

## **Artificial Intelligence as a Writing Coach: Impacts on BS English Students**

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### **Abstract**

This study examines the impact of AI writing tools like Grammarly and Wordtune on the output, quality, and originality of writing produced by BS English students. Adopting a mixed-methods approach, the research combines quantitative data collected through structured surveys with qualitative insights obtained from in-depth interviews grounded in Constructivist Learning Theory and TPACK. The survey responses were analyzed using statistical techniques, including descriptive statistics to identify trends and inferential analysis to assess correlations and significance. On the other hand, interview data underwent thematic analysis, which involved coding the transcripts to identify recurring themes, patterns, and unique perspectives related to AI writing tools' effectiveness. This dual-layered analysis provided a comprehensive understanding of the tools' influence on students' writing. The findings reveal that students largely perceive an improvement in their writing quality, particularly in grammar, style, and clarity. However, significant concerns were expressed about the risk of over-reliance on such tools and potential decrease in originality. The study underscores the importance of integrating AI writing tools thoughtfully into academic settings. It recommends balancing AI-assisted learning with traditional writing instruction to ensure holistic development. These findings are especially relevant for educators, policymakers, and developers seeking to optimize the role of AI in academic writing..

**Keywords:** AI writing tools, Constructivist Learning Theory, Grammarly and Wordtune, TPACK, artificial intelligence.

### **1. Introduction**

Artificial Intelligence (AI) is revolutionizing various facets of education, including the realm of academic writing. In recent years, AI-powered writing tools have emerged as essential resources for enhancing students' writing skills, offering automated feedback on grammar, style, and clarity. These tools have become particularly popular among students of English as a Second Language (ESL) and English majors for improving writing fluency, reducing errors, and fostering better academic performance (Abdalkader 2022).

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AI writing tools, such as Grammarly, Wordtune, and others, provide immediate corrective feedback, enabling students to refine their writing in real-time. Studies reveal that automated feedback mechanisms positively influence writing proficiency by promoting engagement and enhancing literacy among learners (Rad, Alipour, and Jafarpour 2023; Fleckenstein, Liebenow, and Meyer, 2023). This feedback not only addresses surface-level grammatical errors but also assists in improving structural coherence and stylistic choices, making it a valuable asset in higher education.

The integration of AI tools in writing instruction aligns with the growing emphasis on technological pedagogical content knowledge (TPACK), as outlined by Mishra and Koehler (2006). This framework underscores the necessity of blending technology with traditional pedagogical strategies to optimize learning outcomes. AI tools support this paradigm by providing students with individualized support that complements classroom instruction, as highlighted in recent research exploring AI's role in content writing and language education (AIContentfy Team 2023; Alzyoud et al. 2024).

Despite the apparent benefits, concerns about the over-reliance on AI tools and their potential to undermine originality and critical thinking persist. Scholars argue that while AI assists in crafting grammatically accurate texts, it may inadvertently encourage superficial learning and hinder deeper cognitive engagement (Popenici and Kerr 2017). Moreover, ethical questions regarding academic integrity and the authorship of AI-assisted writing warrant careful consideration (Gilat and Cole 2023).

This study investigates the dual-edged impact of AI writing tools on the writing skills of BS English students. By exploring the benefits and limitations of these technologies, the research aims to provide actionable insights for educators, policymakers, and developers. It also seeks to address the critical need for balancing AI-enhanced learning with traditional writing instruction, ensuring that students acquire comprehensive writing competencies (Al-Ahmad, Obeidat, and Al-Jarrah, 2023; Bani Younes et al., 2024).

### **Significance of Study**

This research is significant because it delves into a rapidly evolving aspect of modern education: the role of AI in enhancing writing proficiency. As AI-powered tools continue to gain prominence, understanding their pedagogical value becomes essential for educators, policymakers, and developers. By investigating the specific impacts of tools like Grammarly and Wordtune, this study aims to provide actionable insights that can shape effective teaching strategies and inform the responsible use of AI technologies in academic settings. Furthermore, the findings can contribute to the ongoing discourse on how technology shapes cognitive and creative skills in learners, addressing critical concerns about over-reliance and ethical implications.

### **Study Objectives and Research Questions**

The primary objective of this study is to examine the impact of AI-powered writing tools on the writing proficiency of BS English students, focusing on grammar, vocabulary, and organizational skills. The study also aims to explore how these tools influence student engagement, motivation, and autonomy in the academic writing process. Additionally, it seeks to identify challenges such as diminished

originality and critical thinking while exploring educators' perspectives on integrating AI tools into writing instruction.

