Bodhi International Journal of
Research in Humanities, Arts and Science

Vol. 10 No. 1 October 2025
E-ISSN: 2456-5571

Exploring How AI-Powered Feedback Enhances Students' Writing Performance and Motivation in the Process Approach

M. Gunalan[1] & Dr. N. Asharudeen[2]

[1]Ph.D. Research Scholar, (Part- Time), Department of English
Edayathangudy G.S. Pillay Arts and Science College (Autonomous), Nagapattinam
Affiliated to Bharathidasan University, Tiruchirappalli, Tamil Nadu
[2]Assistant Professor & Research Advisor, Department of English
Edayathangudy G.S. Pillay Arts and Science College (Autonomous), Nagapattinam
Affiliated to Bharathidasan University, Tiruchirappalli, Tamil Nadu

Open Access

Manuscript ID: BIJ-2025-OCT-011

Subject: English

Received : 29.08.2025
Accepted : 04.09.2025
Published : 31.10.2025

DOI:10.64938/bijri.v10n1.25.Oct011

Abstract

This study investigates the impact of AI-powered feedback on students' writing performance and motivation within the process writing approach. Sixty undergraduate students were divided into two groups: the experimental group received real-time feedback using AI tools such as Grammarly and ProWritingAid, while the control group relied on traditional instructor feedback. Writing performance was evaluated through pre-test and post-test assessments using rubrics focusing on grammar, coherence, organisation, and content quality. Student reflections were collected after the post-test to gain insights into their experiences with AI tools. The results indicate that students in the AI-supported group showed significant improvements across all writing dimensions, with particularly high gains in coherence and content quality. AI feedback reduced students' anxiety, encouraging iterative revisions and fostering engagement. However, the findings also highlight limitations, as students reported that AI feedback focused primarily on technical aspects, providing limited guidance for creativity and argumentation. This study concludes that while AI-powered feedback enhances technical proficiency and motivation, a hybrid feedback model integrating instructor input is essential for addressing higher-order writing skills. Future research should explore the long-term effects of AI tools on student motivation and investigate their potential to foster creativity and critical thinking.

Keywords: AI-powered feedback, process writing, student motivation, iterative revisions, writing performance, automated suggestions, hybrid feedback model, real-time feedback, higher-order skills, creativity in academic writing

Introduction

Writing proficiency plays a crucial role in academic success, enabling students to convey ideas effectively and demonstrate critical thinking. The process writing approach offers an effective method to develop writing skills by encouraging students to engage in iterative drafting, feedback, and revision cycles (Skar et al., 2022; Zhai & Ma, 2022). This approach allows learners to improve coherence, content, and grammatical accuracy through repeated interaction with their writing. However, despite its advantages, the approach presents practical challenges, particularly regarding the provision of timely and personalised feedback.

Educational institutions often encounter difficulties in offering continuous, high-quality feedback due to resource constraints. Teachers face limited instructional time and high student-to-teacher ratios, which hinder their ability to deliver individualised feedback (Fu et al., 2022;

Noroozi et al., 2012). To address these limitations, AI-powered feedback tools such as Grammarly and ProWritingAid have been introduced. These tools provide automated, real-time feedback, aligning with the iterative nature of process writing. AI tools not only correct grammatical errors but also enhance student engagement by offering immediate suggestions for improvement (Dale & Viethen, 2021).

Problem Statement

Despite the promising role of AI in supporting the writing process, questions remain about the extent to which these tools effectively complement traditional feedback methods. Research indicates that AI feedback is beneficial for surface-level corrections, such as grammar and syntax, but falls short in addressing higher-order writing elements, such as argument development and creativity (Graham et al., 2019; Zhou et al., 2023). These limitations necessitate further investigation into how AI-powered feedback influences not only writing outcomes but also students' motivation and engagement with the writing process.

