

# THE IMPACT OF AI TOOLS ON THE WRITING SKILLS IN ENGLISH OF EFL STUDENTS: A CASE STUDY AT DONG NAI TECHNOLOGY UNIVERSITY

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## GENERAL INFORMATION

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## KEYWORD

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## ABSTRACT

The rapid integration of artificial intelligence (AI) tools in an educational context has greatly impacted language acquisition, especially for students learning English as a Foreign Language (EFL). This research examines the effects of AI-powered writing tools, including Grammarly, QuillBot, and ChatGPT, on the enhancing English writing abilities among EFL learners. Utilizing both qualitative and quantitative data from 160 EFL students, the study investigates how these technologies aid in correcting grammar, expanding vocabulary, improving coherence, and providing feedback. The findings reveal that while AI tools significantly contribute to writing skill development, they also pose challenges related to overreliance and reduced critical thinking. The study suggests that when combined with teaching strategies, AI tools can effectively support EFL writing instruction.

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## 1. INTRODUCTION

In recent years, the field of education has undergone a notable shift due to the swift progress and widespread use of artificial intelligence (AI) technologies. Among the various applications, AI tools have become significant resources in language education, presenting both new opportunities and challenges for learners of English as a Foreign Language (EFL). Writing, a skill that is both complex and mentally taxing, often poses considerable obstacles for EFL students who need to master grammar, vocabulary, organization, and coherence in a language that is not their own (Bai, Wang, & Jia, 2021). To address these challenges, AI-driven writing assistants like

Grammarly, QuillBot, and ChatGPT have gained attention for their capability to offer real-time feedback, corrections, and stylistic advice. The incorporation of these tools into language teaching holds the potential to tackle common issues faced by EFL learners. For example, Grammarly provides automated corrections for grammar and syntax, QuillBot assists with paraphrasing and restructuring sentences, and ChatGPT aids in generating ideas and ensuring text coherence (Li & Lan, 2021; Zhang & Zou, 2022).

These features can foster learner independence, alleviate anxiety, and improve the quality of written work. However, there are concerns about excessive reliance on AI tools,

which might result in superficial learning or hinder critical thinking and creativity if not properly guided by educators (Zhang & Zou, 2022). This study seeks to investigate the influence of AI writing tools on the English writing abilities of 116 EFL students by examining their effects on grammar correction, vocabulary enhancement, coherence improvement, and feedback quality. Employing a mixed-methods approach, the research utilizes both quantitative data and qualitative insights to evaluate the educational benefits and limitations of these technologies. The study also explores how teaching strategies can facilitate the effective use of AI tools in developing sustainable writing skills.

## 2. LITERATURE REVIEW

### 2.1. Definition of AI Tools

In recent years, the integration of artificial intelligence (AI) tools into language learning has significantly transformed the way students develop writing skills. AI writing tools are defined as software applications that utilize natural language processing (NLP), machine learning, and large language models (LLMs) to assist users in producing, revising, or enhancing written texts (Zawacki-Richter et al., 2019). These tools can be categorized based on their core functionalities and their alignment with specific aspects of writing competence, such as grammar, vocabulary, and coherence.

**Grammarly**, for instance, primarily functions as an automated grammar and style checker. It identifies and corrects grammatical and mechanical errors while suggesting alternative vocabulary and syntactic structures to enhance clarity and style. According to Li and Ranieri (2022), Grammarly significantly improves learners' grammatical accuracy and lexical appropriateness, contributing to enhanced micro-level writing performance.

**QuillBot** is designed to support paraphrasing and sentence restructuring. It allows users to rephrase input texts in multiple

styles, promoting lexical diversity and helping learners avoid plagiarism through rewording. Research by Azzahra and Basthomi (2023) indicates that QuillBot supports students' lexical and syntactic development by encouraging flexible language use and enhancing cohesion within paragraphs.