To achieve these objectives, the study addresses the following research questions:

1. How do AI-powered writing tools, such as Grammarly and Wordtune, impact the grammar, vocabulary, and overall organization of academic writing among BS English students?
2. How do AI-powered tools influence student engagement, motivation, and autonomy in the academic writing process?
3. What challenges and limitations do students encounter when using AI-powered writing tools, particularly concerning originality, creativity, and critical thinking?
4. What perceptions do educators hold regarding the integration of AI tools in teaching academic writing, and what best practices do they recommend?

## **2. Literature Review**

The integration of Artificial Intelligence (AI) tools in academic writing is a growing area of research, driven by the increasing use of these tools in educational settings to improve writing skills, particularly in grammar, structure, and style. Several studies have examined the effectiveness, benefits, and potential drawbacks of AI-powered writing tools, such as Grammarly, Wordtune, and others, in fostering writing proficiency. This literature review explores the findings from various studies, critically analyzing their contributions to understanding the role of AI in academic writing.

### *2.1 The Role of AI in Academic Writing*

AI-powered writing tools offer immediate feedback on students' writing, helping them improve their grammar, vocabulary, and overall structure. Research by Rad, Alipour, and Jafarpour (2023) demonstrated that students who used AI writing tools showed marked improvement in their ability to produce grammatically accurate and stylistically coherent texts. These tools provide personalized suggestions for improvement, promoting self-directed learning and increasing engagement among students, particularly those learning English as a Second Language (ESL). In a similar vein, Fleckenstein, Liebenow, and Meyer (2023) found that AI tools like Grammarly not only corrected grammatical errors but also assisted in enhancing writing fluency by guiding students on word choice, sentence structure, and overall coherence.

Moreover, Alzyoud et al. (2024) discussed how AI tools support the development of writing skills by offering instantaneous feedback on surface-level errors, allowing students to focus more on content and complex aspects of writing such as argumentation and structure. This real-time correction mechanism has been linked to improvements in writing proficiency, especially when students receive detailed explanations of errors (Abdalkader, 2022). Koltovskaia (2020), Rababah and Talafha (2024) and Sayed et al. (2024) further emphasized the significance of AI tools in helping students understand English writing conventions, providing them with resources to practice and refine their writing skills outside of formal classroom instruction.

### *2.2 AI Tools and Student Engagement*

The influence of AI on student engagement has also been a key focus of recent studies. Abdalkader (2022) found that AI writing tools can significantly enhance student motivation and engagement by offering real-time, non-judgmental feedback. This instant feedback loop helps students feel more confident in their writing abilities, promoting an environment where they can practice without the fear of making mistakes. Similarly, Rad et al. (2023) argue that AI-powered tools encourage autonomous learning by allowing students to take ownership of their writing process. They also note that AI tools' ability to tailor feedback to individual writing needs further motivates students to engage in revision, fostering a growth mindset in writing.

Fleckenstein et al. (2023) and Alzboon et al. (2023) added that the ability of AI tools to facilitate self-regulation is crucial, as students can track their progress and identify areas for improvement. This personalized learning experience empowers students to take an active role in their learning, which is often difficult to achieve in traditional classroom settings due to time constraints and large class sizes. The shift from a teacher-centered model to a more student-centered, technology-enhanced learning environment has been shown to increase students' willingness to engage with writing tasks.

### *2.3 Limitations and Ethical Considerations*

Despite the positive outcomes, concerns about the potential drawbacks of AI tools in writing instruction have also emerged. Popenici and Kerr (2017) warned that over-reliance on AI writing tools might stifle students' creativity and critical thinking skills. By focusing on surface-level corrections, these tools may inadvertently encourage students to prioritize grammar and stylistic accuracy over content and original thought. This can hinder the development of deeper cognitive skills, which are essential for academic writing. For instance, Popenici and Kerr (2017) argue that AI tools might make it easier for students to produce grammatically correct texts without fully understanding the underlying content or structure of their arguments. As such, there is a risk that students may rely too heavily on AI tools, leading to the development of a more formulaic approach to writing.

Moreover, the question of academic integrity and authorship is a significant concern in the context of AI-assisted writing. Gilat and Cole (2023) examined the ethical implications of AI in writing and argued that AI tools could blur the lines of authorship, as students might claim ownership of content that is largely generated by algorithms. This raises important questions about the authenticity and originality of student work, which could be compromised by over-reliance on AI tools. Additionally, the ethical concerns surrounding the use of AI tools in academic settings have led to calls for clearer guidelines on how to incorporate these technologies responsibly into educational practices (Gilat & Cole 2023).

### *2.4 AI Tools and ESL Students*

Several studies have highlighted the role of AI tools in supporting ESL students, who often face unique challenges in academic writing. Alzyoud et al. (2024) emphasized that AI tools provide ESL learners with personalized language support that helps them overcome common obstacles such as grammatical errors, vocabulary gaps, and difficulties in sentence construction. Abdalkader (2022), Liu

and Liu (2019); and Schmohl et al. (2020) found that ESL students who used AI tools showed significant improvement in their writing proficiency, particularly in areas such as grammar, punctuation, and spelling. The personalized feedback provided by AI tools helps these students internalize correct language use, improving both their writing and their overall language proficiency.

