

**“THE IMPACT OF ARTIFICIAL INTELLIGENCE ON ACADEMIC WRITING
SKILLS OF EFL STUDENTS”*****Khudoyorova Gulasal Ilhomiddinovna****Samarkand State Institute of Foreign Languages, 2nd year student, 24-03-group.***Abstract**

The integration of Artificial Intelligence into education has significantly influenced the way students develop academic writing skills, particularly in English as a Foreign Language (EFL) contexts. This study explores the impact of AI-based tools on the academic writing performance of EFL learners. The research aims to examine how applications such as ChatGPT, Grammarly, and other digital assistants affect students' grammar accuracy, vocabulary use, organization of ideas, and overall writing quality. A mixed-method approach was employed, including questionnaires and comparative analysis of student writing samples produced with and without AI support. The findings indicate that AI tools contribute positively to improving language accuracy and writing efficiency. However, the study also reveals potential drawbacks, such as reduced critical thinking, creativity, and originality due to overdependence on AI. The paper concludes that while Artificial Intelligence can serve as a helpful educational resource, its use in academic writing should be balanced and guided to ensure effective learning outcomes.

Key Words

Artificial Intelligence, EFL students, Academic Writing, Writing Skills, AI-assisted Learning, Grammar Accuracy, Vocabulary Development, Writing Efficiency

Аннотация

Интеграция искусственного интеллекта в систему образования существенно повлияла на процесс развития академических письменных навыков студентов, особенно в контексте изучения английского языка как иностранного (EFL). Данное исследование направлено на изучение влияния инструментов искусственного интеллекта на академическую письменную деятельность студентов EFL. В работе анализируется, каким образом такие приложения, как ChatGPT, Grammarly и другие цифровые помощники, воздействуют на грамматическую точность, использование лексики, организацию идей и общее качество письменных работ студентов. В исследовании был использован смешанный метод, включающий анкетирование и сравнительный анализ письменных работ, выполненных с использованием и без использования AI-инструментов. Результаты показали, что инструменты искусственного интеллекта способствуют повышению языковой точности и эффективности письма. Однако также были выявлены возможные недостатки, такие как снижение уровня критического мышления, креативности и оригинальности вследствие чрезмерной зависимости от AI. В заключение делается вывод о том, что искусственный интеллект может быть полезным

образовательным ресурсом, но его использование в академическом письме должно быть сбалансированным и контролируемым для достижения эффективных результатов обучения.

Ключевые слова

Искусственный интеллект, студенты EFL, академическое письмо, навыки письма, обучение с поддержкой ИИ, грамматическая точность, развитие словарного запаса, эффективность письма

Annotatsiya

Sun'iy intellekt texnologiyalarining ta'lim sohasiga keng kirib kelishi ingliz tilini chet tili sifatida o'rganuvchi talabalar (EFL)ning akademik yozish ko'nikmalariga sezilarli ta'sir ko'rsatmoqda. Ushbu tadqiqot sun'iy intellektga asoslangan vositalarning talabalarning akademik yozuv jarayoniga qanday ta'sir qilishini o'rganishga qaratilgan. Ishda ChatGPT, Grammarly kabi AI dasturlarining grammatik aniqlik, lug'at boyligi, fikrlarni mantiqiy tartibda ifodalash hamda yozma ishlarning umumiy sifatiga ta'siri tahlil qilinadi. Tadqiqotda aralash metodologiya qo'llanilib, so'rovnomalalar hamda sun'iy intellekt yordamida va yordamisiz yozilgan matnlarning qiyosiy tahlili amalga oshirildi. Natijalar shuni ko'rsatdiki, AI vositalari yozuvning grammatik jihatdan to'g'riligi va samaradorligini oshirishga yordam beradi. Shu bilan birga, sun'iy intellektga haddan tashqari bog'lanib qolish talabalarning mustaqil fikrlashi, ijodkorligi va yozma ishlarning originalligini pasaytirishi mumkinligi aniqlandi. Xulosa qilib aytganda, sun'iy intellekt akademik yozuvni rivojlantirishda foydali yordamchi vosita bo'lishi mumkin, biroq undan oqilona va nazorat ostida foydalanish zarur.

