*Suggestions on Artificial Intelligence-Assisted Tools for Teaching and Learning English Writing Skills*

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**Abstract**
With the rapid advancements of technology in the 21st century, artificial intelligence (AI) has a place in many facets of our lives, including education. In recent years, AI-powered technologies have demonstrated significant improvements in teaching and learning, particularly in the growth of writing abilities. AI tools have the potential to boost critical thinking abilities, promote student engagement, identify areas for growth, and deliver individualized feedback. Many educators are now able to use AI-assisted tools to support students in strengthening their writing skills thanks to the growing integration of technology in education. This research paper aims to explore the potential of AI-based tools and provide suggestions on the effective utilization of AI-assisted tools to enhance the teaching and learning of English writing skills. Additionally, it emphasizes how AI-assisted tools can promote self-directed learning by allowing students to practice and refine their writing skills independently. The report also addresses potential drawbacks and challenges with AI tools, including over-reliance, ethical considerations, and restrictions on dealing with higher-order writing skills.


Keywords: AI-Assisted Tools, Writing Skills, Technology

**Introduction**

**1. Problem Identification**

English writing skills are crucial for academic and professional success, forming the foundation for effective communication. Effective writing skills are recognized as fundamental for academic achievement and professional success. Proficiency in written communication is not only essential for academic performance but also a critical skill in various professional fields. The current state of English writing skills in education reflects a dynamic interplay of historical legacies, contemporary challenges, technological advancements, and global perspectives. Acknowledging the evolving landscape of writing instruction is essential for educators, policymakers, and stakeholders as they navigate the complexities of preparing students for the demands of the 21st century. As we continue to explore innovative approaches and leverage technology, a holistic understanding of the current state of English writing skills is crucial for shaping the future of education and equipping learners with the tools they need to thrive in an interconnected world.

**2. Need for Innovative Approaches to Address These Challenges**

The integration of technology in education has introduced new possibilities for enhancing English writing skills. Digital tools and platforms have become integral components of the writing process, offering opportunities for collaborative learning, instant feedback, and personalized instruction. The advent of online resources, writing software, and interactive platforms has created a more engaging and dynamic learning environment, challenged traditional paradigms, and encouraged innovative approaches to writing instruction.

The integration of technology necessitates a shift in the roles of educators from traditional knowledge providers to facilitators and guides. Educators are now responsible for cultivating digital literacy skills, critical thinking, and adaptability in students. Embracing technology requires continuous professional development, encouraging educators to stay abreast of technological advancements and incorporate them into their teaching practices.

**3. Exploration of AI-Assisted Tools as a Potential Solution**

The advent of AI has laid the groundwork for a revolution in education by offering an entirely new realm of possibilities and paths for exploration. Artificial Intelligence (AI) is transforming industries, with a profound impact expected in education. Integrating AI into education will revolutionize teaching methods, personalize learning, and enhance educational efficiency. AI entails computer systems performing tasks requiring human intelligence like learning, reasoning, and problem-solving using machine learning algorithms to analyze data, make predictions, and improve performance continually. The future of education is promising with AI at its core.

**4. Objectives of the Study**

The primary objective of this study is to comprehensively evaluate the impact of AI-assisted tools on enhancing English writing skills. Firstly, the study aims to assess the effectiveness of these tools in improving students' proficiency in written communication. Secondly, it seeks to identify the key features and functionalities that contribute to the success of AI tools in supporting English writing instruction. By examining the specific attributes that make AI

tools effective, the study intends to provide valuable insights for developers and educators alike. Lastly, the research endeavors to offer practical suggestions for the seamless integration of AI into English writing instruction. Through this multifaceted approach, the study aims to inform educational stakeholders on the best practices and strategies for leveraging AI technology to enhance the teaching and learning of English writing skills.

1. To assess the effectiveness of AI-assisted tools in improving English writing skills
2. To identify key features and functionalities of successful AI tools
3. To provide practical suggestions for integrating AI into English writing instruction

## Literature Review

### A. Overview of AI in Education

### 1. Historical Perspective of AI in Education

Artificial intelligence (AI) has become an increasingly integral part of the educational environment, transforming teaching, and learning processes in profound ways. The integration of AI-powered technologies into educational settings has a remarkable history, spanning back to the early developments in the field of computer-assisted instruction (CAI) in the 1950s (Carbonell, 1970).