The need for an optimal balance between AI and human feedback is critical. Although automated feedback promotes student motivation by reducing anxiety about errors and encouraging revisions, it may not provide the conceptual depth required for complex writing tasks (Zhai & Ma, 2022) . Moreover, there is limited empirical evidence on how students perceive the effectiveness of AI feedback compared to instructor-led feedback. This gap in research calls for a deeper exploration of the motivational and performance-related outcomes associated with AI-supported writing.

Research Aim and Objectives

This study aims to examine the impact of AI-powered feedback on students' writing performance and motivation within the process writing approach. Specifically, it seeks to compare the effectiveness of AI feedback with traditional instructor-led feedback, focusing on key aspects such as grammar, organisation, and content quality. The study also aims to explore students' reflections on the use of AI tools, analysing whether automated feedback fosters engagement with multiple drafts and encourages iterative revisions.

Research Questions

1. How does AI-powered feedback influence students' writing performance within the process writing approach?
2. Does AI-powered feedback enhance student motivation and engagement in comparison to traditional instructor-led feedback?

Significance of the Study

The findings from this study will contribute to existing literature on process writing pedagogy and AI applications in education. By identifying the strengths and limitations of AI-powered feedback, the research aims to inform educational practices, helping institutions integrate AI tools effectively into their teaching strategies. The study will also provide insights into how hybrid feedback models, combining automated and instructor feedback, can optimise student outcomes and foster deeper engagement with writing tasks.

Literature Review

The Process Writing Approach

The process writing approach is a pedagogical method that emphasizes iterative drafting, feedback, and revisions. This method encourages students to actively engage in the writing process, focusing on developing their ideas gradually over multiple drafts (Latifi et al., 2023). Feedback plays a crucial role in this approach, enabling students to refine their grammar, coherence, and overall organisation through continuous interaction with their work (Noroozi et al., 2012). Studies have shown that iterative revisions foster students' ability to critically evaluate their writing, promoting deeper engagement with content and structure (Liunokas, 2020).

Instructors often face challenges in maintaining the iterative feedback cycle due to the time-intensive nature of providing personalised responses to each draft (Kerman et al., 2022). Despite these constraints, feedback remains central to process writing. Research indicates that students benefit significantly from timely feedback, which guides their revisions and improves the overall quality of their writing

(Bulqiyah et al., 2021). This method aligns with the principles of formative assessment, focusing on enhancing students' learning experiences through continuous reflection and improvement (Freedman et al., 2016).

AI Tools in Educational Contexts

AI tools like Grammarly and ProWritingAid have been developed to address the challenges of providing continuous feedback. These tools offer automated, real-time suggestions to improve grammar, syntax, and organisation, supporting students as they engage with their writing (Candilas et al., 2024). In educational settings, AI-powered tools enhance accessibility to feedback, alleviating some of the workload faced by instructors (Mizumoto & Eguchi, 2023). However, these tools also present limitations. Research suggests that AI feedback often focuses on micro-level corrections while lacking the ability to address higher-order skills such as creativity and argumentative structure (Hegelheimer et al., 2016).

The reliance on automated feedback raises questions about its efficacy in guiding students through complex writing tasks. Although students benefit from immediate error detection, concerns about over-reliance on AI tools remain prevalent among educators (Schildkamp et al., 2020). It is essential to recognize that these tools are most effective when used as complementary aids, rather than substitutes for instructor feedback (Stevenson & Phakiti, 2014).

Feedback and Student Motivation

Real-time feedback provided by AI tools plays a pivotal role in reducing students' writing anxiety. The immediacy of automated suggestions encourages students to engage actively with multiple drafts, fostering a positive attitude toward the revision process (Gopalan et al., 2020). Research demonstrates that students are more likely to persevere with complex tasks when they receive timely feedback, which provides them with a sense of achievement and progress (Zhou et al., 2023). However, AI-generated feedback has limitations in supporting more advanced aspects of writing, such as creativity and critical thinking (Noroozi et al., 2012).