Kalit so'zlar

Sun'iy intellekt, EFL talabalar, Akademik yozuv, Yozish ko'nikmalari, AI yordamida o'rganish, Grammatik aniqlik, Lug'at boyligi, Yozuv samaradorligi

Introduction

In today's globalized world, English has become the dominant language of education, science, technology, and international communication. Mastery of English, particularly in academic contexts, is increasingly essential for students seeking success in higher education and in their future careers. Academic institutions around the world expect students to demonstrate strong English proficiency, not only in speaking and reading but especially in academic writing, which serves as a critical skill for learning, research, and professional development. For students learning English as a Foreign Language (EFL), the ability to express ideas clearly, logically, and persuasively in written form is crucial.

Academic writing is a complex skill that goes beyond correct grammar and vocabulary. It requires the ability to organize ideas coherently, develop arguments effectively, and present

information in a structured and formal manner. Students must also demonstrate critical thinking, analytical reasoning, and the ability to synthesize information from multiple sources. However, many EFL learners face significant challenges in mastering these skills. Common obstacles include limited vocabulary, grammatical errors, difficulty in structuring essays, and lack of confidence in expressing ideas in English. These difficulties often hinder students from producing high-quality essays, research papers, and reports, which are essential components of academic success.

In response to these challenges, Artificial Intelligence (AI) has emerged as a powerful tool to support English language learning and academic writing. AI applications such as ChatGPT, Grammarly, Quillbot, and other digital writing assistants offer real-time feedback on grammar, sentence structure, word choice, and overall writing clarity. These tools help students identify and correct errors, suggest alternative expressions, and even assist in organizing their thoughts logically. By providing instant feedback and guidance, AI can accelerate the learning process and enhance the quality of students' written work.

The use of AI in academic writing has been adopted in various educational systems worldwide. For instance, in the United States, many universities integrate AI-powered tools into writing courses, encouraging students to use them as supplementary resources for drafting and revising essays. Similarly, in South Korea and several European countries, AI applications are increasingly utilized to teach students how to improve writing accuracy, enrich vocabulary, and develop coherent arguments. In these contexts, educators focus on guiding students to use AI ethically and responsibly, emphasizing that AI should enhance rather than replace independent thinking and creativity.

Despite its benefits, the increasing reliance on AI in academic writing raises important concerns. Excessive dependence on AI tools may reduce students' originality, critical thinking, and problem-solving abilities. There is also the risk that some learners might misuse AI, leading to plagiarism or over-reliance on automated suggestions without fully understanding the underlying language rules. Educators and researchers therefore stress the importance of teaching students how to balance AI assistance with their own analytical and creative skills.

Given the rapid growth of AI integration in education, it is essential to examine its specific impact on the academic writing skills of EFL students. While previous studies have explored the role of AI in language learning, fewer investigations have focused on how AI influences students' ability to produce well-structured, coherent, and academically rigorous texts. Understanding both the advantages and potential drawbacks of AI is critical for educators, students, and policy-makers in designing effective strategies for teaching and learning academic writing in the digital era.

This study aims to address this gap by exploring the influence of AI tools on EFL students' academic writing performance. Specifically, it seeks to analyze how AI affects grammar accuracy, vocabulary development, organization of ideas, writing efficiency, and creativity. By

evaluating both the positive contributions and the challenges associated with AI use, the research intends to provide practical recommendations for students and teachers on how to integrate AI tools effectively into academic writing practices.

Methods

Participants: This study involved a diverse group of 120 university students from different countries, representing a variety of educational backgrounds. Participants were enrolled in English as a Foreign Language (EFL) programs at undergraduate and graduate levels. The sample included students from Asia, Europe, Africa, and Latin America to ensure that the findings reflected a broad, universal perspective on the impact of Artificial Intelligence tools on academic writing skills. The participants were selected using a purposive sampling method, targeting students who regularly use AI tools such as ChatGPT, Grammarly, and Quillbot in their academic writing. The group consisted of 65 female and 55 male students, aged between 18 and 25 years. All participants provided informed consent and were assured of confidentiality.

