

Enhancing English Writing Skills through AI-Assisted Journaling: A Study of Students at Dong Nai University

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ABSTRACT

The purpose of this study is to investigate the impact of AI-assisted journaling on English writing proficiency among first-year students at Dong Nai University, with particular focus on grammar accuracy and idea expression. Forty students were randomly assigned to an experimental group, utilizing AI-assisted journaling tools, and a control group, employing traditional journaling methods. Over a six-week period, participants engaged in daily writing activities, averaging 10–15 minutes per session. Pre-test and post-test writing tasks were analyzed using quantitative measures of grammar accuracy and coherence of idea expression. Additionally, surveys and semi-structured interviews explored student perceptions of AI feedback, motivation, and confidence in writing. The findings demonstrate that students using AI-supported journaling exhibited significant improvements in both grammar accuracy and clarity of idea expression compared to the control group. Moreover, qualitative data reveal positive attitudes toward AI tools, indicating increased engagement and confidence. These findings suggest that AI-assisted journaling constitutes an effective pedagogical intervention for enhancing English writing skills in higher education settings, offering implications for curriculum design and instructional practice.

Keywords: *AI-assisted journaling, English writing skills, grammar accuracy, idea expression, university students.*

1. INTRODUCTION

English writing is a critical academic skill for university students, serving as a foundation for effective communication, academic success, and professional development. Nevertheless, learners frequently encounter challenges in producing grammatically accurate, coherent, and well-organized written texts. Research indicates that grammar errors, limited vocabulary, and inadequate organization of ideas are persistent obstacles for second language learners (L2 learners), often resulting from insufficient practice and delayed feedback in traditional classrooms (Ferris, 2011; Hyland, 2003).

Traditional pedagogical methods often rely on teacher-provided feedback, which may be limited by classroom time constraints and the high student-to-teacher ratio. Consequently, learners receive insufficient corrective feedback to facilitate sustained improvement in writing skills. This gap underscores the need for supplementary instructional strategies that provide timely, individualized guidance while promoting autonomous learning.

Recent advances in Artificial Intelligence (AI) have introduced tools capable of providing immediate, personalized feedback on written texts. Platforms such as Grammarly, Quillbot, and Google Docs AI suggestions evaluate grammar, sentence structure, vocabulary, and stylistic features, providing corrective guidance that learners can apply in real time. Integrating AI feedback into daily journaling practices allows students to engage in regular writing exercises while receiving continuous guidance, potentially enhancing both grammatical accuracy and coherence in idea expression.

Journaling, in particular, has been widely recognized as a strategy to support second language acquisition. Writing journals encourages learners to reflect on personal experiences, organize thoughts, and articulate ideas clearly, fostering both cognitive and metacognitive development (Raimes, 1983; Moon, 2006). When combined with AI feedback, journaling may provide a dual benefit: frequent practice and immediate corrective guidance.

This study investigates the effects of AI-assisted journaling on English writing skills among first-year students at Dong Nai University. Specifically, it seeks to answer the following research questions:

1. Does AI-assisted journaling improve grammar accuracy compared to traditional journaling methods?
2. Does AI-supported journaling enhance coherence and clarity of idea expression?
3. How do students perceive AI-supported journaling as a tool for learning and writing improvement?

Objectives: The study aims to examine the impact of AI-supported journaling on grammatical accuracy in L2 writing, evaluate how AI feedback influences the organization and coherence of ideas, and explore students' perceptions regarding their engagement, motivation, and confidence in the writing process.

2. LITERATURE REVIEW

2.1 Writing Skills in Second Language Acquisition

Writing proficiency constitutes one of the four essential language skills and plays a pivotal role in academic and professional success. Hyland (2003) emphasizes that writing requires the integration of cognitive, linguistic, and sociocultural competencies, enabling learners to produce texts that are grammatically correct and conceptually coherent. Ferris (2011) notes that feedback is a fundamental mechanism for developing writing competence, facilitating error recognition, and promoting self-regulated learning.

Grammar accuracy is a consistent predictor of overall writing quality, particularly for L2 learners. Numerous studies demonstrate that learners exposed to frequent corrective feedback show measurable improvements in sentence structure, verb tense accuracy, and article usage (Bitchener & Knoch, 2008; Truscott, 1996). However, delayed feedback or insufficient individualized attention often limits students' ability to self-correct errors effectively.