**ChatGPT**, a generative AI model developed by OpenAI, provides extensive writing assistance, including idea generation, text completion, summarization, and feedback. It supports learners in structuring arguments, maintaining logical flow, and adopting academic language. Studies have shown that tools like ChatGPT enhance students' macro-level writing skills, especially in organizing ideas and achieving coherence across longer texts (Elmahdi et al., 2025).

In summary, while all three tools aid writing development, they differ in scope and focus: Grammarly enhances grammatical and lexical accuracy, QuillBot supports paraphrasing and cohesion, and ChatGPT facilitates idea development and overall textual coherence. When used strategically, these tools can complement each other and substantially improve learners' writing proficiency in English as a foreign language (EFL) contexts.

### 2.2. The importance of AI Tools

The involvement of artificial intelligence (AI) in language education has attracted growing academic interest, especially concerning its ability to improve writing skills among learners of English as a Foreign Language (EFL). Writing is one of the most intellectually challenging components of language acquisition, and EFL students frequently encounter difficulties with grammar, word choice, sentence construction, and overall coherence (Hyland, 2019). AI-driven writing tools have been created to tackle these issues by providing learners with instant and tailored feedback, thus decreasing their dependence on teacher intervention and encouraging learner independence.

Numerous studies have emphasized the success of AI-based tools in enhancing writing outcomes. For example, Li and Lan (2021) discovered that students utilizing AI-supported platforms showed notable improvements in syntactic accuracy and lexical variety compared to those who relied solely on conventional teaching methods. Similarly, Bai, Wang, and Jia (2021) conducted a meta-analysis and found that automated writing feedback has a moderate to strong positive impact on writing quality, particularly in areas like grammatical accuracy and sentence fluency. Specific AI tools such as Grammarly, QuillBot, and ChatGPT have been the subject of recent research.

Grammarly, a tool for checking grammar and style, has been proven to assist learners in identifying and correcting common grammatical and syntactic mistakes, thereby enhancing grammatical competence over time (O'Neill & Russell, 2020).

QuillBot provides paraphrasing and summarizing features, which help students develop more complex sentence structures and avoid plagiarism (Zhang & Zou, 2022).

ChatGPT, created by OpenAI, goes further by facilitating interactive dialogue, idea generation, and comprehensive text enhancement. Research indicates that such generative AI tools can aid learners in improving content organization, argumentation, and textual coherence (Kasneci et al., 2023). Despite these advantages, concerns have arisen about the educational implications of integrating AI tools. Critics argue that excessive reliance on AI-generated feedback might deter students from engaging in deep learning processes and hinder the development of metacognitive writing strategies (Li & Lan, 2021; Pham & Usaha, 2022).

Additionally, some AI tools lack contextual awareness and may offer inappropriate or misleading suggestions, potentially confusing learners or reinforcing incorrect usage patterns.

Furthermore, the effectiveness of AI tools seems to be significantly influenced by how they are incorporated into the curriculum. When used as a complement to teacher feedback and peer review, these tools can enhance formative assessment and support personalized learning paths. However, without guided instruction, learners might use AI tools passively, reducing their educational value (O'Neill & Russell, 2020; Zhang & Zou, 2022). In summary, while existing research supports the potential of AI tools to improve various aspects of EFL writing, it also highlights the necessity for strategic integration into instructional design. The current study builds on this body of research by investigating how a combination of Grammarly, QuillBot, and ChatGPT affects the writing performance of EFL learners, while also exploring learner perceptions and concerns regarding tool usage.

### **2.3. Previous Studies on the Impact of AI Tools in Language Learning**

There is an increasing amount of research examining how AI tools impact language learning, especially in improving writing skills for students learning English as a Foreign Language (EFL). These studies highlight both the benefits and drawbacks of employing AI tools in educational settings, with a significant focus on tools like Grammarly, QuillBot, and ChatGPT for tasks such as grammar correction, vocabulary enhancement, and writing support.