The history perspective of AI in education begins with the 1950s invention of PLATO (Programmed Logic for Automated Teaching Operations) at the University of Illinois (Bitzer et al., 1961). PLATO was one of the earliest revolutionary computer-based educational systems to use simple AI techniques for providing personalized, interactive learning experiences, although it was limited in scope and capability.

By the 1970s and 1980s, the emergence of Intelligent Tutoring Systems (ITS) marked a significant evolution, leveraging advances in cognitive science and AI to offer adaptive, personalized instruction (Carbonell, 1970). These systems employ natural language processing to support educators with ongoing, sustainable training and support that is helping us move forward in our work to promote prosperity for all students.

Throughout the 1980s and 1990s, the development and integration of AI-based educational systems like natural language processing, educational games, and simulations continued to enhance educational tools. An example from this period is the AutoTutor system, which simulated conversational interactions to facilitate learning in natural language (Graesser et al., 2001).

In the 21st century, AI integration in education has dramatically increased, focusing on personalized learning, automated grading, and virtual educational assistants. Notable modern innovations include the Cognitive Tutor Algebra system, which uses cognitive models to provide real-time feedback (Ritter et al., 2016), and ChatGPT by OpenAI, a conversational AI launched in 2022 that delivers detailed responses based on user prompts, reflecting the ongoing advancement and application of AI in educational contexts (Tlili et al., 2023).

### 2. Studies on the Impact of AI on Language Learning

In recent years, the development of Artificial Intelligence (AI) technologies into language learning has been a subject of significant research and exploration. AI-powered tools and

systems can alter the way individuals acquire, practice, and master new languages. This section will review the findings of previous studies that have examined the impact of AI-assisted language learning (AIAL) tools in improving language proficiency.

The development of Intelligent Tutoring Systems (ITS) has been a major factor in language learning. These AI-driven systems can provide personalized, interactive instruction and feedback to language learners, addressing their unique strengths, weaknesses, and learning preferences (Graesser et al., 2001). Studies have demonstrated that ITS can lead to improved language proficiency, increased learner engagement, and more efficient use of instructional time (VanLehn, 2011).

AI-powered technologies have also been employed to facilitate the process of providing feedback and error correction to language learners. Natural language processing algorithms can analyze learners' responses and generate personalized feedback, highlighting areas for improvement and providing targeted guidance (Roscoe & McNamara, 2013). Research has indicated that this type of automated feedback can be as effective as human-provided feedback in increasing students' efficiency, save teachers' time, and provide more accurate and consistent feedback (Harry, 2023).

The use of conversational AI, such as chatbots and virtual assistants, has emerged as a promising approach for providing language learners with opportunities to practice their communication skills (Yang et al., 2022). These AI-powered systems can engage learners in natural language dialogues, providing real-time feedback and guidance to assist in the development of speaking and listening proficiency (Young & Shishido, 2023).

AI-powered language learning platforms have also enabled the development of multimodal language learning experiences, integrating authentic materials, multimedia resources, and real-world scenarios (Huang et al., 2021). Virtual reality (VR) and augmented reality (AR) technologies creates fully immersive virtual environments that transport learners to English-speaking settings, providing authentic language exposure and opportunities for real-time communication (Sinthiya, 2023). These immersive experiences deepen students' cultural awareness, empathy, and cross-cultural communication abilities.

While the implementation of AI in language learning has demonstrated promise, it is important to acknowledge the potential limitations and ethical considerations associated with these technologies. Concerns have been raised regarding algorithmic bias, data privacy, and the potential for AI to exacerbate educational inequities (Zawacki-Richter et al., 2019). As the use of AI in language learning continues to evolve, it will be essential to address these challenges and ensure that these technologies are developed and implemented in a responsible and inclusive manner.

Previous studies on the impact of artificial intelligence on language learning have highlighted the impact of AI technologies in fostering language acquisition, cultural understanding, and communication skills. From intelligent tutoring systems to conversational AI and multimodal learning experiences, AI-powered language learning platforms offer innovative solutions to meet the diverse needs of language learners (Yuan, 2023; Jeon, 2024). As the field continues to evolve, it will be crucial to consider the ethical and practical implications of AI in language education. By leveraging insights from research studies, educators, researchers, and policymakers can harness the full potential of AI to promote effective, inclusive, and engaging language learning experiences for learners worldwide.

