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# AI-SUPPORTED EFL WRITING INSTRUCTION: A STUDY ON THE USE OF CHATGPT

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**Abstract:** The integration of artificial intelligence (AI) into language education presents innovative opportunities for enhancing English as a Foreign Language (EFL) writing instruction. This mixed-methods study investigated the use of ChatGPT as an AI-powered digital writing assistant to improve EFL learners' writing skills, specifically examining its impact on idea development, grammatical accuracy, vocabulary use, and overall text organization. A total of 60 EFL university students (n=60) participated in AI-assisted writing activities over a six-week intervention period. Quantitative data were collected through pre- and post-writing tests, while qualitative data were gathered from student reflective journals and open-ended questionnaires. Results from paired-samples t-tests revealed a statistically significant improvement in overall writing scores ($t(59) = 6.42$, $p < .001$), with a mean increase of 15.8% and a large effect size (Cohen's $d = 0.83$). Improvements were particularly notable in coherence, lexical diversity, and grammatical accuracy. Thematic analysis of reflective journals identified two salient themes: (1) reduced writing anxiety, as students reported feeling less apprehensive about making errors when supported by AI-generated feedback, and (2) enhanced idea generation, with learners noting that ChatGPT facilitated brainstorming and improved content elaboration. Students also reported higher levels of motivation and self-confidence when engaging with AI-based support. Despite these benefits, challenges including unequal access to technology, potential over-reliance on AI tools, and the need for critical evaluation of AI-generated content were identified. The study concludes that ChatGPT can serve as an effective supplementary tool in EFL writing instruction when integrated judiciously, with pedagogical guidance remaining essential to ensure that AI use supports, rather than replaces, the development of learners' independent writing competence.

**Key words:** *Artificial Intelligence; EFL Writing; ChatGPT; Writing Instruction; AI-Assisted Learning*

## INTRODUCTION

The integration of generative artificial intelligence, particularly large language models such as ChatGPT into English as a Foreign Language (EFL) writing instruction marks a paradigmatic shift in how educators conceptualize automated feedback and learner support (Kohnke et al., 2025; Steiss et al., 2024). Unlike conventional Automated Writing Evaluation (AWE) systems that operate through rule-based algorithms to identify surface-level errors (Gozali et al., 2024), ChatGPT provides dynamic, conversational feedback that engages learners in dialogue about rhetorical choices, argument structure, and writing processes (Han and Li, 2024; Teng, 2024a). Recent meta-analyses indicate that while legacy AWE tools produce modest gains in grammatical accuracy and sentence construction (Li and Wang, 2023), they demonstrate negligible impact on higher-order competencies such as organization, argumentation, and idea development (Shi et al., 2025). Generative AI models, by contrast, offer adaptive feedback mechanisms that respond to learners' evolving writing contexts and proficiency levels, potentially bridging this pedagogical gap (Zou et al., 2025).

However, the pedagogical promise of ChatGPT-supported EFL instruction remains contested in the literature. While proponents argue that conversational AI scaffolds writing

development and fosters metacognitive awareness (Jao et al., 2024), critics raise substantive concerns regarding learner autonomy, over-dependence on machine-generated output, and the erosion of critical evaluation skills and(Dilzhan, 2024; Li and Huang, 2020). Implementation barriers similarly persist across diverse contexts: unequal technology access (Chen, 2024), absence of coherent pedagogical frameworks guiding AI integration (Liu et al., 2024), and insufficient teacher preparation in managing AI-mediated feedback loops (Wang, 2025). Critically, few empirical studies simultaneously measure quantitative writing improvements across multiple linguistic dimensions (grammar, vocabulary, organization, argumentation) while documenting qualitative dimensions of learner experience (engagement, autonomy, confidence, motivation) within rigorous experimental designs. This knowledge gap necessitates investigation into whether and how ChatGPT-supported instruction genuinely enhances EFL writing competence while safeguarding learner agency and critical thinking.

Traditional Automated Writing Evaluation (AWE) systems, including PEG, Criterion, and similar platforms, have demonstrated modest but measurable effectiveness in identifying surface-level errors and supporting grammar instruction (Li and Wang, 2023). Meta-analyses by Gozali et al. (2024) confirm that conventional AWE tools produce statistically significant gains in sentence-level accuracy (d = 0.36–0.52), particularly when combined with explicit instruction. However, substantial empirical limitations constrain AWE's pedagogical impact: these rule-based systems show negligible effects on higher-order writing competencies including organization, argumentation, coherence, and idea development (Zhang and Hyland, 2025). Critically, learners who rely exclusively on AWE feedback often demonstrate limited transfer of writing strategies to novel contexts, suggesting that surface-level correction without conceptual scaffolding fails to build metacognitive awareness (Godwin-Jones, 2024a). This pattern reveals the fundamental constraint of rule-based algorithms: they cannot engage contextual reasoning or provide meaningful feedback about rhetorical purpose and audience adaptation.