#### *AI Tools and Writing Skills*

Previous research has demonstrated the effectiveness of AI tools in boosting the writing accuracy and fluency of EFL learners. For example, Boulton (2017) discovered that automated writing feedback tools, like Grammarly, greatly improved students' grammar and spelling accuracy. The tool's capability to offer immediate feedback enabled students to correct their mistakes independently, resulting in better overall writing quality. Similarly, Hockly (2018) contended that AI-driven platforms provide learners with prompt and personalized

feedback, allowing them to engage in a more self-directed and efficient learning experience.

#### *AI for Vocabulary Enhancement*

In Song and Song's study (2023), comparing students who got AI-assisted instruction to the control group, quantitative analysis shows that they significantly improved their writing abilities and motivation. In terms of structure, coherence, syntax, and vocabulary, the experimental group exhibits improved writing skills. Qualitative results demonstrate a range of viewpoints, from appreciation of AI's creative teaching function and its beneficial effects on writing abilities and motivation to worries about contextual accuracy and over-reliance.

#### *Personalized Learning with AI*

A significant benefit of AI tools is their capacity to offer customized learning experiences. As noted by Warschauer and Grimes (2008), AI systems can adjust to meet the unique needs of students, providing feedback and exercises tailored to their skill levels and areas where they need improvement. This personalized method is especially beneficial for language learners, as it enables them to advance at their own speed and receive focused assistance.

#### *AI and Critical Thinking*

Despite their advantages, some research warns against excessive reliance on AI tools, particularly concerning critical thinking. Bremner (2019) contended that AI has a global impact and has grown intricately woven into many facets of our existence. Although AI has enormous potential to improve ease, efficiency, and productivity, there are rising worries about how it may affect critical thinking abilities, especially among students. This study explores how third-year EFL students' critical thinking skills are impacted by their reliance on AI. The study evaluates how dependence on AI technologies influences critical thinking by examining usage trends and using both quantitative and qualitative techniques. A

thorough questionnaire was created by consulting the body of available literature. Data from the sample, which included five teachers and eighty pupils, was examined to determine how AI affected critical thinking. Therefore, AI can both positively and negatively affect critical thinking.

#### *AI Tools and Feedback Mechanisms*

AI tools are widely acknowledged for their role in delivering immediate feedback to students. According to Zaghlool and Khasawneh (2023), the study results also revealed that more than 68 percent of respondents agreed that combining a variety of AI techniques into foreign language instruction made the learning process easier and more effective. Furthermore, 60% believe that a lack of contextual awareness limits the use of artificial intelligence systems in foreign language education. Approximately 80.5% of survey respondents believed that insufficient language data to train the models was another impediment, specifically the addition of distant languages that were not included in the databases of the bulk of AI models. Finally, it is argued that, despite AI's potential in foreign language instruction, there are evident limits that can be addressed by incorporating the answer into traditional learning systems.

### **2.4. Challenges and Critical Thinking Concerns**

Despite their advantages, AI tools also raise concerns:

- Overreliance on automated feedback may hinder the development of critical thinking and metacognitive strategies (Li, 2020; Bremner, 2019).
- Based on Bloom's Taxonomy, AI tools primarily assist with lower-order skills (e.g., remembering, understanding, applying), but may not adequately support higher-order thinking skills (e.g., analyzing, evaluating, creating).

- Some feedback lacks contextual sensitivity, which may limit deeper learning (Solé & Castelló, 2018).

- These issues underscore the importance of teacher mediation and the integration of human feedback to promote independent thinking.

## 2.5. Gaps in Current Research

While many studies have validated the effectiveness of AI tools, several limitations remain:

- Most existing research focuses on short-term outcomes; few explore longitudinal effects (Fletcher & Loubere, 2020).

- Limited comparative analyses exist on how different AI tools affect specific writing dimensions.

- Few studies examine the cognitive interaction between learners and AI from a theoretical learning perspective, particularly in Vietnamese EFL contexts.

The present study addresses these gaps by investigating the cognitive and motivational roles of AI tools using Vygotsky's Sociocultural Theory and applying a mixed-methods approach.