The motivational impact of feedback varies based on its perceived relevance and depth. While AI tools excel in providing surface-level corrections, they often fail to offer meaningful insights into content quality or rhetorical strategies (Fu et al., 2022). This gap highlights the need for hybrid feedback models that integrate both automated and instructor feedback to enhance students' motivation and learning outcomes (Zhai & Ma, 2022) .

Theoretical Framework

This study is grounded in the cognitive theory of writing, which emphasizes the importance of process-oriented learning. The cognitive framework views writing as an evolving activity, where students develop their ideas through iterative interactions with text and feedback (Skar et al., 2022). The process writing approach aligns with this framework by promoting reflection, planning, and revision as essential components of effective writing (Freedman et al., 2016).

AI tools support process-oriented learning by facilitating continuous feedback, enabling students to refine their writing incrementally (Correnti, 2024). However, the effectiveness of these tools depends on how well they align with the cognitive demands of writing tasks. Instructors play a critical role in guiding students through higher-order aspects of writing, ensuring that automated feedback is integrated meaningfully into the learning process (Zhai & Ma, 2022) . The integration of AI feedback within the cognitive framework underscores the importance of balancing technology with human expertise to support comprehensive learning outcomes.

Methodology

Research Design

This study employs a pre-test and post-test experimental design to investigate the impact of AI-powered feedback on students' writing performance and motivation within the process writing approach. The research adopts a mixed-method approach, integrating both quantitative and qualitative data to provide a comprehensive analysis of the effectiveness of AI tools. The experimental design allows for the measurement of changes in students' writing performance through the comparison of pre-test and

post-test scores, ensuring that both groups undergo identical writing tasks under controlled conditions (Creswell & Plano-Clark, 2017). The qualitative component further explores students' perceptions through reflective feedback collected after the post-test, providing insights into how automated and instructor feedback influence student motivation (Gopalan et al., 2020).

Participants and Sampling

The study involves sixty undergraduate students who were purposively selected to ensure homogeneity in terms of writing proficiency and academic background. The participants are divided into two groups of thirty each. The experimental group engages with AI-powered tools, including Grammarly and ProWritingAid, throughout the writing process to receive real-time feedback. In contrast, the control group completes the same writing tasks but receives traditional feedback from instructors only after submitting their final drafts. The separation into two distinct groups facilitates a focused examination of the differences in writing outcomes between AI-supported and instructor-led feedback (Mizumoto & Eguchi, 2023). The use of purposive sampling ensures that participants meet the necessary criteria, enabling accurate comparisons and reliable data collection (Kerman et al., 2022).

Data Collection Methods

The primary data collection method involves pre-test and post-test writing tasks assessed with detailed rubrics. These tasks are designed to measure performance across four key dimensions: grammar, coherence, organisation, and content quality. Rubrics used for this purpose are validated by linguistic experts to ensure consistency and objectivity in scoring. Following the post-test, students from both the experimental and control groups provide reflective feedback on their experiences. This reflective data offers valuable insights into how students perceive the effectiveness of AI tools and instructor feedback, capturing the motivational aspects associated with each type of feedback (Correnti, 2024). The combination of quantitative and qualitative data ensures a holistic understanding of the impact of feedback mechanisms on student outcomes.

Instruments

Writing rubrics serve as the primary instrument for assessing the pre-test and post-test writing tasks. These rubrics evaluate performance in grammar, coherence, organisation, and content quality, providing a structured framework for objective assessment (Stevenson & Phakiti, 2014). In the experimental group, students use Grammarly and ProWritingAid to receive automated feedback during the drafting process. These AI tools offer real-time suggestions, which align with the iterative nature of the process writing approach, facilitating immediate revisions (Dale & Viethen, 2021). The control group relies solely on traditional instructor feedback, ensuring that comparisons between the two groups reflect the specific contributions of AI feedback.