In addition, AI tools are particularly beneficial for ESL students who may not have access to immediate feedback from instructors. Fleckenstein et al. (2023); and Wang (2022) found that AI tools allow these students to receive feedback in real-time, helping them avoid the frustration of waiting for instructor comments. This immediate correction helps build confidence, reduce anxiety, and encourage further practice, which is crucial for language learners who often struggle with writing tasks.

### *2.5 Theoretical Framework: Technological Pedagogical Content Knowledge (TPACK)*

The theoretical framework for this study is based on Mishra and Koehler's (2006) Technological Pedagogical Content Knowledge (TPACK) model, which emphasizes the integration of technology with pedagogy and content knowledge. This framework is particularly relevant when examining the use of AI tools in academic writing, as it highlights the importance of balancing technology, pedagogy, and content expertise to optimize learning outcomes. The TPACK model suggests that educators must understand how to effectively integrate AI tools into writing instruction, ensuring that the technology enhances rather than detracts from the educational experience. By applying this model, the study aims to explore how AI tools can complement traditional teaching methods and improve writing proficiency, while addressing potential challenges such as over-reliance and ethical concerns.

## *2.6 Theory of Analysis*

### *2.6.1 Overview*

The present work synthesizes various theoretical perspectives to examine the efficiency and implications of AI algorithms applied to the automation of English language tests. These theories serve as the foundation for understanding how AI tools influence language assessment practices and their outcomes.

### *2.6.2 Constructivist Learning Theory (Piaget, 1970; Vygotsky, 1978)*

Constructivist Learning Theory, as proposed by Piaget and Vygotsky, emphasizes active learning and knowledge construction. This theory is employed to assess how AI instruments contribute to language learning. It posits that knowledge is constructed through learners' interactions with their environment. In the context of AI-powered assessments, this theory guides the understanding of how AI fosters learner engagement with content and provides feedback that helps learners enhance their language construction.

### **Application:**

This theory will be used to compare how different AI tools provide responsive and communicative feedback that supports language learners in improving their speaking skills. It will assess the extent to

which AI feedback is constructivist by offering appropriate guidance to help learners analyze and improve their language usage.

### *2.6.3 Pedagogical Content Knowledge (TPACK) Model (Mishra & Koehler 2006)*

The TPACK Model provides a framework for understanding how technology can integrate with pedagogy and content to enhance education. It highlights the roles of media, instructional strategies, and content knowledge in facilitating effective teaching. This model is crucial for assessing how AI tools combine technological aspects with educational methods to improve language assessments.

#### **Application:**

The TPACK Model will be applied to evaluate how AI tools incorporate technology with language assessment instructional strategies. Specifically, it will assess the degree to which AI tools facilitate the integration of technology with traditional methods of language learning, especially in evaluating speaking skills.

### *2.6.4 Assessment Theory (Messick 1989)*

Assessment Theory focuses on the principles and practices of evaluating learner performance. This theory will be used to compare the fairness and equality of assessments using AI versus traditional methods. It provides insights into whether AI-generated scores align with actual language abilities and whether these assessments maintain fairness and reliability.

#### **Application:**

This theory will assess the effectiveness of AI tools in comparison to conventional testing methods. It will explore the calibration of AI for evaluating speaking performance, comparing the fairness and effectiveness of AI-generated assessments across different learners.

### *2.6.5 Adaptive Learning Theory (Tharp & Gallimore 1988)*

Adaptive Learning Theory focuses on how learning experiences can be personalized based on individual learner needs. This theory is relevant to AI tools as it examines how AI systems adjust their functioning based on a learner's performance, offering tailored feedback and assessment.

#### **Application:**

The Adaptive Learning Theory will be employed to assess how AI tools modify their parameters based on learners' outcomes. It will explore whether AI tools individualize the assessment process by providing feedback and guidance that aligns with each learner's style and needs, ultimately improving their language skills.

#### **Summary**

These theoretical frameworks collectively form the basis for this study on AI-based language proficiency assessment. They help raise awareness about how AI can support active learning, integrate technology with instructional practices, ensure assessment fairness, and personalize learning. Within the context of these theories, this study aims to analyze the effectiveness of AI tools in language testing and identify potential areas for improvement.

### *2.7 Conclusion and Research Gaps*

While existing research has established the positive impact of AI tools on writing proficiency, particularly in terms of grammar and style, there is a need for more comprehensive studies that examine the broader effects of these tools on student engagement, motivation, and critical thinking. Additionally, research on the ethical implications of AI-assisted writing remains sparse, and more work is needed to explore how these tools affect academic integrity and originality. This study aims to fill these gaps by investigating both the benefits and limitations of AI tools in academic writing, with a particular focus on the experiences of BS English students.