## 2.6. Theoretical Framework: Vygotsky's Sociocultural Theory

This study is grounded in Vygotsky's Sociocultural Theory (SCT) (1978), which emphasizes the mediating role of cultural tools in cognitive development. A key concept in SCT is the Zone of Proximal Development (ZPD) - the range between what a learner can do independently and what they can accomplish with assistance.

AI tools are conceptualized in this research as mediational tools that support learners within their ZPD. Specifically:

- Grammarly provides low-level scaffolding for grammatical accuracy and mechanical correctness.

- QuillBot facilitates paraphrasing and cohesion, helping learners explore varied syntactic structures.

- ChatGPT operates as a cognitive partner, supporting idea development, structure building, and logical coherence.

These tools do not replace teachers but serve as interactive scaffolds that allow students to internalize language conventions through guided practice. When learners revise texts based on AI suggestions, they engage in cognitive apprenticeship, a process akin to learning with expert support.

## 3. METHODOLOGY

### 3.1. Research Design

This study employed a quasi-experimental mixed-methods design, integrating both quantitative and qualitative approaches to evaluate the effectiveness of AI-based writing tools—Grammarly, QuillBot, and ChatGPT—on EFL students' writing performance. In addition to the three experimental groups, a control group that did not use any AI tool was included to establish a baseline for comparison. The inclusion of both intervention and non-intervention groups enhanced the internal validity of the study. The combination of statistical and thematic data allowed for comprehensive insights into both writing outcomes and learner perceptions.

### 3.2. Participants and Sampling

A total of 160 EFL students were recruited from three higher education institutions in Vietnam using stratified random sampling to ensure diversity in gender, academic background, and English proficiency. Participants were selected based on their TOEFL ITP scores (ranging from 450 to 580), representing intermediate to upper-intermediate levels. They were then randomly assigned to four groups using a computerized randomization procedure:

- Group A (n = 40): Grammarly users

- Group B (n = 40): QuillBot users
- Group C (n = 40): ChatGPT users
- Group D (n = 40): Control group (no AI tool)

Random assignment ensured baseline equivalence across the groups, thereby enhancing the generalizability and reliability of the findings.

### 3.3. Instruments

To minimize reliance on self-reported data and ensure objective measurement, a range of research instruments was utilized:

- AI Usage Logs: Extracted directly from tool dashboards or browser activity to document frequency, duration, and type of interactions with the AI tools.

- Text Evaluation Software: Writing samples were analyzed using Coh-Metrix and Text Inspector to assess lexical richness, syntactic complexity, and discourse cohesion.

- Analytic Writing Rubric: A validated rubric covering grammar, vocabulary, coherence, and structure was used by trained raters. Inter-rater reliability was established (Cohen's Kappa = 0.85).

- Questionnaire: Consisted of both Likert-scale and open-ended items measuring students' perceptions of AI tools. Validity was ensured via expert review, and internal consistency reliability was confirmed (Cronbach's alpha = 0.89).

- Semi-Structured Interviews: Conducted with 25 participants selected across all groups and proficiency levels to ensure depth and representativeness.

- Thematic Analysis Protocol: Braun and Clarke's (2006) six-phase framework was employed for coding and theme generation. Inter-coder reliability reached 0.82.

### 3.4. Procedure

*Pre-Intervention Phase:*

- All participants completed a pre-test writing task under controlled conditions.

- Experimental group participants received structured training on their respective AI tools.

- Intervention Phase (10 Weeks):

- Weekly writing assignments were administered to all groups.

- Groups A, B, and C revised their drafts using the assigned AI tools.

- Group D received peer and teacher feedback without AI assistance.

- AI usage data were collected on a weekly basis.

- Post-Intervention Phase:

All participants completed a post-test writing task using prompts equivalent in structure and difficulty to the pre-test.

The questionnaire was administered to all students.

Semi-structured interviews were conducted with a representative sample of 25 students.