Research Instruments

To gather comprehensive data on students' experiences and the effects of AI on academic writing, three main instruments were used:

Survey – A structured questionnaire was distributed online to all participants. The survey included multiple-choice, Likert-scale, and open-ended questions to assess students' frequency of AI use, preferred AI tools, perceived benefits, and challenges in academic writing. The survey aimed to provide a broad overview of students' attitudes and behaviors regarding AI-assisted writing.

Interviews – Semi-structured interviews were conducted with 30 students selected from the larger sample. Each interview lasted approximately 20–30 minutes and focused on students' personal experiences with AI, how they integrate AI into their writing process, and their perceptions of its impact on creativity, critical thinking, and originality. Interviews allowed for a deeper understanding of individual perspectives and highlighted challenges and strategies not captured in the survey.

Writing Tests – Two comparative writing tasks were administered to all participants. In the first task, students wrote a short essay without AI assistance, and in the second task, they completed a similar essay using AI tools. The essays were evaluated on grammar accuracy, vocabulary usage, coherence, structure, and overall writing quality. This quantitative approach enabled a direct comparison of students' performance with and without AI support.

Procedure

The research was conducted in three sequential stages to ensure a systematic and reliable data collection process:

Survey Stage – The study began with the online questionnaire. Participants received detailed instructions and a two-week period to complete the survey. This stage helped identify patterns of AI usage, preferred tools, and initial perceptions of the effectiveness of AI in academic writing.

Interview Stage – Based on survey responses, 30 students were selected for semi-structured interviews. These interviews were conducted via video conferencing platforms such as Zoom or Microsoft Teams to accommodate international participants. The interviews were recorded with participants' consent and later transcribed for thematic analysis. The goal was to gain qualitative insights into how AI affects students' writing process, decision-making, and creative thinking.

Writing Test Stage – Finally, students completed two writing tasks under controlled conditions. Each essay was evaluated by two independent raters to ensure objectivity. The scores for grammar, vocabulary, organization, and coherence were compared across AI-assisted and non-AI-assisted essays. This stage provided empirical evidence of the direct effects of AI tools on academic writing performance.

Data Analysis

A mixed-method approach was used to analyze the collected data:

Quantitative data from surveys and writing tests were analyzed using descriptive statistics, frequency distributions, and paired-sample comparisons.

Qualitative data from interviews were analyzed thematically, identifying recurring patterns, benefits, and challenges in AI-assisted writing.

Results from both qualitative and quantitative analyses were triangulated to provide a comprehensive understanding of the impact of AI on EFL students' academic writing skills.

Ethical Considerations

All participants provided informed consent before participating in the study. Data confidentiality was strictly maintained, and participants were informed that they could withdraw at any time without penalty. The study adhered to international ethical guidelines for research with human subjects.

Results

The analysis of the collected data revealed clear differences between students' academic writing performance with and without the use of Artificial Intelligence (AI) tools. Both quantitative and qualitative findings provide insights into how AI influences grammar accuracy, vocabulary usage, coherence, organization, and creativity in EFL students' writing.

1. Grammar and Vocabulary

The writing tests showed that students who used AI tools produced essays with significantly fewer grammatical errors compared to essays written without AI assistance. On average, AI-assisted essays contained 45% fewer grammatical mistakes, and students demonstrated more accurate use of complex sentence structures. Vocabulary usage also improved, with AI-assisted essays including a wider range of academic and domain-specific words. Many students reported that AI tools suggested synonyms and alternative expressions, which helped them enrich their writing without relying solely on memorized phrases.

Example:

Non-AI essay: “The experiment was good, and it worked.”

AI-assisted essay: “The experiment yielded successful results, demonstrating the effectiveness of the methodology.”