### **3. Methods and Procedures**

This section provides a detailed overview of the research approach used to assess the impact of AI writing tools on English students enrolled in bachelor's degree writing courses. A mixed-method approach was adopted, combining quantitative surveys and qualitative interviews to ensure a comprehensive understanding of the effect of AI tools on students' writing quality, productivity, and creativity.

The researcher designed a survey with Likert scale questions to gather quantitative data from participants. This helped to capture the frequency and level of use of AI writing tools and gauge their perceptions on writing quality, productivity, and creativity. Alongside the survey, semi-structured interviews were conducted with a subset of the participants to gather qualitative insights into their experiences with AI tools. The interviews allowed students to elaborate on their views, highlighting specific advantages and limitations they faced when using these technologies. This combination of methods was chosen to provide both broad numerical data and in-depth personal accounts of student experiences.

The study was conducted at Al-Israa University in Jordan. The participants of this study were students enrolled in the Bachelor of Science in English program who had experience using AI writing tools in their academic writing. A total of 201 students participated in the survey, and 10 students were selected for the semi-structured interviews. This selection was aimed at ensuring diversity in the data, with students from different levels of familiarity and usage of AI tools.

### **4. Data Analysis**

This section provides a detailed analysis of the impact of artificial intelligence (AI) writing tools on academic writing projects among BS English students. The analysis combines both quantitative and qualitative data to evaluate the effectiveness of these tools, the experiences of students, and the extent to which AI writing tools are promoted within the academic context. The quantitative section presents statistical results from a structured questionnaire, while the qualitative section draws insights from semi-structured interviews. Together, these analyses provide a comprehensive understanding of the role AI writing tools play in students' academic workflows.

4.1 Quantitative Data Analysis:

4.1.1 Use and Familiarity with AI Writing Tools:

The survey results reveal a diverse range of engagement levels with AI writing tools among the BS English students. Out of 201 participants, responses indicated varied frequencies of use. A significant portion of students, **30.1%**, reported using AI writing tools occasionally, while **25.4%** stated they used them monthly. **4%** of the students reported using AI tools weekly, and **22%** indicated they used them infrequently. In contrast, **8%** of the students used these tools daily, and another **8%** claimed to always use them. On the other hand, **4%** of the respondents mentioned that they never used AI writing tools. Additionally, **12%** of the students used the tools frequently, and **17%** used them occasionally.

Further breakdown reveals that only **1%** of participants said they sometimes used the tools, and **2.6%** reported frequent or regular use. In contrast, a larger proportion, **16%**, admitted to using AI writing tools rarely or occasionally, and a significant majority, **78%**, stated that they either rarely used them or only used them when required by the professor. These findings highlight the varying degrees of AI tool usage, indicating that while a substantial number of students incorporate AI writing tools into their academic practices, the frequency of use differs greatly among individuals. Overall, this data suggests that AI writing tools are valuable to most students, although their integration into everyday academic work varies.

Use and Familiarity with AI Writing Tools 1) How frequently do you use AI writing tools such as grammar checkers, automated essay evaluation, or c...ators? Daily, Weekly, Occasionally, Rarely, Never  
193 responses



Figure 1

There is also noticeable variation in the level of awareness of AI writing tools among the students. Specifically, **9.3%** of participants reported being familiar only with ChatGPT, while **7.8%**

2) How would you rate your familiarity with AI writing tools?  
193 responses

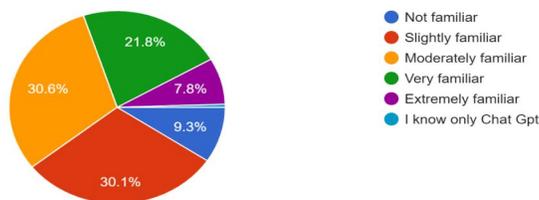


Figure 2

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claimed to be extremely familiar with AI writing tools. Additionally, **21.8%** stated that they were very familiar, **30.6%** described themselves as moderately familiar, and **30.1%** mentioned having slight familiarity with the AI tools discussed. These results collectively paint a positive picture of the respondents' awareness and perception of AI writing tools, with only a small percentage of students indicating no awareness. The high proportion of students who are moderately to extremely familiar with these tools suggests that many have had enough exposure to understand how they function and recognize their potential benefits, even if their usage is not necessarily frequent.

### 4.1.2 Perceived Impact on Writing Quality

Based on the students' views and perceptions regarding the impact of AI writing tools on the quality of their writing, the results are generally favorable. Among the 201 respondents, **11.4%** stated that these tools did not improve their writing skills, while **40.9%** reported a slight improvement, and **39.4%** claimed a significant enhancement in their writing. Conversely, a small percentage noted a decline in writing quality, with **5.7%** indicating a minor decline and **2.1%** reporting a significant decrease. One respondent highlighted how the tools helped enrich their vocabulary, reflecting the overall positive feedback from students. These results suggest that most students view AI writing tools as beneficial, particularly in improving aspects such as grammar, style, and vocabulary.

