, the literature raises serious concerns about the pedagogical application of AI in education. Kasneci et al., (2023) warn that overreliance on AI-generated content may limit students' prospects for critical thinking and creativity, as they may be persuaded to passively embrace machine outputs rather than actively building their own ideas. This dependency increases the potential of superficial learning, in which students create elegant writing but lack a meaningful comprehension of the linguistic structures used. Furthermore, ethical concerns regarding plagiarism, authorship integrity, and the legitimacy of AI-generated content limit its application in academic settings. Thus, achieving a balance between AI aid and pedagogical instruction becomes critical. Teachers play a critical role in defining AI use as a complement rather than a replacement for human cognition and creativity. Clear instructional rules, essential engagement tasks, and reflection exercises can help students use AI outputs responsibly, resulting in more meaningful learning experiences. Educational institutions must properly integrate AI, linking its use to broader goals such as academic integrity, critical literacy, and learner empowerment.

METHOD
Research Design

The current study used a qualitative descriptive approach with a pre-test and post-test comparison to assess the effectiveness of ChatGPT in improving students' English writing skills. A qualitative descriptive method is widely accepted as suitable for investigating educational interventions because it provides a straightforward yet rigorous account of participants' experiences, behaviors, and performance without the burden of theoretical interpretation (Sandelowski, 2000). This approach is particularly appropriate for classroom research in which the goal is to study how students interact with a new instrument. In this scenario, consider ChatGPT and how its writing evolves as a result of its incorporation into learning activities.

The qualitative descriptive design enables the researcher to stay close to the participants' original data while emphasizing clarity, precision, and detail in presenting outcomes (Colorafi & Evans, 2016). By taking this technique, the study was able to document not just measurable increases in students' writing, but also their perspectives, obstacles, and attitudes toward AI-assisted learning. This attitude is consistent with Creswell and Poth's (2018) notion that qualitative education research should focus on meaning-making processes and learner experiences, which complement objective measurements of performance. To guarantee a structured evaluation of learning outcomes, a pre-test and post-test design were added to the qualitative descriptive approach. Pre-test and post-test comparisons are often employed in educational research to assess the impact of an intervention by comparing changes in learner performance before and after treatment exposure (Bartlett & Burton, 2020). In this study, the pre-test was used to create a baseline of students' writing abilities without the assistance of ChatGPT, while the post-test allowed the researcher to assess increases in vocabulary use, grammatical accuracy, and coherence following the intervention.

The combination of these two methodologies, qualitative description and pre/post-test evaluation, resulted in a strong design that balanced quantitative rigor and qualitative depth. While the pre-/post-test scores demonstrated demonstrable learning gains, the qualitative observations, interviews, and student reflections expanded on the findings by demonstrating how students regarded ChatGPT's role in their writing development. Educational methodologists have advised a hybrid approach, arguing that combining descriptive inquiry with comparison evaluation improves the validity and reliability of classroom research (Miles et al., 2018). As a result, using a qualitative descriptive approach with pre-test and post-test analysis ensured that the study not only documented improvements in students' writing performance, but also shed light on the pedagogical processes, learner engagement, and challenges associated with incorporating AI-based tools into higher education language learning.

Participants

The participants of this study consisted of twelve undergraduate students from the English Department of Bumi Persada University, Lhokseumawe, Indonesia. The decision to involve students was deliberate, as these learners are expected to demonstrate a higher level of engagement with English language learning, particularly in the development of academic writing skills. Undergraduate English majors are typically required to master writing not only as a communicative skill but also as a core academic competency that underpins coursework, research projects, and future professional endeavors (Hyland, 2019). Thus, this population was considered appropriate for investigating the integration of ChatGPT as a learning tool to enhance writing proficiency. The sample size of twelve students, albeit small, is consistent with the principles of qualitative educational research, which prioritize depth of understanding above breadth of generalization (Creswell & Poth, 2018). According to Sandelowski (2000), smaller sample sizes are frequent in qualitative studies because they allow for a more in-depth study of participants' experiences and viewpoints. The chosen number also allowed for more intensive observation, greater interaction between the researcher and the participants, and in-depth examination of individual progress in writing performance.