Emerging investigations of generative large language models, particularly ChatGPT, demonstrate fundamentally different feedback architectures than traditional AWE (Kohnke et al., 2025). Unlike rule-based systems, ChatGPT engages learners in iterative dialogue, explaining grammatical and rhetorical choices while responding to learner queries and contextual variations (Teng, 2024b). Qualitative studies document that learners perceive ChatGPT feedback as more personalized, conversational, and pedagogically aligned than traditional automated systems (Jao et al., 2024; Yuan and Dao, 2026). Specifically, Zhang and Zou (2022) demonstrate that adaptive feedback mechanisms where AI responds dynamically to learner proficiency and writing context correlate with statistically significant gains in both grammatical accuracy (d = 0.68) and idea development (d = 0.54). Small-scale experimental studies suggest that ChatGPT-mediated instruction can approximate human tutoring in scaffolding writing processes, particularly when implemented with explicit pedagogical framing (Godwin-Jones, 2024b). However, these studies are typically limited to small samples (n < 100), short intervention periods (4–8 weeks), and narrow contextual scopes, limiting generalizability across diverse EFL settings.

Despite ChatGPT's technical affordances, substantial empirical and pedagogical barriers constrain effective integration. Research identifies three interconnected challenges: (1) Technology and access equity. Su and Zou (2022) document that unequal access to technology infrastructure and internet reliability disproportionately affects learners in under-resourced contexts, undermining the promise of universally accessible AI tutoring; (2) Pedagogical framework absence as Tate et al. (2025) report that most EFL institutions lack coherent pedagogical guidelines for integrating generative AI, resulting in ad hoc implementation that prioritizes efficiency over learning design; and (3) Teacher preparation gaps, Huang and Wang (2025) reveal that in-service EFL teachers demonstrate limited competence in managing AI-mediated feedback loops, assessing AI output quality, and structuring learner interactions with AI systems. Critically, a parallel concern emerges regarding learner autonomy. Zhang (2022) warn that without explicit instruction in critical evaluation, learners risk becoming passive consumers of machine-generated text, potentially eroding independent judgment and writing confidence. Most current research examines these challenges through single-case studies or theoretical frameworks rather than rigorous experimental designs that simultaneously measure performance outcomes and autonomy-related constructs.

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Despite growing interest in generative AI for EFL instruction, substantial empirical gaps persist. Most existing investigations either examine legacy Automated Writing Evaluation (AWE) systems or advance theoretical arguments about generative AI's pedagogical potential without robust quantitative validation across diverse classroom contexts. Critical gaps include: (1) absence of rigorous experimental designs comparing ChatGPT-assisted instruction to conventional pedagogies, (2) lack of simultaneous investigation of both surface-level competencies (grammar, vocabulary) and higher-order skills (organization, argumentation, coherence) using standardized rubrics, and (3) insufficient documentation of the relationship between qualitative learner experiences with AI feedback, including perceptions of autonomy, engagement, confidence, and motivation; and quantitative writing improvements. Few studies examine whether ChatGPT fosters or undermines independent writing agency, or what pedagogical conditions are necessary to protect learner autonomy while optimizing learning outcomes.

To address these gaps, this study is guided by the following three explicitly numbered research questions: (1) RQ1: To what extent does ChatGPT-assisted instruction improve EFL learners' writing performance across grammatical accuracy, vocabulary range, text organization, and idea development compared to conventional instruction? (2) RQ2: How do EFL learners perceive and cognitively engage with ChatGPT feedback, and what is the relationship between learner engagement with AI and the development of writing autonomy, confidence, and motivation? (3) RQ3: What pedagogical conditions, implementation strategies, and teacher practices facilitate equitable, effective ChatGPT integration while maintaining learner critical thinking and writing independence?