**B. Existing Approaches to Teaching English Writing**

**1. Traditional Methods and Their Limitations**

The teaching of English writing has evolved significantly over the decades, transforming from more traditional, teacher-centered approaches to more student-centered and process-oriented approaches. This session presents an overview of traditional methods employed in teaching English writing and outlines their limitations, highlighting the need for innovative approaches to address contemporary challenges in writing instruction.

One of the traditional methods in teaching English writing is the Model-Based Approach. Outlined by (Badger & White, 2000), this method involves students examining and emulating high-quality writing samples. It focuses on replicating the structure, language, and rhetorical strategies of these model texts. Although modeling can provide students with a clear structure and style to follow, it may also hinder their creativity and writing style.

As described by (Tribble, 1996), the Product-Oriented Approach emphasizes on the final written product, prioritizing accuracy, organization, and coherence of the text. It helps students develop mechanical skills in writing, but may lack relevance to real-world writing, potentially leading to student disengagement and low motivation.

According to Nunan (1991), Controlled Composition involves structured writing exercises like fill-in-the-blanks or sentence combining to build specific writing skills gradually. However, this limited exposure to authentic writing activities may inhibit the development of critical thinking, creativity, and a unique writing voice.

The Grammar-Translation Method, discussed by Larsen-Freeman and Anderson (2011), focuses on explicit grammar rules and translation exercises. It aims to acquire grammatical accuracy and vocabulary knowledge, but often at the expense of meaningful communication and fluent writing. Students may struggle to apply grammar rules in authentic writing contexts and may lack opportunities for creative expression and critical thinking (Richards & Rodgers, 2001, as cited in Inna, 2021).

The traditional methods of teaching English writing, such as the model-based approach, product-oriented approach, controlled composition, and grammar-translation method, have contributed to the evolution of writing instruction (Nunan, 1991). However, these methods have inherent limitations that may hinder students' development as proficient and confident writers. As the field of English writing instruction continues to evolve in the digital age, it is essential to consider the strengths and weaknesses of these traditional methods and explore innovative approaches that can better meet the needs of 21st-century learners.

**2. The Integration of AI in English Writing Instruction**

Technological interventions have revolutionized English writing instruction, offering innovative solutions to enhance students' writing skills, creativity, and critical thinking abilities. The integration of Artificial Intelligence (AI) technologies into the teaching and learning of English writing has become an area of growing interest and exploration. AI-powered tools have the potential to transform various aspects of the writing process, from ideation and drafting to revision and feedback. This section will examine the benefits and

challenges associated with the integration of AI in English writing instruction to ensure responsible and effective implementation.

AI-driven systems personalize instructional content and pace to fit individual student needs and learning styles, promoting a more personalized, flexible, and inclusive educational experience (Claes et al., 2016; Roscoe & McNamara, 2013; Dong, 2023). These results offer practical implications for teachers, students, and educational technology developers, highlighting the potential for AI-powered pedagogy to transform traditional teaching methods and improve student learning outcomes.

However, there are also challenges associated with using AI in education. Concerns include privacy, security, the cost of technology, potential biases in AI algorithms (Harry, 2023), and an overreliance on automated systems that could diminish critical thinking and creativity (DuBose & Marshall, 2023). Ethical considerations like accessibility, transparency, fairness, and informed consent are crucial for the responsible deployment of AI tools in educational settings (Zawacki-Richter et al., 2019; Harry, 2023). Addressing these concerns will be crucial for the responsible integration of AI in English writing instruction.

The integration of AI in English writing instruction offers promising benefits for enhancing students' writing skills and fostering meaningful learning experiences. However, the challenges associated with algorithmic bias, lack of human interaction, and ethical considerations must be carefully addressed to ensure that the implementation of these technologies enhances, rather than hinders, the teaching and learning of English writing. Through this exploration, educators can gain insights into the opportunities and challenges inherent in leveraging AI to enrich English writing instruction, fostering a more engaging, inclusive, and effective learning environment for students.