The participants in the undergraduate program represented a wide range of academic levels, from early-semester to advanced semesters. Such variation revealed how ChatGPT might be used effectively by students with varying levels of writing skill. In keeping with Patton's (2015) remark about purposeful sampling, the inclusion criteria focused on students who were actively engaged in writing-related courses and willing to use AI tools as part of their learning process. This planned selection guaranteed that the participants had enough motivation and background knowledge to contribute meaningfully to the study. Ethical considerations were also considered when recruiting volunteers. All twelve students volunteered and were informed about the study's goals, methodology, and potential ramifications. Informed consent was sought to verify that their involvement followed academic research norms (Cohen et al., 2002). Furthermore, anonymity and confidentiality were assured, with students' identities safeguarded by the use of pseudonyms in data display. In summary, the twelve undergraduate students from Bumi Persada University's English Department formed an appropriate participant group for this study. Their academic perspective toward English language acquisition, together with their various levels of writing competency, provided an important background for investigating how ChatGPT could help students build their writing skills. The small but focused sample allowed for a thorough examination of both linguistic progress and student views, providing insights into the practical application of AI-based technologies in higher education language classrooms.

Procedures

The study was conducted in four stages to analyze the efficiency of ChatGPT in enhancing students' writing skills: pre-test, training and intervention, post-test, and survey/interview. This multi-step technique allowed for both the measurement of writing performance and the investigation of learners' subjective experiences with AI integration. The first stage entailed conducting a pre-test in which students were required to produce a brief essay on a specific topic without the use of AI-based tools. The pre-test was designed to provide a baseline evaluation of students' writing

skills in terms of vocabulary range, grammatical accuracy, and organizational coherence. Pre-tests are frequently used in educational research as diagnostic tools to examine learners' initial performance levels prior to an intervention (Bartlett & Burton, 2020). By examining these pieces, the researcher was able to discover recurring linguistic issues and structural deficiencies among the participants, which helped shape the intervention stage's focus. The second step consisted of a training and intervention phase in which students were introduced to ChatGPT and trained on its correct and ethical application. Training sessions focused on how ChatGPT may help with three key areas of writing development: vocabulary acquisition, grammar checking, and idea organizing. Instruction was meant to discourage students from merely copying AI-generated material and instead encourage interactive participation in which learners investigated, updated, and contextualized ChatGPT's ideas. This is consistent with the recommendations of Holmes et al., (2019) who emphasize that AI tools should be included in education as scaffolding mechanisms rather than alternatives for human learning. The intervention enabled students to become acquainted with the platform, experiment with writing prompts, and react to AI-generated feedback, promoting both linguistic improvement and digital literacy.

Following the training, students completed a post-test in which they were required to produce another essay on a separate but related topic. Unlike the pre-test, students were encouraged to use the skills and tactics they learned using ChatGPT throughout the intervention. The post-test was used to see if there had been any measurable changes in their writing skills, particularly in terms of lexical diversity, grammatical clarity, and argument coherence. Pre-test and post-test comparisons are a well-established methodological tool in applied linguistics research, allowing researchers to quantify learning gains attributed to an intervention (Mackey & Gass, 2015). Finally, to supplement the quantitative proof of progress, students' perceptions and experiences were gathered via questionnaires and semi-structured interviews. The survey questionnaire includes both closed-ended and open-ended questions, allowing students to rate the utility of ChatGPT and provide details about their experiences. Semi-structured interviews gave a greater understanding of learners' attitudes, obstacles, and reflections on AI-assisted writing. This triangulation of data sources increased the study's credibility and validity because combining performance-based measurements with self-reported perceptions provides a better understanding of the educational influence (Denzin, 2012). The research design used these four procedural stages to ensure that writing progress could be scientifically quantified while also capturing students' varied viewpoints as active participants in an AI-supported learning environment. This dual focus on performance results and learner experiences is consistent with best practices in educational research, which requires both quantitative gains and qualitative insights to assess the true impact of technological interventions.

Data Analysis

The data for this study were examined using a combination of textual analysis of student essays and thematic analysis of qualitative responses from surveys and interviews. This dual analytic method meant that both the quantifiable features of writing proficiency and the subjective experiences of learners were thoroughly investigated. Students' written essays from the pre-test and post-test were evaluated systematically on three dimensions: vocabulary richness, grammatical accuracy, and coherence. The breadth and appropriateness of lexical elements used in students' writings were assessed to assess their vocabulary. Lexical diversity is widely acknowledged as a reliable predictor of writing growth and overall language competency (Laufer & Nation, 1995; Kyle & Crossley, 2015). Students were assessed not only on the quantity of their vocabulary, but also on their ability to use accurate and contextually relevant words, demonstrating their capacity to express complex meaning.