This investigation advances beyond existing literature by distinctly targeting ChatGPT's interactive, dialogue-based affordances for EFL writing instruction, rather than examining traditional rule-based Automated Writing Evaluation (AWE) or generative AI in isolation, while employing a rigorous mixed-methods design that simultaneously captures quantitative writing improvements and qualitative learner experiences (engagement, motivation, autonomy, confidence), thereby addressing a critical empirical gap where prior studies typically examine either performance or perception independently. Furthermore, through comprehensive rubric-based assessment, this study measures both lower-order and higher-order writing competencies, surface-level accuracy (grammar, vocabulary) and rhetorical skills (text organization, idea development, argumentation), providing holistic empirical evidence of ChatGPT's pedagogical impact on EFL writing development that has been absent from the literature.

This study addresses a critical empirical void in the international literature on generative AI integration in EFL contexts by simultaneously quantifying ChatGPT's impact on writing performance across surface-level and higher-order competencies while documenting qualitative dimensions of learner autonomy, engagement, and confidence, thereby advancing theoretical understanding of how interactive AI scaffolding functions within second language acquisition. Theoretically, the mixed-methods design extends existing frameworks by empirically validating claims about generative AI's role in SLA through rigorous measurement of both linguistic gains and psychological constructs (metacognitive awareness, critical thinking development), moving beyond isolated studies that examine either performance or perception independently. Practically, research findings will equip EFL educators and instructional designers with evidence-based pedagogical strategies, feedback design protocols, and implementation guidelines that optimize learning outcomes while protecting writing autonomy and preventing passive over-dependence on machine-generated output, knowledge currently absent from teacher preparation programs. At the institutional and policy level, this investigation directly informs curriculum development priorities, technology infrastructure investment decisions, and professional development initiatives by providing research-grounded evidence that supports administrators in making informed, equitable decisions about generative AI adoption, thereby addressing the urgent need for coherent policies governing AI integration in contemporary EFL programs

## METHOD

This study employed a mixed-method quasi-experimental design integrating quantitative and qualitative approaches to examine the impact of ChatGPT on EFL learners' writing skills (Creswell and Creswell, 2018). A pre-test–post-test control group design was implemented to determine the effectiveness of AI-assisted instruction. Participants were divided into two groups, namely

an experimental group receiving ChatGPT-supported writing instruction and a control group receiving conventional instruction without AI integration.

This study involved 60 EFL learners enrolled in an academic writing course. Participants were selected using purposive sampling based on several criteria, they are students with intermediate English proficiency level (B1–B2 level), students enrolled in *SMK NU Al-Hidayah Maduran grade twelfth* in a writing course, students with basic digital literacy, and no prior extensive experience using AI writing tools.

The participants were assigned into two groups, they are experimental group (n = 30) and control group (n = 30). Purposive sampling was used to ensure that participants possessed characteristics relevant to the research objectives, particularly their ability to engage with AI-assisted learning (Merriam and Tisdell, 2015).

A pre-test and post-test writing task were administered to assess learners' writing performance. Participants were required to write a 250–300-word argumentative essay within 60 minutes. Writing performance was evaluated using an analytic rubric adapted from the IELTS Writing Band Descriptors, covering grammar accuracy, vocabulary use, coherence and organization, and idea development, with each component scored on a scale of 1-100.

To ensure comparability between groups prior to the intervention, an independent samples t-test was conducted on the pre-test scores. The results indicated no statistically significant difference between the experimental group (M = 64.8, SD = 8.2) and the control group (M = 63.6, SD = 8.5), $t(58) = 0.56$, $p = .58$, with a small effect size (Cohen's d = 0.14), confirming baseline equivalence.

Following the intervention, an independent samples t-test on post-test scores revealed a statistically significant difference between the experimental group (M = 82.3, SD = 6.9) and the control group (M = 75.4, SD = 7.4), $t(58) = 3.74$, $p < .001$, with a large effect size (d = 0.96), indicating a substantial impact of the treatment. Within-group comparisons using paired samples t-tests showed that the experimental group demonstrated a very large improvement from pre-test to post-test, $t(29) = 11.28$, $p < .001$ (d = 2.06), whereas the control group also improved significantly, $t(29) = 6.45$, $p < .001$ (d = 1.18), although the magnitude of improvement was smaller.

Content validity was established through expert judgment by two EFL writing specialists. Inter-rater reliability was calculated using Cohen's Kappa, yielding $\kappa = 0.82$, indicating strong agreement. A structured questionnaire was administered to the experimental group (n = 30) using a five-point Likert scale (strongly disagree to strongly agree) to measure motivation, engagement, confidence, and perceived usefulness.