Perceived Impact on Writing Quality 3) How do you think AI writing tools impact the quality of your writing?  
194 responses

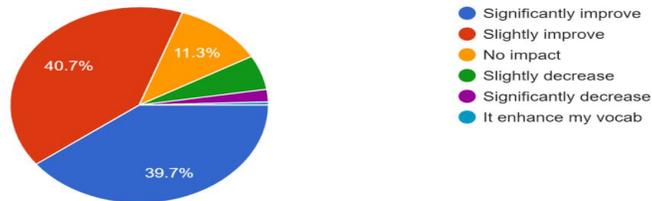


Figure 3

4) In what ways have AI writing tools helped you improve your writing skills?  
194 responses

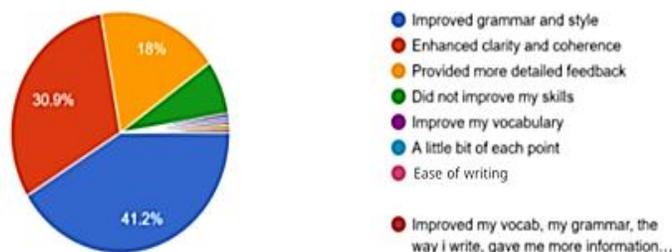


Figure 4

When further asked about which knowledge improvement involving a certain skill can be credited to AI tools, 41.2 % revealed better grammar and language use as a reason for using the web and blogs as sources of information, 30. 9% used improved clarity and organization, and 18. 1% further divided it into quantitative feedback with more detail. Contrarily, 7. 3% said they did not perceive any improvement, and one of them highlighted the need to expand vocabulary. As it identifies the areas of growth in the above-written structure, the above-written objectives of AI writing tools reflect the basic goals of the tools to enhance grammatical correctness, cohesion, and coherence and to provide detailed feedback to build the systematic procedure of improvement.

#### 4.1.3 Influence on Productivity:

The analysis of the collected data shows that AI writing tools have a considerable impact on students' performance. Of the 191 respondents, 11.5% reported no change in productivity, while 41.4% experienced a slight increase. On the other hand, 46.6% observed a significant improvement in their productivity. One participant shared that AI applications were particularly useful for generating ideas. These varied responses reflect the different ways in which students perceive and benefit from using AI writing tools.



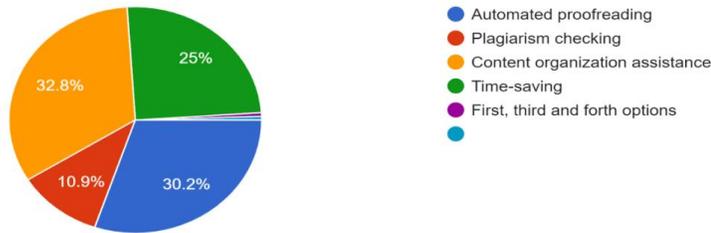
Figure 5

Based on the specific functionalities designed to enhance efficiency, clients found that content organization (33%) was the most helpful, followed by time-saving features (25%), automated proofreading (30.2%), and plagiarism detection (11%). These features directly address common writing challenges, making the writing process more efficient. Writers benefit from tools that assist in organizing their thoughts, managing time, ensuring correct grammar, and avoiding plagiarism. Therefore, prioritizing content organization and time-saving features aligns with students' preference for tools that streamline the writing process, allowing them more time to focus on the content itself rather than the mechanics of writing.

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6) What specific features of AI writing tools have been most helpful in enhancing your writing productivity?

192 responses



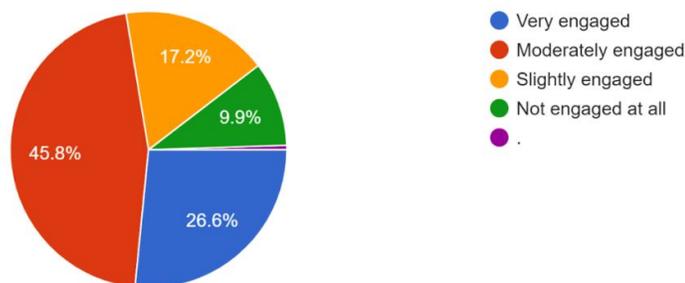
**Figure 6**

### 4.1.4 Engagement with AI Writing Tools:

The level of engagement with AI writing tools varies among students. Of the 191 respondents, 26.2% reported being highly involved, while 46.1% described themselves as moderately active. Additionally, 17.3% were slightly engaged, and 9.9% reported no engagement at all. This spectrum indicates that while the majority of students interact with these tools to some extent, a significant number do not actively use them. The moderate to high engagement levels suggest that most students find these tools useful and frequently incorporate them into their writing practices. However, the lack of deeper engagement may be attributed to various challenges. Some students faced difficulties such as technical issues, concerns about tool reliability, or a preference for traditional writing methods, which led them to rely on more familiar and economical approaches to their writing tasks.