Grammatical performance was analyzed through the identification of errors in areas such as verb tense, subject-verb agreement, sentence structure, and article usage. Accuracy is an essential component of second language (L2) writing proficiency because persistent errors can hinder communication and reduce the clarity of written (Bitchener & Ferris, 2012b). The analysis focused on error reduction between the pre-test and post-test, providing evidence of the extent to which ChatGPT-supported practice contributed to grammatical improvement. Coherence was examined by analyzing the logical flow and organization of ideas within the essays. This dimension included the use of cohesive devices, paragraph unity, and the ability to construct arguments that progressed logically from introduction to conclusion. As Halliday & Hasan (2014) argue, coherence is a critical feature of effective academic writing, as it determines how comprehensible and persuasive a text is to readers.

To maintain reliability and validity in essay analysis, rubrics were developed based on established criteria in second language writing research (Hyland, 2019). Each essay was evaluated holistically as well as analytically, ensuring a balanced judgment of overall quality and specific areas of progress. In addition to essay evaluation, qualitative responses gathered from surveys and semi-structured interviews were analyzed using thematic analysis. This method involves systematically identifying, categorizing, and interpreting recurring patterns of meaning across qualitative data (Braun & Clarke, 2006). Thematic analysis was chosen because it allows for both flexibility and rigor, enabling the researcher to explore how students perceived ChatGPT's usefulness, challenges, and impact on

their writing development. Thematic analysis was carried out in six stages, as outlined by Braun and Clarke, (2006) (1) familiarization with data, (2) generation of initial codes, (3) topic search, (4) theme review, (5) theme definition and name, and (6) report production. Codes were initially allocated to significant comments or phrases in the survey and interview transcripts, such as references to motivation, confidence, or overreliance on AI. These codes were then organized into wider themes reflecting common student experiences, such as "increased writing confidence," "expanded vocabulary knowledge," and "concerns about reliance on AI assistance." The study used methodological triangulation, combining quantitative-oriented textual analysis of essays with qualitative theme analysis of student perspectives (Denzin, 2012). This combination improved the overall validity of the findings by allowing for cross-verification of objective performance increases and subjective learner reflections.

FINDINGS AND DISCUSSION

The study of pre-test and post-test data demonstrated significant gains in students' writing performance across a variety of characteristics, including vocabulary use, grammatical accuracy, coherence, and motivation. These enhancements were complemented by qualitative insights gleaned from interviews and questionnaires, which provided a more in-depth understanding of students' attitudes toward ChatGPT-assisted learning. One of the most noticeable results was increased vocabulary richness and precision. Compared to the pre-test essays, the post-test writings showed higher lexical variety, with students using more sophisticated and contextually acceptable word choices. This outcome supports Laufer and Nation's (1995) hypothesis that vocabulary increase is an important indicator of L2 writing progress. The use of ChatGPT introduced students to a broader range of lexical items and collocations, allowing them to improve their word choice and grow beyond repetitious or basic vocabulary.

The study also revealed a decrease in frequent grammatical errors, notably those involving verb tense consistency and subject-verb agreement. Before the intervention, students typically made chronic errors in these areas, reducing the clarity of their writing. Students' writings improved significantly after using ChatGPT. This agrees with Bitchener and Ferris, (2012b) who believe that corrective feedback is critical in reducing recurring grammatical errors in L2 writing. ChatGPT's ability to make quick ideas and corrections matches the role of textual corrective feedback, but with greater accessibility. In terms of literary coherence, post-test essays showed better organization and a more logical flow of ideas. Students increased their ability to compose essays with clear introductions, body paragraphs, and conclusions. Furthermore, there was a greater use of cohesive devices, such as transitions and connections, which helped to improve flow and argumentation. These findings support Halliday and Hasan's (2014) argument that coherence is a critical component of effective writing, since it determines readability and communicative efficacy. The incorporation of ChatGPT helped students to see models of cohesive writing, which improved their organizing skills.