2.2 Journaling as a Pedagogical Tool

Journaling has long been recognized as an effective pedagogical tool for language development. It provides learners with opportunities for self-expression, reflective thinking, and practice of narrative organization. Raimes (1983) argues that journaling fosters writing fluency and allows learners to experiment with vocabulary and sentence structure in a low-stress environment. Moon (2006) adds that journals function as tools for reflective practice, enabling learners to monitor progress, identify recurring errors, and internalize corrective strategies.

Research indicates that journaling can enhance both fluency and accuracy. For instance, writing regularly encourages learners to organize ideas logically, employ cohesive devices effectively, and express opinions clearly (Hyland, 2003). Furthermore, journaling facilitates autonomous learning, promoting learner engagement and ownership of the learning process.

2.3 Supported Writing Tools

Artificial Intelligence has introduced a new dimension to language instruction through automated writing feedback. AI writing tools provide immediate correction of grammar errors, suggestions for sentence restructuring, vocabulary enhancement, and stylistic improvement. Li et al. (2020) found that AI-assisted feedback significantly reduced recurring grammatical errors in L2 learners, while Chen & Hsu (2021) observed that AI support improved sentence coherence and lexical richness.

Benefits of AI-supported journaling include:

- Real-time identification and correction of grammatical errors
- Suggestions for syntactic and lexical improvements
- Enhanced self-regulation through immediate feedback
- Increased motivation and engagement through interactive interfaces

Despite the growing prevalence of AI tools, research specifically targeting Vietnamese university students is scarce. Existing studies primarily focus on online learners or high school populations, leaving a gap in understanding the impact of AI-supported journaling in higher education contexts.

2.4 Theoretical Framework

This study is grounded in Sociocultural Theory (Vygotsky, 1978), which emphasizes the role of mediated learning and scaffolding. AI feedback functions as a form of cognitive scaffolding, providing learners with guidance to internalize correct forms and structures. Additionally, Constructivist Learning Theory (Piaget, 1970) underpins the study, suggesting that learners actively construct knowledge through reflective practice and engagement with feedback. Journaling facilitates meaning-making, while AI tools enhance the scaffolding process, supporting autonomous skill development.

3. METHODOLOGY

3.1 Research Design

This study employs a quasi-experimental design with pre-test and post-test measures, combined with a mixed-method approach that integrates quantitative and qualitative analyses. The quantitative component compares grammar accuracy and coherence of idea expression between an experimental group (AI-assisted journaling) and a control group (traditional journaling), while the qualitative component examines students' perceptions, engagement, and motivation. This design enables triangulation of data to ensure validity and reliability of the findings (Creswell, 2014).

3.2 Participants

Forty first-year English-major students at Dong Nai University were randomly assigned to two groups. All participants had intermediate English proficiency, determined via placement tests at the beginning of the semester.

Group	No. of Students	Journaling Method	Feedback Type	Average Pre-test Score (%)
Experimental	20	Digital journaling	AI-assisted (Grammarly, Quillbot)	68
Control	20	Paper/digital journaling	Teacher feedback weekly	70

Participants were balanced in terms of gender, prior writing experience, and computer literacy to minimize confounding variables.

3.3 Instruments

The instruments employed in this study comprised three main components: writing tasks, AI tools, and surveys and interviews.

Writing Tasks:

The writing tasks were designed to measure participants' English writing proficiency both before and after the intervention. The pre-test required students to compose a 300-word essay on a familiar topic, such as "My Weekend Activities," while the post-test involved a 300-word essay on a different topic, for example, "A Memorable Travel Experience." Each essay was evaluated according to two primary criteria: grammatical accuracy, quantified as the number of errors per 100 words, and idea expression, assessed on a scale of 1 to 10 based on coherence, cohesion, the effective use of linking devices, and overall paragraph structure.

AI Tools:

The AI tools provided immediate and targeted feedback to support the experimental group. Grammarly Premium was used to identify and correct grammar and punctuation errors and to improve sentence clarity. Quillbot offered vocabulary enhancement and paraphrasing suggestions, while Google Docs AI delivered real-time feedback on sentence structure and overall writing style. These tools collectively enabled students to revise drafts immediately and reflect on recurring errors.

Surveys and Interviews:

To capture students' perceptions and experiences, the study employed both surveys and semi-structured interviews. A Likert-scale questionnaire (1–5) was administered to assess students' engagement, motivation, and confidence in their writing practices. Additionally, semi-structured interviews were conducted with ten participants from the experimental group to gain deeper insights into their user experience, perceived usefulness of AI feedback, and the challenges encountered during the journaling process. This combination of instruments allowed for a comprehensive analysis of both quantitative performance outcomes and qualitative student perspectives.