### 3.5. Data Analysis

Quantitative data were analyzed using paired-samples t-tests and ANOVA to compare writing performance within and across groups. Multiple regression analysis was conducted to determine the relationship between AI usage frequency and writing improvement.

Qualitative data were transcribed verbatim and analyzed thematically using NVivo software. Emerging themes from interviews were triangulated with questionnaire responses and AI usage logs to enhance the validity of interpretations.

### 3.6. Validity and Reliability

Instrument validity was established through expert consultation and pilot testing. Reliability was ensured through the use of standard metrics, with inter-rater and inter-coder reliability

exceeding the accepted threshold ( $\kappa > 0.80$ ). Triangulation of quantitative and qualitative data sources strengthened the credibility and dependability of the findings.

### 3.7. Ethical Considerations

All procedures adhered to institutional ethical guidelines. Participants provided informed consent, and their confidentiality and anonymity were guaranteed throughout the study. Participation was voluntary, and students were informed of their right to withdraw at any time without academic penalty. All data were securely stored and accessed only by the research team.

## 4. FINDINGS AND DISCUSSION

### 4.1. Quantitative Results: Pre-test and Post-test Comparisons

The study assessed the effectiveness of Grammarly, QuillBot, and ChatGPT in improving students' writing performance, focusing on grammar accuracy, vocabulary use, and textual coherence. Pre-test and post-test scores were analyzed using paired-samples t-tests. Each experimental group (Grammarly, QuillBot, ChatGPT) showed statistically significant improvement in all three writing components compared to the control group.

Figure 1 presents the improvement in grammar accuracy, where the Grammarly group demonstrated the most notable gain, aligning with its grammar-specific features.

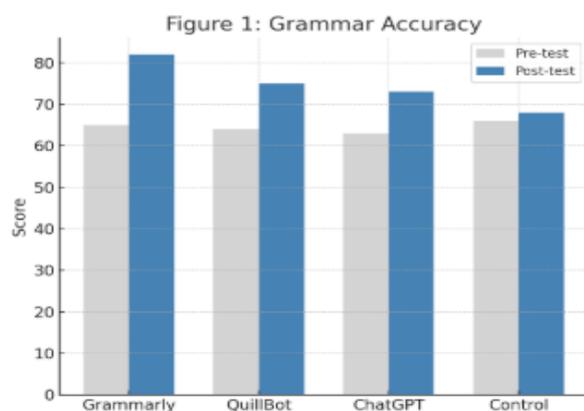


Figure 2 illustrates vocabulary enhancement, with the ChatGPT group outperforming others due to its contextual lexical suggestions.

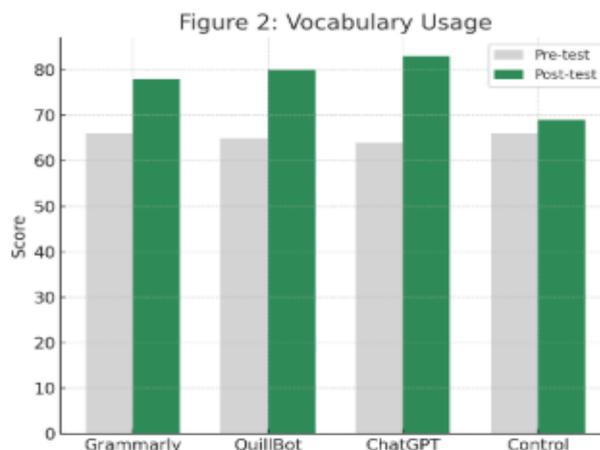
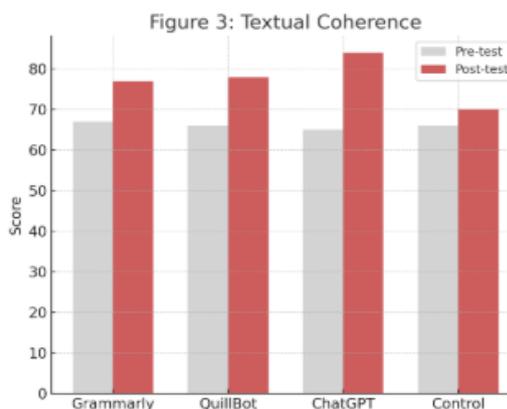


Figure 3 displays gains in coherence and cohesion, highlighting ChatGPT's strength in structuring logical and connected texts.