Beyond language achievements, qualitative data from interviews demonstrated considerable increases in student enthusiasm and confidence. Learners reported feeling more motivated to write because ChatGPT provided rapid feedback and ideas, lowering anxiety and uncertainty during the writing process. This sense of empowerment is consistent with Dwivedi et al., (2023) who argue that AI tools increase learner autonomy by encouraging individual exploration and minimizing dependency on frequent teacher interaction. Several students stated that the interactive feature of ChatGPT made writing practice less daunting and more engaging, lending credence to technology's motivational role in language learning (Deci & Ryan, 2000). Despite these excellent results, one major problem emerged: some students admitted to leaning too heavily on AI-generated words. Rather than using ChatGPT as a support tool, a few students adopted complete AI-suggested structures or sentences without critical thinking. This finding is consistent with Kasneci et al., (2023) who warn that an overreliance on AI systems may limit possibilities for critical thinking, inventiveness, and self-regulated learning. Thus, while ChatGPT provided helpful scaffolding, it also underlined the importance of pedagogical assistance in ensuring that students utilize AI tools ethically, critically, and creatively. Overall, the findings show that ChatGPT can effectively improve undergraduate students' writing development, notably in terms of vocabulary, grammar, and coherence, while also increasing motivation and confidence. However, the risk of overreliance emphasizes the significance of combining AI use with instructional practices that promote independent thinking and originality in writing.

CONCLUSION AND SUGGESTIONS

The study suggests that ChatGPT is an effective teaching tool for developing English writing skills among students in the English Department at Bumi Persada University, Lhokseumawe. ChatGPT proved to be helpful in assisting students' academic writing growth by offering rapid feedback, producing writing ideas, and modeling language use. The study found that students made considerable improvements in four important areas: vocabulary richness, grammatical accuracy, textual coherence, and motivational involvement.

In particular, the incorporation of ChatGPT resulted in increased lexical diversity and more accurate word selections, supporting Laufer and Nation, (1995) thesis that vocabulary expansion is a key sign of writing proficiency. Grammatical correctness improved as students reduced frequent errors in tense and subject-verb agreement, which is consistent with Bitchener and Ferris, (2012b) who emphasize the importance of corrective feedback in L2 writing. Similarly, gains in coherence and logical organization support Halliday and Hasan's (2014) claim that cohesiveness is required for effective communication in academic writing. Beyond language aspects, students reported increased confidence and motivation, validating Deci and Ryan's (2000) assertion that positive feedback and autonomy promote intrinsic motivation. Nonetheless, while ChatGPT was extremely beneficial, the study also identified possible downsides, including students' proclivity to rely too heavily on AI-generated phrases without enough critical interaction. This finding underscores Kasneci et al., (2023) concern that over-reliance on AI may reduce originality and critical thinking. As a result, the incorporation of AI into higher education necessitates appropriate pedagogical practices that balance the benefits of AI aid with the development of independent learning and academic integrity.

Based on these findings, numerous recommendations are made for educators, students, and future researchers. ChatGPT should be integrated into English writing classes as a pedagogical support tool. However, this integration must be complemented by clear academic integrity requirements, ensuring that students use AI for learning objectives (such as idea development, vocabulary building, and grammar checking) rather than automatically writing full papers. This is consistent with Dwivedi et al., (2023) who emphasize the ethical and pedagogical implications of AI in education and advocate for regulations that protect uniqueness. Students should be taught to use ChatGPT as an addition to writing, not as a replacement. Training sessions could include strategies such as comparing AI input to self-revision, critically examining AI-generated recommendations, and incorporating AI support into the writing process. Such approaches help students improve their vocabulary and grammar while also encouraging critical thinking and creativity.

The current study included a relatively small sample size of twelve participants, limiting the generalizability of the findings. Thus, future research should involve larger and more diverse samples to see if similar consequences occur in different academic situations. Furthermore, longitudinal studies are required to determine the long-term impacts of ChatGPT on writing proficiency, autonomous learning, and critical thinking. As the use of AI in education grows, more research into both its pedagogical benefits and ethical hazards will be necessary (Kasneci et al., 2023). In conclusion, the study emphasizes ChatGPT's potential as a transformative educational technology that might improve students' English writing skills while simultaneously presenting new problems regarding dependency, authenticity, and ethical use. Adopting AI-assisted learning tools can help institutions like Bumi Persada University transition to more interactive and student-centered pedagogy. However, success is determined not just by the technology itself, but also by the supervision offered by instructors and the responsibility demonstrated by students.

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