2. Coherence and Organization

AI-assisted essays also demonstrated stronger coherence and logical flow. Students reported that using AI helped them organize ideas more clearly and structure paragraphs effectively. Essays generated with AI showed improved transitions between ideas and clearer topic sentences. In contrast, essays written without AI often lacked clear paragraphing, and arguments were sometimes scattered or repetitive.

3. Writing Efficiency

Students consistently reported that using AI tools reduced the time required to complete writing tasks. On average, participants completed their AI-assisted essays 30–40% faster than non-AI essays. This time efficiency allowed students to focus more on content development and refinement rather than struggling with language mechanics.

4. Creativity and Originality

While AI-assisted writing improved accuracy and efficiency, qualitative data from interviews revealed concerns about creativity and originality. Some students admitted relying heavily on AI suggestions, which occasionally led to over-formulated sentences and limited personal voice. Approximately 35% of interviewed students felt that AI sometimes constrained their independent thinking, making it tempting to accept suggestions without critical evaluation.

5. Survey Insights

Survey responses supported these findings:

87% of students reported that AI helped them reduce grammatical errors.

78% indicated that AI tools improved their vocabulary and expression.

42% admitted that they sometimes relied too much on AI, which affected their independent reasoning.

Most students expressed the view that AI should be used as a supportive tool rather than a substitute for personal effort.

6. Comparative Analysis

Overall, the comparison between AI-assisted and non-AI writing shows a clear trade-off:

Positive effects: grammar accuracy, vocabulary enhancement, coherence, and efficiency.

Potential drawbacks: reduced creativity, dependency risk, and lower critical thinking if AI is overused.

The results suggest that when used appropriately and ethically, AI tools significantly enhance academic writing skills among EFL students. However, balancing AI assistance with independent effort is crucial to maintain originality and critical thinking.

Discussion

The findings of this study provide valuable insights into the role of Artificial Intelligence (AI) tools in enhancing academic writing skills among EFL students. The analysis of survey responses, interviews, and writing tests demonstrates both the benefits and limitations of AI-assisted learning, and highlights which methods are most effective in supporting students' writing development.

1. Effectiveness of AI-Assisted Writing

The comparative analysis of AI-assisted versus non-AI essays clearly indicates that AI tools significantly improve writing performance. Students who used AI made fewer grammatical errors, demonstrated more accurate vocabulary usage, and produced more coherent and organized essays. This confirms previous research suggesting that AI can serve as an effective support for language learning, particularly in areas where students traditionally struggle, such as grammar accuracy and lexical variety.

Among all the AI-assisted writing methods, the writing test stage proved to be the most beneficial. By engaging students in actual writing tasks with AI assistance, the study was able to directly observe improvements in grammar, vocabulary, and coherence. Students reported that using AI during the writing process helped them experiment with complex sentence structures and richer vocabulary, which in turn enhanced their confidence in writing. The quantitative data from writing tests showed the largest measurable improvement in this stage

compared to survey and interview findings, indicating that hands-on practice with AI tools has a greater impact on skill development than passive feedback alone.

2. Insights from Surveys

The survey method provided a broader understanding of students' perceptions and usage patterns of AI tools. It revealed that the majority of participants regularly use AI to correct grammatical errors, suggest alternative words, and organize their ideas. While surveys cannot measure actual performance improvements, they effectively captured students' attitudes, habits, and self-reported gains. According to the survey, 87% of students noticed immediate improvements in grammar when using AI, and 78% reported enhanced vocabulary, suggesting that even limited exposure to AI tools can positively influence students' confidence and writing habits.

3. Insights from Interviews

The interviews offered deeper qualitative insights into students' experiences. They revealed how students integrate AI into their writing processes and highlighted some nuanced challenges. Many participants described AI as a "learning companion," which guided them through sentence formulation, essay structuring, and vocabulary expansion. However, interviews also identified potential drawbacks: over-reliance on AI led to reduced creativity, diminished critical thinking, and occasional loss of personal voice in writing. Approximately 35% of students admitted that they sometimes accepted AI suggestions without evaluating them critically, which could negatively affect originality. This emphasizes the importance of teaching students to use AI ethically and strategically, rather than as a substitute for independent thinking.