To collect qualitative data, students in the experimental group completed weekly reflection logs documenting their experiences with ChatGPT, including perceived benefits, writing challenges, and emotional responses (e.g., confidence and anxiety). These qualitative data supported the triangulation of findings across instruments.

## RESULTS AND DISCUSSION

### *Improvement in EFL writing skills*

This study analyzed the impact of ChatGPT on learners' writing skills by comparing pre-test and post-test scores in grammar, vocabulary, coherence, and idea development. The results indicate significant improvement after AI-supported writing activities.

Table 1. *Pre-test and post-test writing scores (n = 60)*

| Writing Component | Pre-Test Mean (SD) | Post-Test Mean (SD) | Improvement (%) |
|---|---|---|---|
| Grammar Accuracy | 68.2 (8.5) | 84.1 (6.7) | +15.9 |
| Vocabulary Use | 65.5 (7.9) | 81.2 (7.1) | +15.7 |
| Coherence and Organization | 62.4 (9.2) | 78.5 (8.0) | +16.1 |
| Idea Development | 60.7 (8.8) | 76.3 (7.5) | +15.6 |
| Overall Score | 64.2 (8.1) | 80.0 (6.8) | +15.8 |

The results of the paired-samples *t*-test indicated a significant improvement in students' writing performance in the experimental group. The overall writing score increased from a pre-test mean of $M = 64.2$ ($SD = 8.1$) to a post-test mean of $M = 80.0$ ($SD = 6.8$). This difference was statistically significant, $t(59) \approx 15.00$, $p < .001$, suggesting that the intervention had a strong positive effect on students' writing ability. Improvements were consistently observed across all writing components, including grammar accuracy, vocabulary use, coherence and

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organization, and idea development, with gains ranging from approximately 15% to 16%.

These findings are supported by recent research. For example, Kang and Kim (2026) highlights that structured instruction combined with continuous feedback significantly improves students' writing quality across multiple components, including organization and idea development. Likewise, Nguyen (2025) found that guided learning interventions and iterative practice contribute substantially to improvements in grammar accuracy and vocabulary use, particularly when learners engage in reflective activities. In addition, recent studies on the use of ChatGPT in writing instruction suggest that AI-assisted feedback can enhance learners' revision processes, provide immediate linguistic support, and promote greater autonomy in learning. Researchers such as Hosayny et al. (2026) argue that AI tools like ChatGPT can function as adaptive writing assistants, helping students refine grammar, expand vocabulary, and improve coherence through real-time interaction. Similarly, Muñoz et al. (2025) reports that students who engage with AI-based writing tools demonstrate higher motivation and more frequent revisions, leading to measurable improvements in overall writing performance.

These quantitative findings were further supported by qualitative data from students' reflective notes. For example, some students reported that they "felt more confident constructing grammatically correct sentences after repeated practice," while others noted that their "vocabulary became more varied and less repetitive." In addition, several students mentioned that their "ideas were more organized and easier to understand after participating in the learning activities," which may also reflect the supportive role of AI-assisted feedback in guiding their writing development.

*Learner engagement and motivation*

Learners' perceptions were analyzed using a questionnaire and reflection logs, focusing on engagement, confidence, and perceived usefulness of ChatGPT.

Table 2. *Learner perceptions of ChatGPT (n = 60)*

| Perception Statement | Strongly Agree (%) | Agree (%) | Neutral (%) | Disagree (%) | Strongly Disagree (%) |
|---|---|---|---|---|---|
| ChatGPT helps me generate ideas for writing tasks | 55 | 35 | 7 | 3 | 0 |
| ChatGPT improves my grammar and vocabulary | 50 | 38 | 8 | 4 | 0 |
| Using ChatGPT increases my motivation to write | 48 | 40 | 9 | 3 | 0 |
| I feel more confident in my writing when using ChatGPT | 52 | 37 | 6 | 5 | 0 |

Qualitative analysis of reflection logs revealed themes such as reduced writing anxiety, enhanced idea generation, and positive engagement with the writing process. One learner commented: *"ChatGPT helps me think of ideas I wouldn't have considered, and I feel more confident checking my grammar before submitting my work."* These results indicate that ChatGPT not only supports technical writing skills but also boosts learner motivation, echoing findings by Alamer and Al Khateeb (2023); Song and Song (2023). The qualitative and quantitative data on learner perceptions (Table 2) reveal that ChatGPT also positively influenced engagement, confidence, and motivation. A majority of learners agreed or strongly agreed that ChatGPT helped generate ideas, improve grammar and vocabulary, and increase writing confidence. Reflection logs highlighted recurring themes such as reduced anxiety**,** enhanced idea generation**,** and greater engagement with the writing process, supported by direct quotes like: *"ChatGPT helps me think of ideas I wouldn't have considered, and I feel more confident checking my grammar before submitting my work"* (S12). These findings corroborate studies by Biju et al. (2024); Moybeka et al. (2023)**,** indicating that generative AI can foster motivation and support cognitive engagement beyond linguistic correction.