3.4 Procedure

- Duration: 6 weeks
- Writing frequency: 10–15 minutes daily
- Experimental group: Received instant AI feedback, revised drafts immediately, and reflected on errors
- Control group: Wrote journals traditionally; received teacher feedback once per week

AI-assisted journaling example:

Original Text	AI Feedback	Student Revision
I go to market yesterday and buy fruits.	Suggests past tense verbs; add article before “market”	I went to the market yesterday and bought fruits.

Participants were instructed to note recurring errors and observe progress over time. Weekly meetings allowed discussion of challenges and reflections.

3.5 Data Collection & Analysis

- **Quantitative:**
 - Grammar errors counted per 100 words
 - Coherence scored using a **10-point rubric**
 - Statistical analyses:
 - Paired-sample t-tests (within-group improvement)
 - Independent-sample t-tests (between-group comparison)
- **Qualitative:**
 - Survey responses coded thematically
 - Interview transcripts analyzed using **grounded theory** to identify recurrent patterns in perception, motivation, and engagement
- **Reliability & Validity:**
 - Two independent raters scored essays; inter-rater reliability = 0.92
 - Triangulation between quantitative and qualitative data ensured **credibility and robustness** of findings (Creswell, 2014).

4. RESULTS

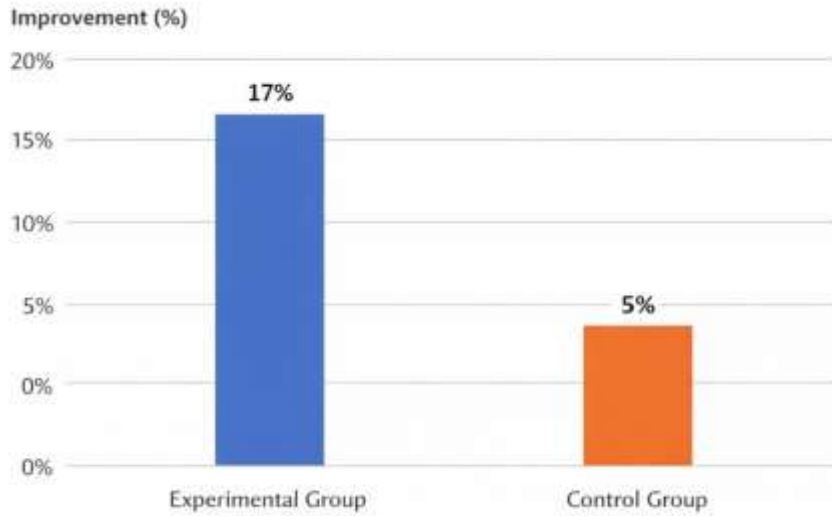
4.1 Grammar Accuracy

Analysis revealed substantial improvements in grammar accuracy for the experimental group. Pre-test scores averaged 68%, rising to 85% in the post-test, representing a 17-percentage-point improvement, statistically significant at $p < 0.01$. The control group showed a modest increase from 70% to 75% ($p = 0.045$). AI-assisted feedback facilitated immediate awareness of errors, enabling iterative self-correction, particularly in verb tense, article usage, prepositions, and subject-verb agreement.

Table 1. Grammar Accuracy Pre-test and Post-test

Group	Pre-test (%)	Post-test (%)	Improvement (%)	t-value	p-value
Experimental	68	85	+17	5.62	<0.01
Control	70	75	+5	2.14	0.045

Figure 1. Grammar Accuracy Improvement by Group



The column chart illustrates that the experimental group achieved more than three times the improvement of the control group, highlighting the efficacy of real-time AI feedback.