## 3. Gaps in the Existing Literature

Identifying gaps in the integration of AI tools to enhance English writing instruction is essential for refining and improving educational practices. Many schools and educational institutions may lack access to AI-powered writing tools due to financial constraints or inadequate technological infrastructure. This gap in access limits the potential benefits of AI-enhanced writing instruction and exacerbates inequalities in educational opportunities. Educators and students may vary in their proficiency with AI tools and technologies. Educators may lack adequate training and support to effectively integrate AI tools into their teaching practices. The absence of professional development opportunities focused on AI-enhanced writing instruction can hinder educators' ability to leverage these technologies effectively. Educators may struggle to incorporate AI-enhanced writing instruction seamlessly into existing curricula or teaching methodologies, limiting the integration's impact on student learning outcomes. Some students may struggle to navigate and effectively utilize AI-powered writing tools, hindering their ability to fully engage with and benefit from these resources.

Addressing these gaps requires concerted efforts from educators, policymakers, technology developers, and other stakeholders. Strategies to bridge these gaps may include investing in technology infrastructure, providing training and support for educators, ensuring the ethical use of AI tools, and prioritizing equity and inclusion in technology integration initiatives. By addressing these gaps, stakeholders can work towards realizing the full potential of AI tools to enhance English writing instruction and support student learning and achievement.

**Methodology**

**1. Overview**

This study employs a quantitative research approach to assess the effectiveness of AI-assisted tools in improving English writing skills, identify key features of successful AI tools, and provide practical suggestions for integrating AI into English writing instruction.

**2. Subjects**

The study participants consist of 24 teachers and 111 students ranged from 18 to over 40 years old recruited from the Faculty of Foreign Languages at HUFLIT university. The teachers are selected based on their experience in teaching different English writing courses, while the students represent a diverse range of proficiency levels and educational backgrounds. As seen in figure 1, 30% of these participants had from 3-5 years in teaching and learning English writing skills and 92% had much experience in using AI-based writing tools such as ChatGPT, Grammarly, QuillBot, WordAI, etc.
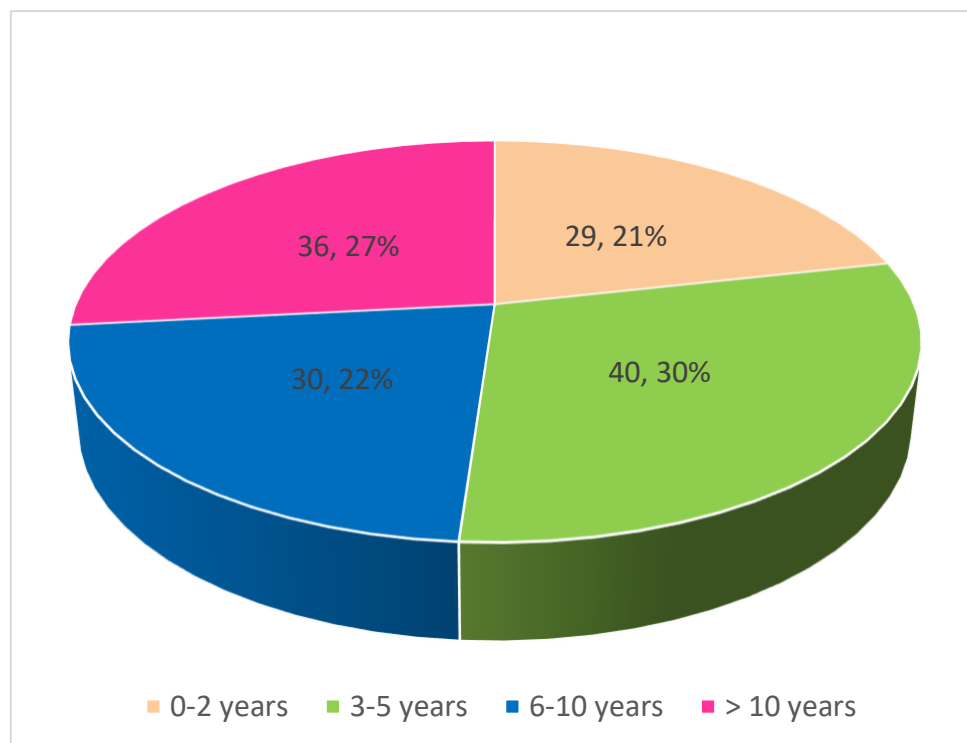