These figures demonstrate the differential effectiveness of AI tools. Grammarly shows the most significant impact on grammar correction (an increase from 65 to 82), validating its core function. ChatGPT outperformed in vocabulary and coherence improvements (gains of 19 and 19 points, respectively), likely due to its ability to generate contextual and semantically cohesive text. QuillBot provided moderate gains across all areas, particularly in vocabulary.

The findings reinforce the argument that AI tools serve as differentiated mediational agents within students' Zones of Proximal Development

(ZPD), as proposed in Vygotsky's Sociocultural Theory. Each tool scaffolded specific aspects of the writing process, guiding learners beyond their current independent capabilities.

#### 4.2. Qualitative Results: Thematic Insights from Interviews

Thematic analysis of 25 student interviews identified four key patterns:

- *Enhanced Confidence*: Students expressed increased writing confidence. One student stated, "I now write faster because the tool helps me see and fix my usual mistakes."

- *Tool-Specific Strategies*: Students used different tools purposefully. For example, a QuillBot user remarked, "I use it to restate complex ideas more clearly."

- *Overreliance*: A common concern was dependence on AI. A Grammarly user reflected, "I always wait for Grammarly to correct me. I've stopped thinking first."

- *Lack of Contextual Understanding*: Participants noted AI sometimes misinterpreted tone or nuance. As one ChatGPT user explained, "It made my argument sound too casual—it didn't match the academic style I needed."

These insights demonstrate both the benefits and risks of AI-supported learning. They affirm that while tools can scaffold development, uncritical dependence may inhibit internalization of writing strategies.

#### 4.3. Theoretical Interpretation

Drawing on Vygotsky's Sociocultural Theory, AI tools functioned as mediational agents facilitating student progression from assisted to independent writing. Grammarly provided low-level scaffolding, aiding grammar correction. QuillBot promoted lexical variation through paraphrasing. ChatGPT enabled macro-level organization and idea development. These tools supported learners within their ZPD by offering guidance they could not yet self-generate.

However, the data also highlighted that without reflective practice or educator mediation, students risk remaining dependent on AI. This challenges sustainable learning and echoes Vygotsky's emphasis on guided support and gradual autonomy.

#### 4.4. Comparison with Previous Studies

The findings corroborate prior research. Li and Lan (2021) found Grammarly significantly improved grammatical accuracy, consistent with this study's results. Additionally, QuillBot enhances lexical cohesion through rephrasing, which was similarly observed here. Kasneci et al. (2023) emphasized ChatGPT's strength in coherence-building, also reflected in the present findings.

Unlike prior research, this study also examined how cultural and educational context influences tool usage. For example, several Vietnamese students expressed hesitance to revise AI suggestions due to deference to perceived authority, showing how sociocultural norms affect technology use in learning.

#### 4.5. Pedagogical Implications

The differentiated strengths of each AI tool suggest that teachers should adopt a blended strategy: leveraging Grammarly for grammar, QuillBot for vocabulary flexibility, and ChatGPT for content organization. Educators must also scaffold AI usage to prevent dependency and foster critical thinking.

Instructional practices should integrate AI tools with peer review, instructor feedback, and reflective writing tasks to promote internalization and self-regulated learning. Furthermore, teachers should cultivate students' critical awareness of AI suggestions, emphasizing that tools are supports—not substitutes—for their own thinking processes.

In sum, while AI tools substantially benefit EFL writing development, their integration must

be pedagogically guided to ensure long-term learner autonomy and competence.

#### **4.6. Limitations of the study**

Although this research offers important insights into how AI tools influence the writing abilities of EFL students, it is important to recognize several limitations that could impact the context of the findings. These constraints might influence the generalizability, validity, and interpretation of the outcomes.

