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Teacher-Assisted Generative AI Integration in EFL Writing Instruction: An Exploratory Action Research Study on Feedback and Assessment

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Abstract

Generative Artificial Intelligence (GAI) has an increasing impact on higher education, particularly in the writing classroom since the proliferation of GAI tools and their omnipresent use in writing has brought it into sharp focus. However, other dynamics of its use by teachers have not yet been fully unveiled. This study examines novice teachers' collaboration with AI in order to assess the students' written tasks, particularly investigating the types and the quality of the provided feedback. This study followed an exploratory action research design, and it involved 23 first year bachelor students and 2 teachers of written comprehension and production. The design relied on asking the students to write paragraph outlines during three stages of drafting, and the teachers identified areas of strengths and weaknesses, then insert the prompt to Gemini AI in order to highlight other aspects worth of addressing at the stages of brainstorming, outlining and revising the outline. At every stage, the students were provided with feedback to refine their writing. The results indicate that teachers' collaboration with Gemini AI highlights new dimensions in assessing the students' writing via the provision of timely feedback and making learning visible; in addition, reliance on Gemini contributes to personalized, differentiated learning opportunities thanks to feedback immediacy, descriptive feedback and feedforward at the level of generating ideas, language proficiency, context and tone.

Keywords: Generative Artificial Intelligence, writing skill, assessment, feedback, exploratory action research

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Introduction

Success at university depends on written proficiency in academic situations. However, several studies indicate that EFL students face some challenges in academic writing due to deficiencies in academic style and language mechanics (Annab, 2015). To address these challenges, there is an omnipresent endeavour towards using Generative Artificial Intelligence (GAI) tools by the students to cater for their needs, help with writing assignments and homework. In educational settings, GAI has gained momentum and is assisting the students in accomplishing many tasks. For instance, AI tools can create personalized, inclusive opportunities (Shahzad *et al.*, 2024; Maphoto *et al.*, 2024; Sahli *et al.*, 2024), and they can perform other tasks throughout the academic writing process such as drafting and revising texts such as literature reviews and synthesizing information from different documents (Nguyen *et al.*, 2024). Despite the fact that the role of GAI is transformative since it brings many advantages to the writing process and product, it has also raised some controversies regarding the violation of the ethical principles of academic conduct via plagiarism and cheating. Some studies voiced their concerns about the proliferation of GAI and their negative impact on the students' writing performance. Marzuki *et al.* (2024) highlighted that over-reliance on GAI may lead to demotivate the students to develop their critical thinking and deskill them as they may engage in laziness and strive for ready-made texts via GAI. Similarly, Tseng and Lin (2024) expressed their fear about the students' loss of their academic voice and authorship if they collaborate with AI, which may also contribute to diminishing personal connection and depth while writing. Hence, it is crucial to consider the pedagogical implications of implementing Generative Artificial Intelligence in teaching and assessing writing in Higher Education via the participation of teachers in adopting these technologies to enhance the writing process and promote active engagement in learning. Furthermore, writing is witnessing a paramount shift in assessment via AI, which calls for reconsidering teaching and feedback provision in the writing classroom to ensure optimal writing experience that helps develop the students' writing skills. This study argues that while the students' reliance on GAI is widely discussed in the literature, the teachers' use of GAI remains underexplored in the Algerian context. Thus, this study aims at examining novice teachers' collaboration with AI in assessing EFL students' written tasks by offering a practical model for integrating GAI in writing pedagogy and assessment. Novice teachers were purposively selected for this study for two primary reasons. First, early-career educators often demonstrate greater openness to experimenting with emerging technologies in their pedagogical practice (Johnson *et al.*, 2020). Second, novice teachers frequently report feeling underprepared to provide comprehensive, nuanced feedback on student writing due to limited experience (Ferris, 2014). Collaborating with AI offers these teachers a scaffold to enhance their feedback provision while developing their assessment expertise. Additionally, examining novice teachers' engagement with AI provides insights into how teacher education programs might better prepare future educators for

technology-integrated writing instruction. The following research questions are formulated accordingly:

1. What is the role of Gemini AI in the writing process?
2. How is Gemini AI implemented in the writing process along with the teachers' feedback?

Review of Literature

The emergence of Generative Artificial Intelligence has introduced transformative possibilities for writing instruction. Barrot (2023) investigated AI writing tools' impact on student writing quality, highlighting that these tools significantly improved surface-level features including grammar, mechanics, and lexis. However, Barrot's study also revealed some limitations. For example, AI-generated texts often lacked depth, originality, and authentic voice, suggesting that while AI can enhance linguistic accuracy, it cannot replace human creativity and critical thinking. Similarly, Kohnke, Moorhouse, and Zou (2023) examined ChatGPT's applications in language education, documenting its potential for generating instructional materials, providing writing models, and offering immediate feedback on learner output. Their analysis emphasized that ChatGPT functions effectively as a conversational partner for language practice but requires careful pedagogical integration to prevent over-reliance and maintain learner agency. In this context, EFL students still require to master the fundamentals of writing such as the writing process with its fundamental stages: brainstorming, outlining, drafting, revising and editing.