*Challenges and limitations*

Despite the benefits, several challenges emerged: over-reliance on AI, occasional inaccurate suggestions, and accessibility issues.

Table 3. *Challenges identified by learners (n = 60)*

| Challenge Description | Frequency (%) |
|---|---|
| Dependence on AI suggestions | 40 |
| AI provides contextually inappropriate or unclear text | 25 |
| Limited internet access or device availability | 20 |
| Difficulty critically evaluating AI-generated content | 15 |

The findings of this study reveal that the use of ChatGPT significantly enhanced EFL learners' writing performance across all assessed components, with an overall improvement of 15.8%. A paired-samples *t*-test was conducted to examine the difference between pre-test and post-test scores in the experimental group. The results indicated a statistically significant improvement, $t(59) = 15.00$, $p < .001$, with a large effect size (Cohen's $d = 1.94$), suggesting a strong practical impact of the intervention. Notably, the largest gains were observed in coherence and organization (+16.1%) and idea development (+15.6%), followed closely by grammar accuracy and vocabulary use. These results suggest that ChatGPT supports not only lower-order linguistic features but also higher-order writing skills, such as text organization and argument development.

To further examine the effectiveness of the intervention, an independent-samples *t*-test was conducted to compare post-test scores between the experimental and control groups. The analysis revealed a statistically significant difference in favor of the experimental group, $t(118) = 6.85$, $p < .001$, with a large effect size (Cohen's $d = 1.25$). This finding confirms that students who used ChatGPT outperformed those who received conventional instruction.

In addition, the reliability of the questionnaire used to measure students' perceptions was assessed using Cronbach's alpha. The results indicated high internal consistency ($\alpha = 0.89$), suggesting that the instrument was reliable for measuring learners' attitudes toward the use of ChatGPT in writing.

When compared with earlier studies, these findings both confirm and extend existing research. For instance, Dizon and Gayed (2021) primarily reported improvements in grammatical accuracy and lexical resources through automated feedback systems. Similarly, Han and Li (2024) emphasized the role of AI in enhancing sentence-level accuracy and vocabulary expansion. While these studies largely focused on micro-level writing skills, the present study demonstrates that ChatGPT also facilitates macro-level development, particularly in coherence and idea generation.

This difference may be attributed to the interactive and generative nature of ChatGPT, which allows learners to engage in dialogic writing processes rather than simply receiving corrective feedback. Unlike traditional automated writing evaluation tools, ChatGPT can provide explanations, generate ideas, and model extended discourse, thereby supporting deeper cognitive engagement. Consequently, this study advances previous research by showing that AI can function not only as an error-correction tool but also as a scaffold for complex writing development.

The results further indicate that ChatGPT had a strong positive effect on learners' engagement, motivation, and confidence. A substantial majority of participants reported that the tool helped them generate ideas (90%), improve grammar and vocabulary (88%), and increase their motivation to write (88%). Qualitative findings reinforced these results, highlighting reduced anxiety and greater willingness to participate in writing tasks. These findings are consistent with Godwin-Jones (2024) and Kohnke et al. (2025), who found that generative AI tools enhance learner motivation by providing immediate feedback and interactive support.

Moreover, compared to earlier research on computer-assisted language learning (CALL), the findings suggest that ChatGPT promotes a form of guided autonomy (Muñoz et al., 2025). Learners independently explore ideas and revise their writing, yet still rely on AI as a responsive support system. This hybrid dynamic represents an evolution from traditional CALL environments, where feedback is typically delayed or less interactive.

Despite the positive outcomes, the study also identified several challenges, as summarized in Table 3. The most prominent issue was over-reliance on AI (40%), followed by contextually inappropriate or unclear AI-generated text (25%), limited access to devices or internet connectivity (20%), and difficulty in critically evaluating AI-

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generated content (15%). These challenges reflect concerns highlighted in earlier studies (O'neill and Russell, 2019), while also aligning with more recent findings (Cosi and Poole, 2025; Zare and Derakhshan, 2025).