Data Analysis Methods

Quantitative data from the pre-test and post-test tasks are analysed using statistical methods to determine the significance of differences in writing performance between the two groups. Measures of central tendency and variability are used to assess performance changes across the dimensions evaluated by the rubrics. The analysis identifies trends in grammar accuracy, coherence, organisation, and content development, highlighting areas where AI feedback may be more effective than traditional feedback (Zhai & Ma, 2022) . The qualitative data from student reflections are analysed thematically to capture recurring themes related to motivation, engagement, and feedback preferences. Thematic analysis provides nuanced insights into how students experience the feedback process and the extent to which AI tools influence their writing motivation (Fu et al., 2022). This mixed-method approach ensures a robust understanding of both the measurable outcomes and subjective experiences associated with AI-powered feedback.

Results

Quantitative Findings

The quantitative results reveal notable improvements in several dimensions of writing performance, including grammar, coherence, organisation, and content quality. Analysis of pre-test and post-test scores indicates that both the experimental group, which utilised AI-powered feedback tools,

and the control group, which received traditional instructor feedback, showed progress. However, the experimental group demonstrated more consistent and substantial improvement across all writing dimensions. Specifically, students in the AI group exhibited higher grammatical accuracy and better coherence, suggesting that real-time automated feedback facilitated more frequent and effective revisions during the drafting process (Zhai & Ma, 2022; Candilas et al., 2024).

The comparison between the experimental and control groups highlights the advantages of AI-powered feedback in promoting iterative learning. While both groups made progress in grammar, content quality, and organisation, the experimental group outperformed the control group in coherence and content development. This finding suggests that immediate feedback provided by AI tools encourages students to engage with multiple drafts more actively, resulting in improved organisation and clarity (Dale & Viethen, 2021). The data analysis confirms that real-time feedback offers an essential advantage over traditional feedback by reducing the lag between error identification and correction, which may be particularly beneficial in enhancing students' revision practices (Mizumoto & Eguchi, 2023).

Qualitative Findings

The qualitative findings, derived from student reflections, provide insights into the motivational impact of AI-powered feedback. Many students in the experimental group reported that the immediacy of automated corrections reduced their anxiety about making errors, enabling them to engage with the writing process more confidently (Fu et al., 2022). They expressed that receiving instant feedback motivated them to experiment with multiple revisions, fostering a sense of achievement as they observed measurable improvements in their drafts. These reflections suggest that the accessibility of AI feedback encourages iterative engagement, enhancing students' writing performance (Correnti, 2024).

However, several limitations of AI feedback emerged from the students' reflections. While students appreciated the real-time grammatical corrections, they noted that AI tools primarily focused on technical aspects, such as syntax and coherence, offering limited guidance on creativity and argument development. Some students indicated that they missed the nuanced insights provided by instructor feedback, particularly for tasks requiring higher-order thinking and rhetorical skills (Schildkamp et al., 2020). These findings align with prior research, which highlights the complementary role of instructor feedback in supporting complex aspects of writing that AI tools struggle to address effectively (Noroozi et al., 2012).

Summary of Key Results

The results indicate that AI-powered feedback promotes iterative learning by encouraging students to engage with their writing more frequently and effectively. The combination of real-time error detection and automated suggestions facilitates active revision, resulting in higher scores across various writing dimensions. However, traditional instructor feedback remains essential for developing higher-order writing skills, such as creativity and argumentation, which AI tools are currently unable to support adequately (Candilas et al., 2024; Stevenson & Phakiti, 2014). These findings underscore the importance of adopting a hybrid feedback model that integrates AI-powered tools with instructor-led guidance to optimise student outcomes and maintain motivation throughout the writing process.