The process writing approach conceptualizes writing not as a linear sequence but as a recursive, non-linear cognitive activity. Flower and Hayes (1981) revolutionized writing instruction by proposing a cognitive process theory that views writing as a set of distinctive thinking processes—planning, translating, and reviewing—which writers perform recursively throughout their writing. According to this model, skilled writers continuously move between these stages, returning to brainstorming while drafting and revising their plans as new ideas emerge. This theoretical foundation has profoundly influenced EFL writing pedagogy, shifting instructional focus from evaluating final products to supporting the cognitive processes underlying text production. In EFL contexts, where learners often struggle with both linguistic abilities and idea generation, the process approach provides necessary scaffolding by breaking writing into manageable stages. The writing practitioners can enhance these stages. The teachers can act as feedback providers and facilitators via formative

assessment (Sahli & Benaissi, 2018; 2019). For instance, feedback functions as this essential guidance, enabling learners to perform beyond their current capabilities and internalize new skills. Black and Wiliam's (1998) further elaborates that effective feedback must be timely, specific, and actionable to promote learning. Timely feedback allows students to apply suggestions while the task remains cognitively accessible; specific feedback identifies precise areas for improvement rather than offering vague praise or criticism; and actionable feedback provides clear directions for revision. Research in EFL writing contexts confirms that feedback addressing both content and form, delivered during the writing process rather than solely on final products, significantly improves writing outcomes (Ferris, 2014). However, providing such high-quality formative feedback presents practical challenges in large EFL classrooms, where teachers face time constraints that limit individualized response. This study's integration of teacher-AI collaboration addresses this challenge by combining the teacher's pedagogical expertise with AI's capacity for immediate, personalized feedback.

Methodology

By applying exploratory action research to the implementation of AI-generated feedback as a supplement to the teachers' feedback provision throughout the writing process, this study seeks to explore the landscape of AI assistance in academic writing via teacher-AI collaboration to advance ethical, responsible use of this technology. Fundamentally, action research is interested in making a change in the classroom practice by enabling practitioners and students to work with each other instead of being the subject of the study (Reason and Rowan, 1981). Similarly, action research empowers teachers to be practitioners in their own classrooms via initiating or implementing activities to investigate problems or generate practical solutions in an ongoing cycle of intentional inquiry (Meyer, 2004). Furthermore, they are empowered to improve their practice via research. Engaging in such an endeavour to implement the use of AI in practising writing stems from the teachers' vision about the importance of training the students in the ethical uses of AI and its roles as an assisting technology instead of complete reliance on it. Another reason for the choice of this methodology is to equip the learners with an emergent study skill, which is prompt engineering, in which the learners are able to formulate the appropriate prompt while using AI to get relevant, useful answers regarding their questions. Hence, relying on a pedagogical research situation stems from a pedagogical dilemma (Norton, 2009). The two novice instructors responsible for the written comprehension and production course—observed the students' intensive consultation of AI without clear guidance or actual training, so they think

of the possibility of harnessing the positive side of AI in the learning process while sensitizing the learners about its pros and cons in the writing classroom.

Table 1 summarizes the methodological design of this pedagogical plan intervention so that other practitioners may replicate it in their daily practice.

Table 1: The Phases of Exploratory Action research

Exploratory Action Research: Phases and Steps		Activity
Exploration	Plan to explore/ Explore	Topic Identification The teachers prepared a list of topics to assign to the students. The teachers relied on Cambridge (B2 Level) general recommendations for the writing task (Cambridge Assessment, 2016). The topic is based on the learners' interests and experiences. Hence, the theme is the daily challenges of first year bachelor students at university.
		Defining exploratory research questions (Already mentioned with the introduction)
		Data Collection Tools Design Stage 1: brainstorming about the students' challenges and difficulties on a daily basis. Intervention with Gemini AI (Free version) and prompt design. Prompt: "Please act as a first year bachelor students, and generate at least 5 challenges that you have encountered in your university life." Stage 2: writing the paragraph outline and getting the teachers' feedback. Stage 3: revising the outline and Gemini AI generates further feedback. The students receive combined feedback to refine their final production.
	Analyse and reflect/ Action	Analysis of Data The analysis of the students' performance throughout the three stages and highlighting their strengths and weaknesses.
Action	Reflect	Analysis and Conclusions