##### *Sample Size and Generalizability*

The research involved 160 students from a single institution, which restricts the ability to generalize the results. Although the sample size is adequate for this study's scope, it may not fully capture the diversity of English learners across various educational environments, regions, or cultural backgrounds. This limitation could affect how applicable the findings are to other populations of EFL students. Teddlie and Tashakkori (2009) suggest that a larger and more varied sample would produce results that are more relevant to different contexts.

##### *Short Duration of the Study*

The research was carried out over a brief span of 6 weeks. Writing skills typically evolve over a more extended period, and such a limited timeframe might not be adequate to observe the long-term effects of AI tools on students' writing capabilities. As highlighted by Fletcher and Loubere (2020), the processes of language acquisition and writing skill enhancement are longitudinal and necessitate more time for meaningful evaluation.

##### *Self-Reported Data*

The research utilizes self-reported information gathered through questionnaires and interviews. This method can lead to biases, such as social desirability bias, where participants might give responses they think are expected or acceptable instead of being truthful. This limitation is well-recognized in language

education studies (Porte, 2014). Moreover, self-reporting might not adequately reflect the complexity of students' experiences or their actual use of AI tools in writing. Future research could enhance the accuracy and reliability of the results by combining self-reported data with more objective measures, like writing sample.

##### *Limited Range of AI Tools*

The research concentrated on three popular AI tools—Grammarly, QuillBot, and ChatGPT—without examining other AI-based writing platforms. AI tools vary in their complexity, and their effects on student writing can differ. For example, tools such as ProWritingAid or Ginger Software might provide distinct features not found in the tools analyzed in this study. As noted by Baralt, Gilabert, and Robinson (2016), exploring a range of tools could offer a more detailed insight into the specific benefits and drawbacks of different AI technologies in language learning.

##### *Overdependence on AI Tools*

During the interviews, students expressed a significant concern about becoming overly dependent on AI tools. As they grew more familiar with using these tools for correcting grammar and spelling, there was a noticeable inclination to rely on them too much. This situation prompts questions about whether students are genuinely absorbing the feedback or merely depending on AI suggestions without fully grasping their errors. Vygotsky's (1978) research underscores the necessity for students to be actively involved in the learning process rather than passively depending on external aids. Future research should investigate methods to promote a balanced use of these tools without undermining students' cognitive developments.

##### *Subjectivity of AI Feedback*

While AI tools are advanced, they still fall short in delivering subjective, creative, and nuanced feedback. Applications like Grammarly and QuillBot mainly address the technical

elements of writing, such as grammar, spelling, and syntax. However, they lack the ability to offer insights on style, tone, or the cultural suitability of language, which are crucial for more complex writing tasks. As Solé and Castelló (2018) pointed out, the absence of context-aware feedback in AI tools might hinder their capacity to enhance high-level writing skills, particularly in academic or creative writing settings.

#### *Cultural and Contextual Factors*

The research was carried out within a particular educational and cultural environment, which means the results might not be relevant to EFL students in other settings. Learners from diverse cultural or educational backgrounds may engage with AI tools in varying ways, and their views on these tools could differ. For example, students from collectivist societies might depend more on teacher feedback and less on AI tools, while those from individualistic societies may prefer using AI for independent learning. Future studies should explore how cultural context affects the utilization and effectiveness of AI tools in language education.

#### **4.7. Suggestions for Future Research**

To overcome these limitations and gain a more thorough understanding of how AI tools affect EFL writing, future research could consider the following:

- Increase the sample size to encompass students from various institutions and regions, which would lead to findings that are more widely applicable (Teddlie & Tashakkori, 2009).

- Undertake longitudinal studies to evaluate the long-term impact of AI tool usage on writing development, enabling more precise monitoring of progress (Fletcher & Loubere, 2020).
- Use objective writing assessments in conjunction with self-reported data to offer a more complete evaluation of students' advancement.