Engagement with AI Writing Tools 7) How engaged do you feel when using AI writing tools for your academic writing tasks?

192 responses



**Figure 7**

Students use AI writing tools for various reasons. For 36.8% of participants, the primary motivation is the quality of work produced, while 29% are motivated by the improvement in writing quality. Time-saving features attract 11.9% of participants, and 18.1% are driven by the personalized feedback these tools provide. A small portion of respondents, 2.1%, indicated they had no motivation to use these tools.

These motivations underscore the practical advantages students perceive in using AI writing assistants, such as enhancing writing quality, saving time, receiving personalized feedback, and meeting course requirements. The significant number of students motivated by the desire to improve their writing highlights a strong understanding of how these tools can contribute to academic success.

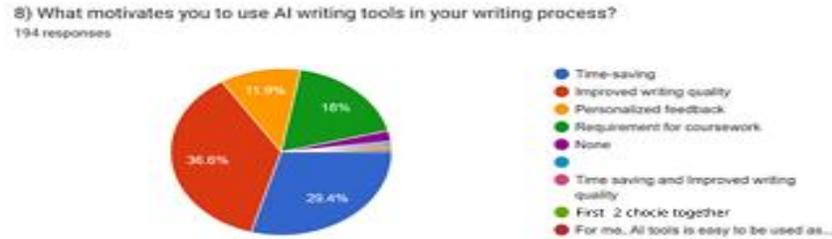


Figure 8

#### 4.1.5 Impact on Writing Approach

AI writing tools have an impact on students' writing strategies. Among the 193 respondents, 36.8% reported that these tools assist them in the drafting process, while 22.8% said they help simplify the revision process. Additionally, 28.5% of respondents indicated that the tools enhance their planning, and 7.8% believed they aid in editing. Only 3.6% stated that technology had no effect. These responses suggest that AI writing assistants are particularly useful during the early stages of writing, such as drafting and conceptualizing. Moreover, these tools prove valuable during the revision phase, where students refine their work to ensure clarity and coherence.

Impact on Writing Approach 9) In what ways have AI writing tools influenced your approach to the writing process?  
194 responses

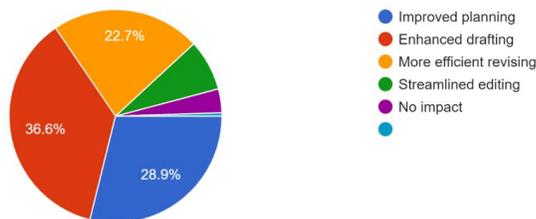


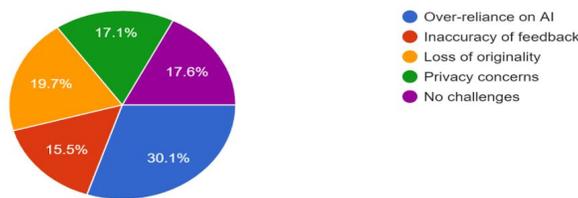
Figure 9

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### 4.1.6 Challenges and Concerns

Students face several challenges when using AI writing tools. Among the 192 respondents, 30.1% reported feeling overwhelmed by the use of AI, while 19.8% expressed concerns about losing their sense of individuality. Additionally, 17.2% were worried about privacy issues, and 15.6% mentioned that the feedback they received was occasionally inaccurate. However, 17.7% of respondents indicated they experienced no issues with AI. These challenges highlight some of the risks and limitations of using AI in writing. The fear of losing originality reflects concerns about relying on copy-paste templates, while excessive use of AI tools may hinder students' ability to work independently. Above all, safeguarding privacy and refining AI algorithms are essential to ensure the relevance and accuracy of the assistance provided.

Challenges and Concerns 10) What challenges, if any, have you encountered when using AI writing tools?  
193 responses



**Figure 10**

### 4.1.7 Trust and Reliability in AI Writing Tools

It is safe to say that the trust in AI writing tools' feedback and recommended features ranges from medium to high. Among the respondents, 191 of them, 23.6% said that they fully trusted them, 56% said that they moderately trusted them, 17.8% of participants claimed little trust and 2.6% expressed that they had a 'None' level of trust.