Sharing		Oral presentation at an international conference
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Results of the Study

Stage 1: Brainstorming

The analysis of student brainstorming stage revealed the following distribution: 70% (n=16) of students generated three relevant ideas independently, 17% (n=4) generated two ideas, and 13% (n=3) generated only one idea. Following teacher-guided interaction with Gemini AI, the students were able to expand their idea generation. However, critical evaluation of AI-generated content revealed that 2 of 10 ideas (20%) generated by Gemini were contextually inappropriate for the Algerian educational setting—specifically, references to 'student loans' (irrelevant due to free education in Algeria throughout all the stages of school) and 'accessing psychological counselling services' (not widely available across Algerian universities). This finding underscores a crucial pedagogical implication: while AI can quantitatively expand idea generation, it lacks the contextual and cultural knowledge necessary for content relevance. The 20% irrelevance rate demonstrates why teacher mediation remains essential—not merely to transmit AI output, but to guide students in critically evaluating AI-generated content against their lived experiences

Stage 2: Example generation

Once the students identified the supporting ideas, they were asked to generate related examples that back up the supporting ideas. Since Gemini's feedback is immediate and personalized, the learners inserted another prompt requesting it to contextualize their examples or suggested other examples, and then they projected them into their real life situations. The third stage the students wrote the entire paragraph outline. Both teachers read and formatively evaluated the outlines of the students. At the example generation stage, only 45% (n=10) of students produced fully relevant examples to support their ideas while 55% (n=13) generated only two appropriate examples. Teacher intervention and subsequent AI consultation enabled students to contextualize examples. Analysis of revised submissions showed improvement, with 78% (n=18) successfully integrating personalized examples after AI-assisted revision. For instance, Student A wrote:

"For example, at the school I study a Normal and easier educational system, but also at university I study the New educational that cold system of life."

This excerpt illustrates multiple challenges: negative transfer from Arabic (word order issues), lexical imprecision ('cold system'), and underdeveloped comparison. Following teacher-AI

feedback, the student was guided to reformulate: *“Unlike secondary school's structured environment, university requires adapting to a less prescriptive educational system demanding greater autonomy.”* This revision demonstrates how AI can model syntactic alternatives while teachers ensure conceptual accuracy.

The initial analysis of the outlines highlighted the following points:

1. The outlines lacked the titles, or they are very simple such as *University Challenges*.
2. The main idea is merely the repetition of the assigned topic. The students did not generate or reformulate the assigned topic.
3. The students did not use complete sentences when generating the examples.
4. The use of negative transfer from Arabic to English.
5. The use of one pattern of speech, which is the simple sentence instead of compound and complex sentence, though they have been covered throughout the first semester.

Stage 3: Outline Quality Analysis

These remarks were shared with all the students in order to benefit from the teachers' feedback. The analysis of 23 student outlines revealed the following patterns:

Table 2: Feedback about the Students' outlines

Identified Issue	Frequency (n=23)	Percentage
Missing or simplistic titles	19	83%
Main idea merely repeats topic	21	91%
Incomplete sentences in examples	18	78%
Negative transfer from Arabic	15	65%
Exclusive use of simple sentences	20	87%

Illustration from Student Data: Missing Title/Simple Repetition

"Title: My challenges at University"

"Topic sentence: The first year student at University has been the most challenging year in my studied life."

The high percentage of topic sentences merely restating the prompt (91%) suggests students struggle with generating original topic sentences—a higher-order thinking skill. This finding indicates that AI integration should explicitly target thesis formulation, not merely content generation."

Negative Transfer Example/ Student 3 wrote:

"The first challenge was live with human and family it was never easy for me."

This error ('live' instead of 'living') reflects Arabic influence where verb forms function nominally. Teacher-AI collaboration can address such patterns through contrastive analysis exercises—a pedagogical implication extending beyond simple error correction."

Simple Sentence Dominance: Student 4

"The third one is that I discovered a lot of thing in short period."

"Another challenge was how to rely on myself."

The prevalence of simple sentences (87%) despite first-semester instruction on complex structures suggests a performance deficit rather than a competence deficit—students possess declarative knowledge, but they cannot apply it under writing pressure. The teachers suggested for the students to consult AI since it can scaffold complex sentence production through modelling and transformation exercises. Then the students were asked to insert their outlines in Gemini AI and ask it to correct their outlines at the level of grammar, spelling and mechanics by highlighting the mistakes, explaining them and providing the correct answers. At the end, the students expressed their satisfaction of this learning experience since they combine the teachers' feedback and Gemini's; in addition, they have benefited from training them in formulating well-crafted prompts.