- Investigate a broader array of AI tools, assessing their effectiveness across different writing tasks and proficiency levels (Baralt, Gilabert, & Robinson, 2016).

- Include a control group to better isolate the effects of AI tools on writing proficiency and account for other influencing factors (Cohen, Manion, & Morrison, 2018).

- Examine how cultural factors affect the use of AI tools and their influence on the writing development of EFL students (Gudykunst, 2004).

#### **5. CONCLUSION**

This research examined how AI tools such as Grammarly, QuillBot, and ChatGPT impact the English writing abilities of EFL students. The analysis results indicate that these AI tools can greatly enhance various writing components, including grammatical accuracy, vocabulary application, and coherence. The quantitative data show that all three AI tools led to statistically significant improvements in writing performance, highlighting their potential as effective aids in language learning.

However, despite the considerable advantages of AI tools, there are challenges linked to their use. The qualitative findings pointed out concerns about excessive reliance on AI feedback and the tools' limitations in offering contextually appropriate or personalized advice. These concerns align with similar findings in existing literature, where researchers warn of the risk of students becoming too dependent on AI tools for corrections and guidance. This underscores the need to integrate AI tools into a broader educational strategy that includes human feedback, self-regulation, and critical reflection. The findings also stress the importance of instructors guiding students to use AI tools as supplementary aids rather than as crutches. To foster a balanced approach, teachers should encourage students to engage in self-editing, peer feedback, and in-person discussions,

complementing AI tools with traditional writing instruction to ensure comprehensive learning.

Future studies could investigate the long-term impact of AI tools on writing development and assess their effectiveness in addressing more complex writing skills, such as argumentation and creativity, which were not the focus of this study. In summary, while AI tools like Grammarly, QuillBot, and ChatGPT can significantly enhance EFL students' writing skills, their integration into the educational process requires careful consideration. Educators must be aware of the potential for overreliance on these tools and aim to balance their use with traditional teaching methods to develop independent, critical writers. With thoughtful integration, AI tools can serve as valuable resources for improving writing proficiency and supporting EFL students' language development.

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# TÁC ĐỘNG CỦA CÔNG CỤ AI ĐẾN KỸ NĂNG VIẾT TIẾNG ANH CỦA SINH VIÊN CHUYÊN NGỮ: NGHIÊN CỨU TẠI TRƯỜNG ĐẠI HỌC CÔNG NGHỆ ĐỒNG NAI

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## THÔNG TIN CHUNG

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## TỪ KHÓA

*Công cụ AI;*

*Bối cảnh giáo dục;*

*Sinh viên chuyên Anh;*

*Học ngôn ngữ;*

*Kỹ năng viết.*

## TÓM TẮT

Sự tích hợp của các công cụ trí tuệ nhân tạo (AI) trong bối cảnh giáo dục đã ảnh hưởng đáng kể đến việc học ngôn ngữ, đặc biệt là đối với sinh viên học tiếng Anh như một ngoại ngữ (EFL). Nghiên cứu này khám phá tác động của các công cụ viết do AI tạo ra, ví dụ như Grammarly, QuillBot và ChatGPT, đối với sự phát triển các kỹ năng viết tiếng Anh trong số những người học EFL. Dựa trên cả dữ liệu định tính và định lượng với những sinh viên tham gia bao gồm 160 sinh viên EFL, nghiên cứu điều tra cách các công cụ này hỗ trợ sửa lỗi ngữ pháp, nâng cao vốn từ vựng, cải thiện tính mạch lạc và cung cấp phản hồi. Kết quả chỉ ra rằng trong khi các công cụ AI mang lại lợi ích đáng kể trong việc thúc đẩy khả năng viết, chúng cũng nêu ra những lo ngại liên quan đến sự phụ thuộc quá mức và suy giảm tư duy phản biện. Các phát hiện cho thấy rằng khi được tích hợp với các chiến lược sư phạm, các công cụ AI có thể đóng vai trò là cơ chế hỗ trợ hiệu quả trong hướng dẫn viết EFL.