Figure 1: Number of Years in Teaching / Learning English Writing Skills

**3. Materials**

The primary instrument used for data collection is a questionnaire developed using Microsoft Forms. The questionnaire includes 10 closed-ended questions and 1 open-ended questions designed to assess participants' perceptions of AI-assisted tools, identify key features of successful AI tools, and obtain practical suggestions for integrating AI into English writing instruction.

## 4. Data Collection and Analysis

The researcher delivered the questionnaire to teachers and students of the Faculty of Foreign Languages through the shared link. Then, we analyzed the responses to find out what they evaluated the effectiveness of AI integration into their writing process, realized the key features and functionalities of AI-based writing tools and provided some useful suggestions for implementing AI writing tools. The responses gathered from the online survey were reported in percentages and displayed in charts and tables. After the general survey is completed, the statistics will be exported into this study.

## Results and Discussions

### 1. The Effectiveness of AI Tools in Improving English Writing Skills

The findings of the initial closed question in the questionnaire demonstrate a clear endorsement of AI tools in enhancing English writing capabilities. The data is represented on a Likert scale from 1 (no improvement) to 5 (significant improvement), across five key areas of writing skills improvement. The remarkable insight from figure 2 is the substantial agreement on AI tools' effectiveness in identifying and correcting writing errors, with approximately 49.6% of respondents giving the highest rating of 5. Moreover, 43% of the participants rated the use of AI to enhance grammar, spelling accuracy, and vocabulary of written communication with a 4 out of 5. Then, when it comes to enriching writing style and tone, and boosting creativity in writing, nearly half of the respondents are also favorable with a 4 out of 5 ratings, indicating a slight improvement of AI's impact in these more subjective areas of writing. Lastly, AI's contribution to increasing learners' self-efficacy, self-regulated learning, and reducing cognitive load is affirmed with the majority of responses (60.7%) between 3 and 4. Overall, the graph presents the strong effectiveness of AI in improving English writing, with notable approval for error correction and positive impact on grammar, style, creativity, and learner autonomy.
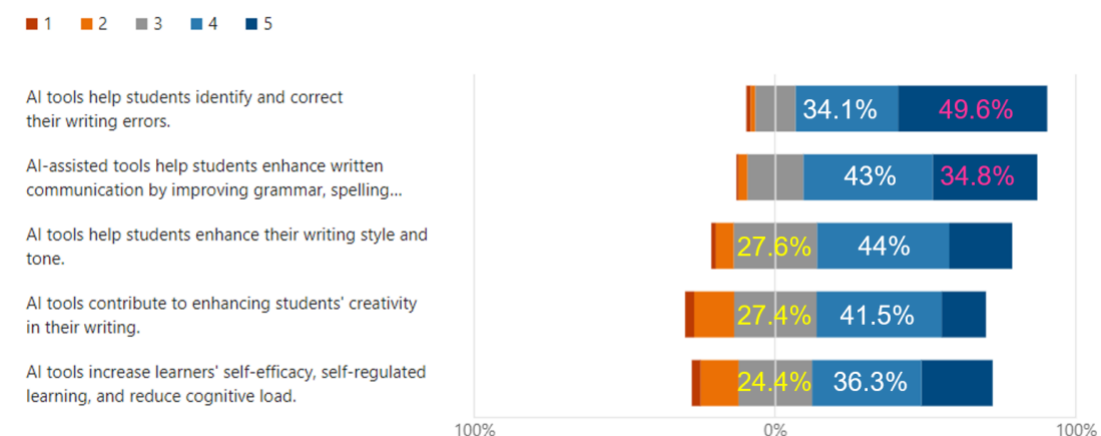