The survey showed that there are key areas influencing trust rates; the most influential one being the ease of use with 46.1% followed by accuracy of feedback with 18.7% transparency in decision-making with 17.7% and recommendations from peers or instructors with 16.1%. These results imply that even though all respondents have some level of trust in AI writing tools, there is a need for constant enhancement of the feedback's reliability and articulateness to enhance trust. Discussing the results of the analysis, the primary barriers were identified that could affect the trust of users as to the functionality of the tools: ease of use stands out amongst them, implying that if the tool has a user-friendly interface and logical functions, it will be considered credible.

Trust and Reliability in AI Writing Tools 11) How much trust do you place in the feedback and recommendations provided by AI writing tools?

192 responses

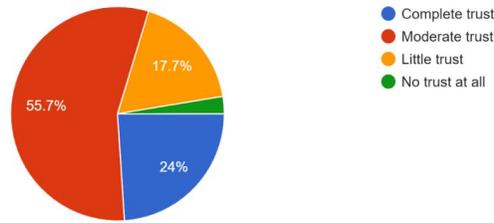


Figure 11

#### 4.1.8 Perceived Effectiveness

The degree of utility of the different AI composing apparatuses to move forward the quality of composing is somewhat over the midpoint. On a scale of 1 to 5, where 1 indicates inadequacy and 5 implies tall adequacy, reactions are conveyed as takes after:

9. Within the case of coordinated activity, only regulated people have the proper to allude cases to the FCA to look for 'reviewable action' by the FCA. 9.8% of them evaluated them as 1, 8.8% as 2, 36.1% as 3, 34% as 4, and 19.1% as 5. Concerning seen adequacy, these discoveries lay the foundation for advanced investigation, especially into the reasons for scores of direct to tall viability; understudies appear to appreciate the esteem of AI instruments in progressing their composing capability.

12) What factors influence your level of trust in AI writing tools?

193 responses



Figure 12

#### 4.2 Future Recommendations

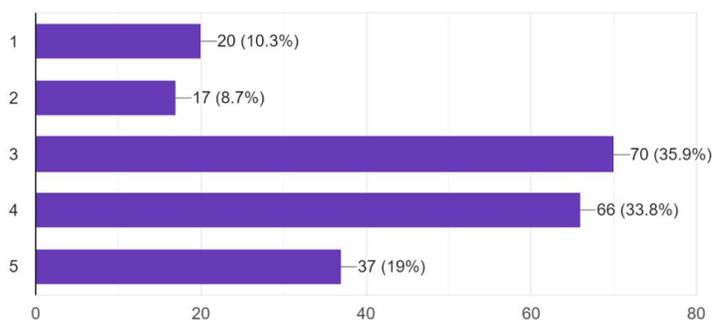
The respondents offered useful information about further developments that may be made to the uses of AI in writing. Among them, there are customization possibilities, contextual components, the opportunity to overview the results of the work, and the connection with other writing-related tools and services. It is noted that improving the options for customization can help users tailor the tools based on their requirements of the writing process and preferences. Furthermore, the increase in context understanding will allow the program to give more personal and specific discipline recommendations that will increase the efficiency of the writing process. Clear feedback to the students with clear explanations

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of why particular corrections are made would highly benefit the students and enhance the learning process within the tutorial regarding the mistakes to avoid in their writing. In addition, there is potential for expanding AI writing tools with other compositions and using them as one pooled environment for writing more effectively. Other improvements like goal-setting features regarding the word count of the customized content were also recommended; thus, creating easily measurable writing strategies and enhancing the overall functionality of the AI writing tools for the academic world.

Perceived Effectiveness 13) On a scale from 1 (not effective) to 5 (very effective), how would you rate the overall effectiveness of AI writing tools in enhancing your writing skills?

195 responses



**Figure 13**

### 4.3 Qualitative Data Analysis

The information gathered from the semi-structured interviews supported the research findings indicating several patterns: The subjects often mentioned that AI tools help to improve grammar, make text clearer, and give helpful feedback, which was supported by the elicited numbers. In this regard, several interviewees pointed out the fact that the application of AI tools proved extremely valuable in the amount of time that was saved especially during the writing and editing processes which allowed them to free up more time to work on the content.