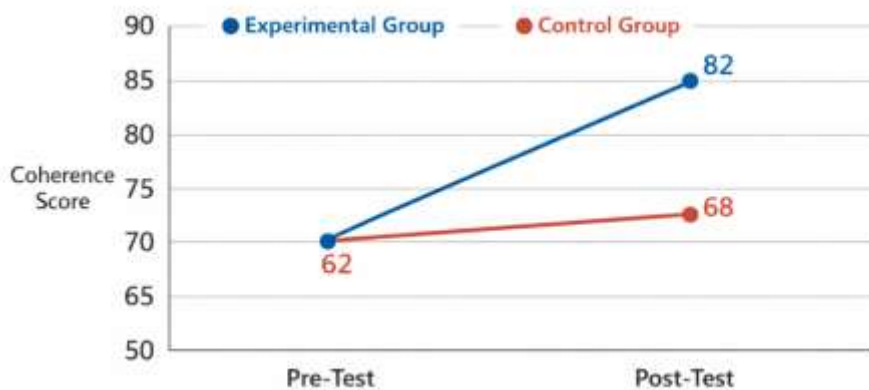
4.2 Coherence and Idea Expression

The experimental group also demonstrated significant improvement in coherence and clarity of idea expression. Average scores increased from 60 to 82 (+22 points), compared to the control group’s increase from 62 to 68 (+6 points). Qualitative analysis of writing samples revealed that experimental group participants effectively utilized cohesive devices, developed topic sentences, and structured paragraphs logically.

Table 2. Coherence and Idea Expression Scores

Group	Pre-test Score	Post-test Score	Improvement	Observations
Experimental	60	82	+22	Improved paragraph structure, logical flow, and use of linking words
Control	62	68	+6	Minor improvement; sentences often disconnected

Figure 2. Coherence Score Improvement



The line graph visualizes a sharp increase in the experimental group's coherence scores compared to a slight rise in the control group, demonstrating enhanced logical sequencing and idea connectivity.

For example, a pre-test entry "Yesterday I go to park. I see many people play football. It is fun" was revised in the post-test to "Yesterday, I went to the park and observed many people playing football. The lively atmosphere made the experience enjoyable." This reflects the adoption of complex sentences, appropriate tense usage, and improved cohesion facilitated by AI feedback.

4.3 Student Perception

Survey results indicated positive perceptions of AI-supported journaling. Approximately 65% of participants strongly agreed that AI feedback helped correct grammar errors, 60% strongly agreed that AI improved idea expression, and 55% reported increased confidence through daily journaling. About 50% found AI suggestions easy to implement, while 15% were neutral, reflecting some challenges in interpreting AI guidance.

Table 3. Student Perception of AI Feedback

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)
AI feedback helped correct grammar errors	65	20	10	5
AI feedback improved idea expression	60	25	10	5
Daily journaling increased confidence	55	30	10	5
AI suggestions easy to apply	50	30	15	5

Qualitative Findings:

Interviews revealed that immediate AI feedback increased motivation, promoted reflection on recurring mistakes, and encouraged consistent writing. However, some participants reported occasional unnatural phrasing from AI tools, indicating the need for teacher supervision.

5. DISCUSSION

5.1 Grammar Improvement

The results of this study provide strong evidence that AI-supported journaling significantly enhances English writing proficiency among first-year students at Dong Nai University, both in terms of grammatical accuracy and coherence of idea expression. The experimental group demonstrated a 17-percentage-point improvement in grammar accuracy, from 68% in the pre-test to 85% in the post-test, compared to a modest 5-percentage-point gain in the control group (70% → 75%). This statistically significant difference ($p < 0.01$) indicates that immediate, individualized feedback provided by AI tools facilitates more effective learning and error correction than traditional weekly feedback, which is often delayed and less frequent.

Analysis of error types showed that AI feedback particularly helped students correct recurring grammatical errors, including verb tense inconsistencies, subject-verb agreement, article usage, and preposition placement. By providing instant corrective suggestions and explanations, AI tools allowed students to internalize grammar rules actively rather than passively waiting for teacher feedback. For example, the sentence "I go to market yesterday and buy fruits" was revised to "I went to the market yesterday and bought fruits," demonstrating the integration of past tense forms, correct article usage, and parallel verb structures after AI-assisted revision. This aligns with previous findings by Li et al. (2020), who observed that AI-mediated feedback reduces systematic grammatical errors in L2 writing.

5.2 Coherence and Idea Expression

Regarding coherence and idea expression, the experimental group's average score increased from 60 to 82, a 22-point improvement, whereas the control group improved only 6 points (62 → 68). This difference highlights that AI-supported journaling not only corrects surface-level grammatical errors but also enhances higher-order writing skills, such as paragraph organization, logical sequencing of ideas, and use of cohesive devices. Observed changes in student writing include the effective deployment of complex sentences, appropriate conjunctions (e.g., “and,” “while,” “however”), and clear topic sentences, which collectively contribute to more coherent and reader-friendly essays. The AI tools' suggestions for sentence restructuring and vocabulary enhancement supported learners in connecting ideas fluently, corroborating Chen & Hsu's (2021) findings that AI feedback improves syntactic and lexical quality in L2 writing.