Figure 2: The effectiveness of AI Tools in Improving English Writing Skills

### 2. The Key Features and Functionalities of AI Tools

The result in Table 1 provides insights into the perceived effectiveness of AI tools in relation to their features and functionality in the context of enhancing English writing proficiency. First of all, the feature that AI tools offer grammar and spell-check functions received the

highest endorsement, with 44.8% of respondents rating it at a 5 indicating a strong confidence in AI's role in improving technical writing skills. Next, adaptive learning paths provided by AI tools increased significantly, with 44.4% of participants attributing a 4 out of 5, indicating recognition of personalized learning's importance in writing instruction. The NLP capabilities of AI are also well-regarded, with 43% of responses at a 4, suggesting appreciation for the sophistication of AI in producing content. However, when assessing the contribution to more accurate and context-aware feedback, the opinions are more divided, with 37.3% rating it at a 4 and a significant 29.9% at a 3, indicating some room for improvement in the context-sensitivity of AI tools. Finally, the integration of AI, NLP, and machine learning in refining writing skills and producing higher-quality work shows a spread across the mid-range of the scale, with 38.3% rating a 4, suggesting a positive but cautious recognition of these advanced features in AI writing tools. In summary, Table 1 reveals that AI tools are highly valued for their grammar and spell-check functions, adaptive learning paths, and NLP capabilities in enhancing English writing skills, yet it also highlights a demand for better context-aware feedback and a tempered but optimistic view on the integration of AI and machine learning for skill refinement.

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| AI tools offer grammar and spell-check functionalities in enhancing overall writing proficiency. | 0.7% | 3.7% | 14.9% | 35.8% | 44.8% |
| AI tools provide adaptive learning paths for English writing instruction. | | 3% | 31.6% | 44.4% | 21.1% |
| AI writing tools utilize the power of natural language processing (NLP) to generate content with more efficiency. | | 3.7% | 32.6% | 43% | 20.7% |
| AI tools contribute to more accurate and context-aware feedback. | | 6.7% | 26.1% | 37.3% | 29.9% |
| The integration of AI, NLP, and machine learning enable writers to sharpen their skills and produce high-quality content effortlessly. | | 4.5% | 29.3% | 38.3% | 27.8% |

Table 1: Key Features and Functionalities of AI Tools

## 3. The Challenges of Integrating AI Tools Into English Writing Instruction

Figure 3 indicates several major obstacles educators and students may face when incorporating AI into learning environments. The most significant challenge, indicated by 83 responses from the participants, is dependency and overreliance on AI, suggesting that students may become too dependent on technology, potentially at the expense of developing their own skills. The second most cited challenge is the lack of technical proficiency, with 74 responses, which leads to a gap in the necessary technical proficiency to effectively use AI tools among educators or learners. Ineffective human-AI collaboration received 66 responses, highlighting issues with the interface between AI systems and users. The lack of data quality and quantity, with 56 responses, raises concerns about the inputs used to train AI systems and their impact on the output quality. Ethical issues, though less frequently mentioned with 44 responses, remain a significant area of concern, likely related to privacy, data security, and the fairness of AI applications. Lastly, the lowest number of responses, 37, concerns robustness and security risks, which could reflect a relatively lower awareness or occurrence of these issues in educational settings. All in all, this distribution of concerns underscores the

importance of addressing both technical and human aspects of AI integration into educational programs.
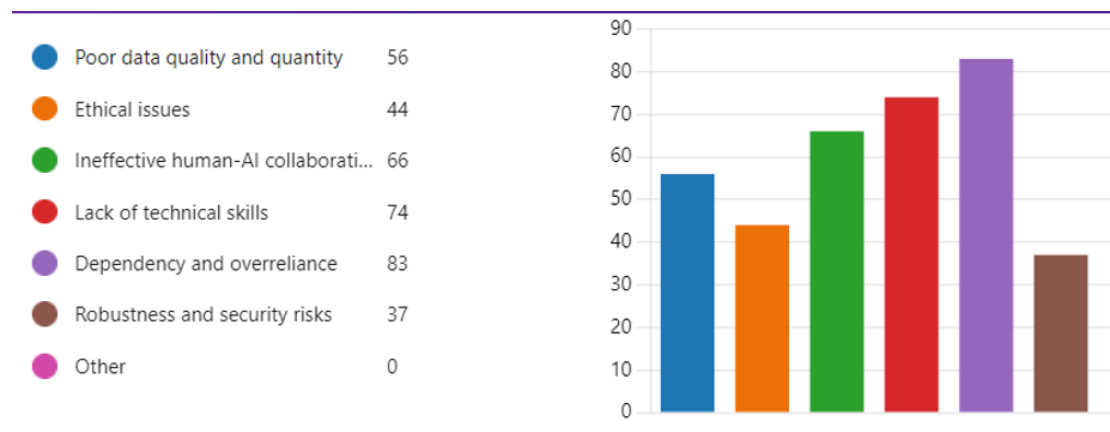