Discussion

Interpretation of Findings

The findings of this study indicate that AI-powered feedback positively influences students' writing performance and motivation within the process writing approach. The experimental group receiving AI feedback showed significant improvements in grammar, coherence, organisation, and content quality, outperforming the control group in several dimensions. These results suggest that real-time feedback, provided by tools like Grammarly and ProWritingAid, promotes more frequent revisions and iterative learning, encouraging students to engage actively with their writing tasks (Mizumoto & Eguchi, 2023). The motivational impact observed among students using AI feedback aligns with prior

research, which highlights that immediate error correction fosters confidence and reduces anxiety (Gopalan et al., 2020).

The alignment of AI-powered feedback with the iterative nature of the process writing approach is evident in this study. The real-time suggestions provided by AI tools enable students to identify errors as they draft, ensuring that feedback is incorporated into the writing process in a timely manner. This dynamic interaction with feedback supports deeper engagement with multiple drafts, resulting in more polished and coherent writing outputs (Zhai & Ma, 2022) . By facilitating iterative revisions, AI tools complement the process writing framework, which emphasises gradual improvement through feedback-driven learning (Candilas et al., 2024).

Comparison with Previous Studies

This study contributes to the growing body of literature on AI-powered feedback by providing empirical evidence of its impact on student motivation and performance. Prior research suggests that automated tools effectively address feedback gaps in resource-limited environments, alleviating instructors' workload while ensuring students receive timely support (Noroozi et al., 2012). However, the findings also reveal distinct differences in the motivational outcomes between AI and traditional feedback. While AI feedback fosters confidence by offering immediate corrections, students expressed a need for instructor feedback to guide higher-order aspects of writing, such as creativity and argument development (Dale & Viethen, 2021).

These observations resonate with earlier studies that acknowledge the limitations of AI feedback in addressing complex writing skills. Although tools like Grammarly offer robust technical feedback, they fall short in fostering critical thinking and creativity, areas where instructor input remains indispensable (Hegelheimer et al., 2016). The complementary roles of AI and instructor feedback suggest that hybrid feedback models could enhance learning outcomes by balancing technical accuracy with conceptual depth (Correnti, 2024).

Limitations of the Study

This study has several limitations that warrant consideration. The focus on short-term outcomes limits the generalisability of the findings, as the long-term impact of AI feedback on student motivation and writing proficiency remains unexplored. Future research could address this gap by conducting longitudinal studies to assess the sustained effects of AI tools on writing development (Schildkamp et al., 2020). Additionally, this study did not provide an in-depth analysis of how AI feedback influences creativity and critical thinking, which are essential components of academic writing. These limitations highlight the need for further research to examine the nuanced impact of AI tools on higher-order writing skills (Mizumoto & Eguchi, 2023).

Implications for Practice

The findings underscore the need for a hybrid feedback model that integrates AI tools with instructor input. AI-powered feedback enhances technical accuracy and encourages iterative learning, but it requires complementary instructor feedback to address complex writing tasks. Educators should adopt AI tools as part of a broader pedagogical strategy, ensuring that students receive both technical guidance from AI and conceptual insights from instructors (Gopalan et al., 2020). Institutions must provide training for instructors to effectively integrate AI tools into their teaching practices, maximising the benefits of automated feedback while maintaining a focus on holistic learning outcomes (Zhai & Ma, 2022) .

The adoption of AI-powered feedback requires careful planning and continuous evaluation to ensure its alignment with educational objectives. Educators should encourage students to critically engage with AI-generated feedback, fostering awareness of the limitations and strengths of automated tools. By adopting a hybrid approach, institutions can optimise feedback processes, enhancing both student motivation and writing performance while addressing the complexities of higher-order learning.