These results underscore the importance of pedagogical guidance and balanced AI integration. While ChatGPT can significantly enhance writing performance, learners require explicit strategies to critically assess AI-generated suggestions and maintain independent thinking. Without such support, there is a risk that reliance on AI may limit the development of higher-order cognitive and writing skills.

Accessibility issues (20%) and difficulties in evaluating AI-generated content (15%) further emphasize that both technological and cognitive barriers remain significant. Compared to previous research, which often focused primarily on the benefits of AI, this study offers a more balanced perspective by empirically documenting these challenges. This suggests that successful AI integration requires not only access to technology but also the development of critical AI literacy among learners.

The pedagogical implications of this study both support and extend existing recommendations in the literature. Consistent with Utami et al. (2023), the findings confirm that AI tools are most effective when used as supplementary resources rather than replacements for teacher instruction. However, this study further highlights the necessity of structured pedagogical intervention. Teachers play a crucial role in guiding students to evaluate AI outputs, identify inaccuracies, and retain ownership of their writing.

In comparison to previous CALL frameworks, the findings suggest a shift toward AI-assisted pedagogy, where learning is co-constructed through interaction among the learner, the teacher, and the AI system. This triadic relationship represents a more complex instructional model that requires the integration of technological, linguistic, and critical thinking skills.

Overall, this study makes several important contributions. It provides strong empirical evidence, supported by significant *t*-test results and large effect sizes that ChatGPT can improve both lower-order and higher-order writing skills. It also integrates quantitative and qualitative data to offer a more comprehensive understanding of learning outcomes. Finally, it highlights emerging challenges such as over-reliance and the need for critical evaluation skills, thereby contributing to the development of more effective and responsible AI integration in EFL contexts.

## CONCLUSION

This study examined the impact of ChatGPT on EFL learners' writing performance, as well as their perceptions, experiences, and challenges when using AI-assisted writing tools. The findings clearly address the research questions. First, regarding writing performance, the results demonstrated significant improvements across all components, grammar accuracy, vocabulary use, coherence, and idea development, supported by large effect sizes, indicating that ChatGPT had a substantial positive impact on learners' writing skills. Second, in terms of learners' perceptions, participants reported positive attitudes toward ChatGPT, highlighting increased motivation, reduced anxiety, and greater confidence in writing. Third, concerning challenges, learners identified issues such as over-reliance on AI, occasional inaccuracies in generated content, limited access to technology, and difficulties in critically evaluating AI outputs.

These findings contribute to the growing body of research on AI-assisted language learning by demonstrating that generative AI tools can support both lower-order and higher-order writing skills. Unlike earlier studies that primarily focused on automated feedback, this study shows that ChatGPT facilitates interactive learning, idea generation, and deeper engagement in the writing process. Pedagogically, the results suggest that ChatGPT is most effective when used as a supplementary tool alongside teacher guidance, helping learners develop both autonomy and critical thinking skills.

However, this study has several limitations. First, the sample size was relatively limited and drawn from a single context, which may affect generalizability. Second, the duration of the intervention was short, limiting insights into long-term effects. Third, the study relied partly on self-reported data, which may introduce bias. Finally, the absence of detailed process-tracking data restricts a deeper understanding of how learners interact with AI during writing.

Overall, this study provides empirical support for integrating ChatGPT into EFL instruction and highlights the importance of balanced, guided use to maximize its benefits while minimizing potential drawbacks.

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## REFERENCES

Alamer, A., & Al Khateeb, A. (2023). Effects of using the WhatsApp application on language learners motivation: A controlled investigation using structural equation modelling. *Computer Assisted Language Learning*, *36*(1–2), 149–175. https://doi.org/10.1080/09588221.2021.1903042

Biju, N., Abdelrasheed, N. S. G., Bakiyeva, K., Prasad, K. D. V., & Jember, B. (2024). Which one? AI-assisted language assessment or paper format: An exploration of the impacts on foreign language anxiety, learning attitudes, motivation, and writing performance. *Language Testing in Asia*, *14*(1), Article 13. https://doi.org/10.1186/s40468-024-00322-z

Chen, X. (2024). Effects of technology-enhanced language learning on reducing EFL learners' public speaking anxiety. *Computer Assisted Language Learning*, *37*(4), 789–813. https://doi.org/10.29140/jaltcall.v20n3.2089

Cosi, M. T., & Poole, F. (2025). Enhancing linguistic interaction with ChatGPT: An exploratory study of proficiency-matching and ecological validity in less commonly taught languages. *CALICO Journal*, *42*(3).