Figure 3: Challenges of Integrating AI tools into English Writing Instruction

**Conclusion**

In conclusion, the results from the questionnaire highlight the growing consensus on the benefits of AI tools in improving English writing proficiency. With considerable support for their ability in error correction, grammar, spelling, and vocabulary enhancement, AI tools demonstrate robust potential to enhance technical aspects of writing. Additionally, they demonstrate promise in enriching writing style and creativity, although there is a need for growth in these subjective areas. The integration of advanced features such as adaptive learning, NLP, and machine learning is welcomed, but with a cautious approach that recognizes the need for improvement, particularly in context-sensitive feedback. However, these positive developments come with challenges, particularly the risk of overreliance on technology, a gap in technical skills among users, and ethical concerns. Addressing these issues is essential to ensure that the integration of AI into English writing instruction maximizes benefits while minimizing potential drawbacks, paving the way for an educational environment that leverages AI to support, rather than supplant, the development of comprehensive writing skills.

To enhance the integration of AI tools in English writing instruction effectively, it is recommended that online courses and tutorials are the most favored training methods among educators and students, with a count of 115 respondents, likely due to their convenience and accessibility. Furthermore, workshops and seminars and peer-to-peer mentoring are the second and third most popular methods that both teachers and students desire for interactive and collaborative learning environments. However, it may be beneficial to explore the reasons behind the low engagement with in-house training sessions to enhance their effectiveness or to reconsider their format to meet educators and students' needs.

**Suggestions for Integrating AI Into English Writing Instruction**

The results from the last open-ended question revealed some suggestions for successful integrating AI into English writing proficiency and were summarized as follows:

## 1. Integration of AI Tools Into Writing Curriculum

Educators should integrate AI-assisted tools such as Grammarly and Quillbot into the writing curriculum as supplementary resources. These tools can be incorporated into writing assignments to provide students with real-time feedback on grammar, style, and vocabulary usage. By integrating AI tools into the curriculum, students can receive personalized feedback on their writing, allowing them to identify and correct errors more efficiently.

## 2. Promotion of Peer Collaboration

Encourage students to use AI-assisted writing tools collaboratively with their peers. Peer collaboration can enhance the learning experience by fostering discussions about writing conventions, language usage, and effective communication strategies. Additionally, peer collaboration allows students to provide feedback to their peers, further reinforcing their understanding of writing concepts and improving their own writing skills.

## 3. Explicit Instruction on AI Tool Utilization

Provide explicit instruction on how to effectively utilize AI-assisted writing tools. Educators should teach students how to interpret and implement the feedback provided by AI tools in their writing. This includes teaching students how to discern between different types of feedback (e.g., grammar correction, style improvement) and how to apply this feedback to revise and enhance their writing.

## 4. Emphasis on Critical Thinking Skills

Emphasize the development of critical thinking skills alongside the use of AI-assisted writing tools. While AI tools can provide valuable feedback on technical aspects of writing, they may not address higher-order writing skills such as argumentation, analysis, and synthesis. Therefore, educators should design writing tasks that require students to engage in critical thinking and problem-solving, challenging them to think deeply about the content and structure of their writing.

## 5. Consideration of Ethical and Privacy Concerns

Educators should be mindful of ethical and privacy concerns associated with the use of AI-assisted writing tools. It is essential to educate students about data privacy issues and the potential biases inherent in AI algorithms. Additionally, educators should encourage students to critically evaluate the suggestions provided by AI tools and to use them as one of many resources for improving their writing, rather than relying solely on automated feedback.

By implementing these suggestions, educators can harness the power of AI-assisted writing tools to enhance the teaching and learning of English writing skills, while also promoting critical thinking, collaboration, and ethical considerations among students.

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