Conclusion

The findings of this study underscore the effectiveness of AI-powered feedback in enhancing students'

writing performance and motivation within the process writing framework. Students who received real-time, automated feedback demonstrated significant improvements in grammar, coherence, organisation, and content quality. These results affirm the potential of AI tools to support writing education by promoting iterative learning through continuous feedback and immediate revisions (Zhai & Ma, 2022; Candilas et al., 2024). The study further highlights that students in the experimental group experienced reduced anxiety and increased engagement, suggesting that the immediacy of AI feedback fosters motivation and sustained effort during the writing process (Gopalan et al., 2020). AI tools complement the process writing approach by aligning with its emphasis on iterative development. The use of automated feedback encourages students to engage with multiple drafts, fostering a sense of achievement as they observe tangible improvements in their work. The dynamic nature of AI feedback supports active learning, reinforcing the value of experimentation and revision (Dale & Viethen, 2021). However, the study also reveals that AI tools alone cannot address all aspects of academic writing, particularly those requiring creativity and complex argumentation. These findings emphasize the need for instructor involvement to provide higher-order guidance (Noroozi et al., 2012). The integration of AI tools into process writing practices offers practical implications for educators. The adoption of AI feedback can enhance teaching efficiency by streamlining routine feedback tasks while promoting student engagement. However, it is essential that instructors complement automated feedback with personalised input to address nuanced aspects of writing. A hybrid feedback model, combining AI-generated corrections with instructor-led guidance, ensures a balanced approach that fosters both technical proficiency and conceptual depth (Mizumoto & Eguchi, 2023). Future research should focus on the long-term effects of AI feedback on student motivation to assess whether the initial gains observed in this study can be sustained over time. Further exploration is also needed to investigate how AI tools can be adapted to support creativity and critical thinking, addressing the limitations identified in the current study. Such research will contribute to the development of more sophisticated AI systems capable of providing holistic feedback, thereby optimising learning outcomes in writing education (Schildkamp et al., 2020).

References

1. Adarkwah, M. A. (2021). The power of assessment feedback in teaching and learning: A narrative review and synthesis of the literature. SN Social Sciences, 1(3). https://doi.org/10.1007/s43545-021-00086-w
2. Bulqiyah, S., Mahbub, Moh. A., & Nugraheni, D. A. (2021). Investigating writing difficulties in essay writing: Tertiary students' perspectives. English Language Teaching Educational Journal, 4(1), 61. https://doi.org/10.12928/eltej.v4i1.2371
3. Candilas, K., Japson, M. C. N., Bartolata, V. D., Amores, D. J. R., Abas, S. R., & Getuaban, P. A. M. (2024). AI-Powered Writing Tools: A Phenomenological Inquiry of Tertiary Students' Usage. AsiaCALL Online Journal, 15(2), 29–41. https://doi.org/10.54855/acoj.241523
4. Correnti, R. (2024, January 16). Building a Validity Argument for an Automated Writing Evaluation System (eRevise) as a Formative Assessment. PETAL. https://petal-cs-pitt.github.io/publication/correnti-2022-validity/
5. Creswell, J. W., & Plano-Clark, V. L. (2017). Designing and conducting mixed methods research. SAGE Publications
6. Dale, R., & Viethen, J. (2021). The automated writing assistance landscape in 2021. Natural Language Engineering, 27(4), 511–518. https://doi.org/10.1017/S1351324921000164
7. Deng, J., & Lin, Y. (2022). The Benefits and Challenges of ChatGPT: An Overview. Frontiers in Computing and Intelligent Systems, 2(2), 81–83. https://doi.org/10.54097/fcis.v2i2.4465
8. Fu, Q.-K., Zou, D., Xie, H., & Cheng, G. (2022). A review of AWE feedback: types, learning outcomes, and implications. Computer Assisted Language Learning.
9. Lusia Maryani Silitonga, Santhy Hawanti, Feisal Aziez, Miftahul Furqon, Siraj, D., Anjarani, S., & Wu, T. (2023). The Impact of AI Chatbot-Based Learning on Students' Motivation in

English Writing Classroom. Lecture Notes in Computer Science, 542–549. https://doi.org/10.1007/978-3-031-40113-8_53