Once the experiment is accomplished, the teachers reflected on the students' engagement and planned another cycle of intervention. The students should write the entire paragraph and ask Gemini to help them reduce negative transfer and maximize the use of compound and complex sentences. Based on the findings, the following recommendations are suggested. The students should be trained in information and digital literacy to be evaluate AI generated contents and make them relevant to their context. Furthermore, free AI tools should be used to help the students engage in self-assessment via tasks such as reducing negative transfer, using different patterns of speech, highlighting tips for spelling and grammar mechanics.

Conclusion

This study attempted to investigate the implementation of Gemini AI in the writing process of the paragraph outline to provide the students with teacher-AI feedback. The study involved twenty-three first year bachelor students. Gemini assisted the students throughout the stages of brainstorming, outlining and revising the outline. The results indicated that Gemini can be very beneficial if the

students are well-trained in prompt formulation, evaluation of generated content and internalizing of teacher's and Gemini's feedback. The writing teachers can transfer the implementation of Gemini into other aspects of the writing skills as long as they can assist them in the classroom. Future research should examine whether sustained AI-assisted writing instruction reduces negative transfer patterns and increases syntactic complexity over time, as well as explore student perceptions of teacher versus AI feedback.

References

- Barrot, J. S. (2023). Using AI-based writing tools in the classroom: A systematic review of benefits, challenges, and pedagogical implications. *Education and Information Technologies*, 28(6), 1-23. <https://doi.org/10.1007/s10639-023-11837-6>
- Black, P., & Wiliam, D. (1998). Inside the black box: Raising standards through classroom assessment. *Phi Delta Kappan*, 80(2), 139-148.
- Cambridge English Language Assessment. (2016). Cambridge English first: *Handbook for teachers (B2 Level)*. UK: the Council of Europe.
- Ferris, D. R. (2014). Responding to student writing: Teachers' philosophies and practices. *Assessing Writing*, 19, 6-23. <https://doi.org/10.1016/j.asw.2013.09.004>
- Flower, L., & Hayes, J. R. (1981). A cognitive process theory of writing. *College Composition and Communication*, 32(4), 365-387. <https://doi.org/10.2307/356600>
- Kohnke, L., Moorhouse, B. L., & Zou, D. (2023). ChatGPT for language teaching and learning. *RELC Journal*, 54(2), 537-550. <https://doi.org/10.1177/00336882231162868>
- Maphoto, K. B., Sevnarayan, K., Mohale, N. E., Suliman, Z., Ntsopi, T. J., & Mokoena, D. (2024). Advancing students' academic excellence in distance education: Exploring the potential of Generative AI integration to improve academic writing skills. *Open Praxis*, 16(2), pp. 142–159. DOI: <https://doi.org/10.55982/openpraxis.16.2.649>
- Marzuki, Widiati, U., Rusdin, D., Indrawati, D., & Indrawati, I. (2023). The impact of AI writing tools on the content and organization of students' writing: EFL teachers' perspective. *Cogent Education*, 10(2), 1-17. <https://doi.org/10.1080/2331186X.2023.2236469>
- Meyer, J. (2004). What is action research? In. C, Seale. (Ed.). *Social research methods: A reader*. (pp. 453-455. London: Routledge.
- Norton, L.S. (2009). Action research in teaching and learning: A practical guide to conducting pedagogical research in universities. London: Routledge.
- Reason, P., & Rowan, J. (1981). *Human inquiry: A sourcebook of new paradigm research*. Chichester: Wiley.

- Sahli, N., & Benaissi, F. B. (2018). Integrating massive open online courses in teaching research and writing skills. *International Journal of Social Sciences and Educational Studies*, 5(2), 231–240. [Doi: 10.23918/ijsses.v5i2p231](https://doi.org/10.23918/ijsses.v5i2p231)
- Sahli, N., & Benaissi, F. B. (2019). Using teacher self-assessment and reflection to foster change in the writing classroom. *International Journal of Social Science and Education*. <https://doi.org/10.23918/ijsses.v5i4p39>
- Sahli, N., K. Boughena, and A. Abdelhadi. (2024). A systematic review of empirical studies on the impact of Artificial Intelligence on university students' writing skills. *Annals of the University of Craiova, Psychology-Pedagogy Series 23* (46/2): 285–297. <https://doi.org/10.52846/AUCPP.2024.2.21>.
- Tseng, Y., & Lin, Y. (2024). Enhancing English as a foreign language (EFL) learners' writing with ChatGPT: A university-level course design. *The Electronic Journal of e-Learning*, 22(2), 78-97. <https://doi.org/10.34-190/ejel.21.5.3329>