4. Comparative Analysis of Methods

By examining all three research methods together—writing tests, surveys, and interviews—it becomes clear that hands-on writing tasks with AI support are the most effective approach for developing academic writing skills. Unlike surveys, which capture perceptions, or interviews, which provide qualitative context, writing tests directly demonstrate tangible improvements in writing quality. Students who actively used AI while composing essays not only corrected grammatical errors but also improved coherence, organization, and overall writing efficiency.

Surveys and interviews, however, were crucial in providing context and understanding students' attitudes and potential challenges.

They revealed behavioral patterns and ethical concerns, showing that a combination of practical application (writing tasks) and reflective methods (surveys and interviews) is essential for a comprehensive understanding of AI's impact.

5. Implications for EFL Teaching

The study suggests several important implications for EFL teaching:

Integration of AI into curriculum: Teachers should encourage students to use AI tools as part of structured writing exercises to enhance grammar, vocabulary, and essay organization.

Balanced approach: While AI provides significant support, students must also develop independent writing and critical thinking skills to avoid over-dependence.

Ethical guidance: Educators should provide instructions on ethical AI use to prevent plagiarism and promote originality.

Active learning: Hands-on writing with AI assistance is more effective than passive exposure; students learn more by actively engaging with tools than by simply observing them.

6. Summary of Method Effectiveness

Writing Tests with AI: Most effective; showed measurable improvement in grammar, vocabulary, coherence, and efficiency.

Surveys: Provided a broad overview of student perceptions and usage patterns; useful for understanding motivation and perceived benefits.

Interviews: Offered qualitative depth; highlighted ethical concerns, creativity issues, and challenges related to over-reliance on AI.

Overall, the study demonstrates that combining hands-on practice with reflective surveys and interviews provides the most complete understanding of AI's impact on academic writing. Among these, active writing tasks with AI yielded the greatest practical benefits for students' skill development.

Conclusion

This study investigated the impact of Artificial Intelligence (AI) tools on the academic writing skills of EFL students, using a mixed-method approach that included surveys, interviews, and comparative writing tests. The results clearly indicate that AI tools, such as ChatGPT, Grammarly, and Quillbot, have a positive influence on students' grammar accuracy, vocabulary use, coherence, and overall writing efficiency. Writing tests showed the most significant improvement when students actively used AI while composing essays, demonstrating that practical engagement with these tools is more effective than passive observation alone.

At the same time, the study revealed potential challenges associated with AI use. Overreliance on AI may reduce students' critical thinking, creativity, and originality, and some participants admitted accepting AI suggestions without sufficient evaluation. These findings

suggest that while AI is a valuable educational resource, its benefits are maximized only when combined with independent learning and reflective thinking.

Based on the findings of this study, the following recommendations are proposed for educators, students, and policymakers:

Incorporate AI Tools into Academic Writing Curriculum: Educators should design structured exercises that integrate AI tools, allowing students to practice grammar, vocabulary, and essay organization in a guided environment.

Promote Ethical and Responsible Use: Students should be trained to use AI responsibly, ensuring that suggestions are critically evaluated and integrated without compromising originality or academic integrity.

Encourage Active Writing Practice: Hands-on writing tasks using AI support are more effective than surveys or passive observation. Students should engage directly with AI to enhance both language accuracy and confidence in writing.

Balance AI Assistance with Independent Thinking: While AI can accelerate learning and improve writing quality, students must also develop their own analytical and creative skills to maintain critical thinking.

Continuous Assessment and Feedback: Teachers should monitor AI-assisted writing progress and provide individualized feedback to help students understand their strengths and areas for improvement.

In conclusion, Artificial Intelligence tools hold significant promise for enhancing EFL students' academic writing skills when used thoughtfully and ethically. By combining AI-assisted writing tasks with reflective methods, educators can provide students with a comprehensive learning experience that improves not only language accuracy but also confidence, efficiency, and overall writing competence. Future research could explore long-term effects of AI on writing development, as well as its impact on creativity and independent problem-solving across diverse educational contexts.

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