10. Mizumoto, A., & Eguchi, M. (2023). Exploring the potential of using an AI language model for automated essay scoring. Research Methods in Applied Linguistics, 2(2), 100050. https://doi.org/10.1016/j.rmal.2023.100050
11. Noroozi, O., Teasley, S. D., Biemans, H. J. A., Weinberger, A., & Mulder, M. (2012). Facilitating learning in multidisciplinary groups with transactive CSCL scripts. International Journal of Computer-Supported Collaborative Learning, 8(2), 189–223. https://doi.org/10.1007/s11412-012-9162-z
12. Nurmala, I., Irianto, S., Franchisca, S., Amsa, H., & Susanti, R. (2023). Technology-Enhanced Language Learning: A Meta-Analysis Study On English Language Teaching Tools. Journal on Education, 6(1), 2188–2195. https://doi.org/10.31004/joe.v6i1.3221
13. Schildkamp, K., van der Kleij, F., Heitink, M., Kippers, W., & Veldkamp, B. (2020). Formative assessment: A systematic review of critical teacher prerequisites for classroom practice. International Journal of Educational Research, 103(1), 101602. https://doi.org/10.1016/j.ijer.2020.101602
14. Skar, G. B., Graham, S., & Rijlaarsdam, G. (2022). Formative writing assessment for change – introduction to the special issue. Assessment in Education: Principles, Policy & Practice, 29(2), 121–126. https://doi.org/10.1080/0969594x.2022.2089488
15. Stevenson, M., & Phakiti, A. (2014). The effects of computer-generated feedback on the quality of writing. Assessing Writing, 19, 51–65. https://doi.org/10.1016/j.asw.2013.11.007
16. Strobl, C., Ailhaud, E., Benetos, K., Devitt, A., Kruse, O., Proske, A., & Rapp, C. (2019). Digital support for academic writing: A review of technologies and pedagogies. Computers & Education, 131, 33–48. https://doi.org/10.1016/j.compedu.2018.12.005
17. Zhai, N., & Ma, X. (2022). The Effectiveness of Automated Writing Evaluation on Writing Quality: A Meta-Analysis. Journal of Educational Computing Research, 073563312211273. https://doi.org/10.1177/07356331221127300

Appendices

Appendix A: Writing Rubric Sample

This rubric outlines the criteria used to assess writing tasks in both the pre-test and post-test. The assessment dimensions include grammar, coherence, organisation, and content quality. Each criterion is scored on a scale of 1 to 5, where 1 indicates minimal proficiency, and 5 represents exemplary performance. The rubric ensures consistency in evaluating student performance across both the experimental and control groups.

Criteria	1	2	3	4	5
Grammar	Frequent errors	Some errors	Occasional errors	Minimal errors	Error-free
Coherence	Lacks flow	Limited flow	Moderate flow	Good flow	Seamless flow
Organisation	Poor structure	Limited structure	Acceptable structure	Well-organised	Exceptional structure
Content Quality	Lacks relevance	Some relevance	Moderately relevant	Highly relevant	Outstanding quality

Appendix B: Pre-Test and Post-Test Task Samples

The pre-test and post-test writing tasks were designed to assess students' proficiency in academic writing. Both tasks required students to produce a 500-word essay on the topic "The Importance of Technological Tools in Education." The tasks aimed to evaluate their ability to organise ideas coherently, maintain grammatical accuracy, and develop content effectively. Participants in both groups followed the

same task guidelines, ensuring uniformity in data collection.

Appendix C: Example of Student Reflection on AI Feedback

One student from the experimental group provided the following reflection on their experience with AI-powered feedback:

"Using Grammarly for my writing process made me feel more confident in revising my drafts. It pointed out errors I hadn't noticed and gave me suggestions on how to fix them right away. This helped me focus on improving the structure without worrying too much about grammar mistakes. However, I found that it couldn't help me develop arguments or be more creative. For that, I still needed my instructor's advice. But overall, it reduced my anxiety and made me enjoy writing more."