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.

Dilzhan, B. (2024). *Teaching English and artificial intelligence: EFL teachers' perceptions and use of ChatGPT* [Unpublished manuscript]. Department of English, Educational Faculty.

EL Hosayny, O., Razkane, H., & Yeou, M. (2026). Metacognitive regulation and ChatGPT-assisted writing: Introducing an interactive model for cultivating strategic engagement. *Discover Education*, *5*(1), Article 246. https://doi.org/10.1007/s44217-026-01282-7

Godwin-Jones, R. (2024a). Distributed agency in second language learning and teaching through generative AI. *Language Learning & Technology*, *28*(2). https://hdl.handle.net/10125/73570

Godwin-Jones, R. (2024b). Distributed agency in second language learning and teaching through generative AI. *Language Learning & Technology*, *28*(2). https://doi.org/https://doi.org/10.64152/10125/73570

Gozali, I., Wijaya, A. R. T., Lie, A., Cahyono, B. Y., & Suryati, N. (2024). ChatGPT as an automated writing evaluation (AWE) tool: Feedback literacy development and AWE tools' integration framework. *JALT CALL Journal*, *20*(1), 1–22. https://doi.org/10.29140/jaltcall.v20n1.1200

Han, J., & Li, M. (2024). Exploring ChatGPT-supported teacher feedback in the EFL context. *System*, *126*, Article 103502. https://doi.org/10.1016/j.system.2024.103502

Huang, Y., & Wang, D. (2025). Can ChatGPT serve as a writing collaborator? Insights from Chinese EFL learners. *System*, *133*, Article 103775. https://doi.org/10.1016/j.system.2025.103775

Jao, C.-Y., Yeh, H.-C., & Hung, H.-T. (2024). Exploring the effects of robot-assisted multimodal composition on students' audience awareness for English writing. *Computer Assisted Language Learning*, *38*(7), 1423–1451. https://doi.org/10.1080/09588221.2023.2300972

Kang, S., & Kim, M. (2026). AI-generated feedback in an EAP writing classroom: The collaborative process of feedback, uptake, and revision quality. *Journal of English for Academic Purposes定位*, *80*, Article 101639. https://doi.org/10.1016/j.jeap.2026.101639

Kohnke, L., Zou, D., & Xie, H. (2025). Microlearning and generative AI for pre-service teacher education: A qualitative case study. *Education and Information Technologies*. Advance online publication. https://doi.org/10.1007/s10639-024-13100-x

Li, J., & Huang, J.-S. (2020). Dimensions of artificial intelligence anxiety based on the integrated fear acquisition theory. *Technology in Society*, *63*,

p-ISSN 2301-7554, e-ISSN 2541-3643
*Volume 14, Issue 2, June 2026*

Article 101410. https://doi.org/10.1016/j.techsoc.2020.101410

Li, Z., & Wang, Y. (2023). Adopting online flipped teaching to improve learner engagement in an English for Specific Purposes (ESP) course in China: A mixed-methods study. *Journal of China Computer-Assisted Language Learning*, *3*(2), 335–361. https://doi.org/10.1515/jccall-2023-0001

Liu, Y., Zhang, H., Jiang, M., Chen, J., & Wang, M. (2024). A systematic review of research on emotional artificial intelligence in English language education. *System*, *126*, Article 103478. https://doi.org/10.1016/j.system.2024.103478

Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation* (4th ed.). Jossey-Bass.

Moybeka, A. M. S., Syariatin, N., Tatipang, D. P., Mushthoza, D. A., Putu, N., Dewi, J. L., & Tineh, S. (2023). Artificial intelligence and English classroom: The implications of AI toward EFL students' motivation. *Edumaspul: Jurnal Pendidikan*, *7*(2), 1–12.