5.3 Motivation and Engagement

From a motivational standpoint, qualitative findings from surveys and interviews revealed that the immediacy of AI feedback significantly increased student engagement. Approximately 65% of students strongly agreed that AI feedback helped correct grammar errors, while 60% strongly agreed it improved idea expression. Students reported that the ability to revise drafts instantly, observe progress, and reflect on recurring mistakes fostered a sense of autonomy and mastery, consistent with Sociocultural Theory (Vygotsky, 1978). The AI feedback functioned as a cognitive scaffold, mediating the learning process by providing tailored support that students could internalize and apply independently.

5.4 Pedagogical Implications

The findings of this study suggest several important implications for English language instruction in higher education contexts.

First, AI-supported journaling can serve as a viable supplement to traditional classroom instruction, providing students with additional opportunities for consistent writing practice outside scheduled class hours. By delivering immediate and individualized feedback, AI tools help bridge the gap created by limited teacher availability, enhancing the overall effectiveness of instruction.

Second, the use of AI-assisted journaling encourages autonomous learning by promoting student self-regulation and reflection. Students engage actively in revising their work, monitoring recurring errors, and applying corrective suggestions independently, thereby fostering a sense of ownership over their learning process. This approach aligns with contemporary pedagogical perspectives that emphasize learner-centered strategies and the development of lifelong learning skills.

Finally, while AI tools offer significant benefits, it is essential for teachers to monitor and guide students' interactions with these technologies. Instructors should ensure that AI-generated suggestions are contextually appropriate and academically accurate, providing clarification when automated feedback may be misleading or stylistically unsuitable. Combining AI support with professional oversight ensures that students receive both immediate corrective guidance and the nuanced judgment that only a human instructor can provide, resulting in a balanced and effective pedagogical approach.

5.5 Limitations

However, the study also identified limitations of AI-assisted journaling. Some AI-generated suggestions resulted in unnatural or contextually inappropriate phrasing, which required teacher intervention to ensure academic correctness. While AI tools are highly effective in reinforcing grammar and structural skills, human guidance remains essential for nuanced language use and contextual accuracy. Furthermore, the study's duration of six weeks may not capture long-term retention, and the sample size of 40 students limits generalizability. Despite these limitations, the findings suggest that AI-supported journaling offers a practical, scalable approach to complement traditional instruction, particularly in higher education contexts where large class sizes often limit personalized feedback.

6. CONCLUSION AND RECOMMENDATION

This study demonstrates that AI-supported journaling is a highly effective pedagogical intervention for enhancing English writing skills among first-year university students. The significant improvements in grammar accuracy (+17%) and coherence (+22%) underscore the dual benefits of AI tools: providing timely, individualized feedback and supporting higher-order cognitive processes in writing. Moreover, student perceptions indicate enhanced engagement, motivation, and confidence, suggesting that AI-assisted journaling can foster sustained writing practice and self-regulated learning.

Practical Recommendations:

First, AI tools should be integrated as supplementary resources, complementing teacher feedback rather than replacing it. This ensures that students receive both automated guidance and human oversight for contextual appropriateness. Second, daily journaling should be encouraged to establish a consistent practice routine, as short, frequent writing sessions promote skill retention and fluency. Third, training sessions should be provided to help students interpret AI suggestions effectively, particularly in cases where feedback may be ambiguous or contextually inappropriate. Fourth, interdisciplinary applications should be considered; AI-supported journaling could be adapted to business, scientific, or technical writing courses, providing opportunities for targeted skill development.

Recommendations for Future Research:

Future studies should adopt longitudinal designs to examine whether the observed gains in grammar and coherence are retained over multiple semesters. Comparative research across different AI platforms could identify which features—such as real-time grammar correction, vocabulary enhancement, or sentence restructuring—are most effective for L2 learners. Multi-institution studies could expand generalizability, exploring how diverse student populations respond to AI-assisted journaling. Finally, investigating learners' long-term attitudes toward AI use, including the potential risk of over-reliance, would provide insights for developing balanced, sustainable pedagogical strategies.

In conclusion, AI-supported journaling represents a promising, scalable intervention that enhances both technical and cognitive aspects of English writing. When carefully implemented alongside teacher guidance, it can substantially improve grammatical accuracy, coherence, and learner confidence, providing a foundation for academic and professional success in an increasingly digital learning environment.

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