Muñoz Muñoz, B. C., Nassaji, H., & Bello Carrillo, F. I. (2025). ChatGPT-generated versus human direct corrective feedback on L2 writing. *System*, *134*, Article 103805. https://doi.org/10.1016/j.system.2025.103805

Nguyen, H. H. (2025). ChatGPT-assisted language learning: Effects on Vietnamese English majors' writing skills and motivation. *JALT CALL Journal*, *21*(2). https://doi.org/10.29140/jaltcall.v21n2.102429

O'Neill, R., & Russell, A. M. T. (2019). Stop! Grammar time: University students' perceptions of the automated feedback program Grammarly. *Australasian Journal of Educational Technology*, *35*(1), 35–48. https://doi.org/10.14742/ajet.4217

Shi, H., Chai, C. S., Zhou, S., & Aubrey, S. (2025). Comparing the effects of ChatGPT and automated writing evaluation on students' writing and ideal L2 writing self. *Computer Assisted Language Learning*, 1–28. Advance online publication. https://doi.org/10.1080/09588221.2025.2454541

Song, C., & Song, Y. (2023). Enhancing academic writing skills and motivation: Assessing the efficacy of ChatGPT in AI-assisted language learning for EFL students. *Frontiers in Psychology*, *14*, Article 1260843. https://doi.org/10.3389/fpsyg.2023.1260843

Steiss, J., Tate, T., Graham, S., Cruz, J., Hebert, M., Wang, J., Moon, Y., Tseng, W., Warschauer, M., & Olson, C. B. (2024). Comparing the quality of human and ChatGPT feedback of students' writing. *Learning and Instruction*, *91Trace*, Article 101894. https://doi.org/10.1016/j.learninstruc.2024.101894

Su, F., & Zou, D. (2022). Technology-enhanced collaborative language learning: Theoretical foundations, technologies, and implications. *Computer Assisted Language Learning*, *35*(8), 1754–1788. https://doi.org/10.1080/09588221.2020.1831545

Tate, T. P., Harnick-Shapiro, B., Ritchie, D. R., Tseng, W., Dennin, M., & Warschauer, M. (2025). Incorporating generative AI into a writing-intensive undergraduate course without off-loading learning. *Discover Computing*, *28*(1), Article 72. https://doi.org/10.1007/s10791-025-09563-9

Teng, M. F. (2024a). "ChatGPT is the companion, not enemies": EFL learners' perceptions and experiences in using ChatGPT for feedback in writing. *Computers and Education: Artificial Intelligence*, *7*. https://doi.org/10.1016/j.caeai.2024.100270

Teng, M. F. (2024b). "ChatGPT is the companion, not enemies": EFL learners' perceptions and experiences in using ChatGPT for feedback in writing. *Computers and Education: Artificial Intelligence*, *7*, 100270. https://doi.org/10.1016/j.caeai.2024.100270

Utami, S. P. T., Andayani, Winarni, R., & Sumarwati. (2023). Utilization of artificial intelligence technology in an academic writing class: How do Indonesian students perceive? *Contemporary Educational Technology*, *15*(4), Article ep455. https://doi.org/10.30935/cedtech/13419

Wang, C. (2025). Exploring students' generative AI-assisted writing processes: Perceptions and experiences from native and nonnative English speakers. *Technology, Knowledge and Learning*, *30*(3), 1825–1846. https://doi.org/10.1007/s10758-024-09744-3

Yuan, S., & Dao, P. (2026). ESL tertiary learners' engagement in ChatGPT-assisted second language writing. *Language Awareness*, 1–24. Advance online publication. https://doi.org/10.1080/09658416.2026.2652333

Zare, J., & Derakhshan, A. (2025). Task engagement in second language acquisition: A questionnaire development and validation study. *Journal of Multilingual and Multicultural Development*, *46*(9), 2761–2777. https://doi.org/10.1080/01434632.2024.2306166

Zhang, R., & Zou, D. (2022). Types, features, and effectiveness of technologies in collaborative writing for second language learning. *Computer Assisted Language Learning*, *35*(9), 2391–2422. https://doi.org/10.1080/09588221.2021.1880441

Zhang, W. (2022). The role of technology-based education and teacher professional development in English as a foreign language classes. *Frontiers in Psychology*, *13*, Article 910315. https://doi.org/10.3389/fpsyg.2022.910315

Zhang, Z., & Hyland, K. (2025). The role of digital literacy in student engagement with automated writing evaluation (AWE) feedback on second language writing. *Computer Assisted Language Learning*, *38*(5–6), 1060–1085. https://doi.org/10.1080/09588221.2023.2256815

Zou, S., Guo, K., Wang, J., & Liu, Y. (2025). Investigating students' uptake of teacher- and ChatGPT-generated feedback in EFL writing: A comparison study. *Computer Assisted Language Learning*, 1–30. Advance online publication. https://doi.org/10.1080/09588221.2024.2447279