**Table 1:** Analysis of Responses from 10 BS English Students on AI Writing Tool Usage

Student	Enhancement of Writing Style	Emotional Connection with Writing	Innovation in the Writing Process	Integration of AI with Traditional Methods	Cultural Impact on Writing
1	Improved sentence structure, punctuation, and flow.	Emotionally attached as thoughts were expressed successfully with AI.	Discovered innovative ways to enhance vocabulary.	Prefers traditional methods for detailed tasks; uses AI for quick edits.	Cultural background promotes respect for traditional methods, but AI helps adapt to modern standards.
2	AI improved clarity and conciseness in writing.	Emotional connection is reduced as writing feels more mechanical.	Uses AI to brainstorm and generate ideas.	Balances both methods; AI for drafting, traditional for revisions.	Cultural heritage emphasizes narrative style, blending with AI's structured approach.
3	AI interferes with personal writing style; prefers manual editing.	Feels disconnected; writing feels less authentic with AI.	No innovative use; prefers traditional methods	Strongly prefers traditional methods; finds AI less effective	Cultural emphasis on originality and authenticity clashes with AI use.
4	Better coherence and argument structuring.	Emotional detachment as writing feels less personal.	AI aids in organizing research and citations	Prefers AI for technical writing, traditional for creative pieces	Cultural influences lead to valuing originality; AI helps maintain academic rigor.
5	More varied sentence structures and better flow.	Enhanced emotional connection due to improved expression.	AI is used for linguistic analysis and grammar checking.	Traditional brainstorming methods; AI for final edits.	Cultural norms of thoroughness and precision are reflected in AI use for refinement.
6	AI disrupts creative flow; and prefers traditional writing methods.	Feels less emotionally connected; AI makes writing feel artificial.	No innovative use; relies on traditional methods.	Avoids using AI; relies on traditional methods for all writing tasks.	Cultural background values manual effort and creativity, opposing AI usage.
7	Enhanced vocabulary and stylistic variety.	Emotional connection improved by seeing polished work.	AI for thesaurus and synonym suggestions.	Traditional methods for outlining; AI for drafting and revisions.	Cultural emphasis on storytelling enhanced by AI's structural aid.
8	AI hampers personal writing style; prefers manual improvements.	Feels emotionally detached; AI removes personal touch.	No innovative use; prefers traditional methods.	Strongly favors traditional methods; finds AI unhelpful.	Cultural background stresses originality and personal expression, opposing AI usage.

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Student	Enhancement of Writing Style	Emotional Connection with Writing	Innovation in the Writing Process	Integration of AI with Traditional Methods	Cultural Impact on Writing
9	Improved academic tone and formal writing skills.	Emotional connection increased by improved writing quality.	Uses AI to cross-check facts and references.	AI for formatting and final touches; traditional for initial content creation.	Cultural emphasis on precision and accuracy complemented by AI's capabilities.
10	Enhanced narrative flow and cohesion.	Emotional connection slightly diminished; feels less authentic.	AI for structuring essays and organizing content.	Balances AI for technical accuracy, and traditional for creative expression.	Cultural background impacts writing style; AI helps adapt to academic standards.

### 4.4 Quantitative Data Interpretation

#### 4.4.1 Use and Familiarity with AI Writing Tools

The varying levels of engagement observed among students reflect the evolving role AI tools play in academic practices. The data indicates that AI tools are becoming more integrated into students' academic routines, with varying levels of interaction. This shift highlights the increasing influence of these tools on student learning processes. The closer relationship between students and AI tools suggests a growing acceptance and reliance on these technologies in academic environments. To further promote recognition and adoption, additional educational sessions that introduce and familiarize students with these tools could be incorporated into the curriculum. These sessions could enhance understanding and improve the overall effectiveness of AI tools in academic contexts, encouraging more consistent and widespread use.

#### 4.4.2 Perceived Impact on Writing Quality:

The positive perception of AI tools in enhancing writing quality is evident in the data, aligning with previous literature that supports the idea that technological assistance can improve language learning and writing skills. Students reported improvements in areas such as grammar, style, and clarity, which are crucial aspects of academic writing. This confirms that AI tools are not only facilitating the writing process but also contributing to the refinement of writing skills. These findings underline the value of AI tools as a supplementary resource in developing writing proficiency and academic success.

#### 4.4.3 Influence on Productivity:

While the positive results regarding productivity are evident, the data also reveals some ambiguity. This suggests that the impact of AI tools on productivity can vary depending on individual preferences, work habits, and writing strategies. Some students may find these tools more beneficial for certain tasks, while others may not experience the same level of improvement. The perceived efficiency of AI tools is, therefore, subjective and influenced by how students choose to use them. This highlights the need for personalized approaches in utilizing AI tools to maximize their productivity-enhancing potential.

#### *4.4.4 Engagement with AI Writing Tools:*

The moderate to high levels of engagement indicate that a significant number of students are open to using AI tools in their writing processes. The data suggests that AI tools are generally well-received, and students appreciate the support they provide in drafting and revising their work. However, the presence of lower engagement levels among some students signals that there are still barriers to broader adoption. This disparity underscores the importance of further refining AI tools to make them more accessible and appealing to a wider range of students. By addressing these barriers, such as improving user interface or providing more tailored features, developers can encourage higher engagement and greater overall usage.

#### *4.4.5 Impact on Writing Approach:*

The positive impact of AI tools during the drafting and revision stages of writing highlights the importance of integrating these tools at specific points in the writing process. During the drafting phase, AI tools help organize ideas and structure content, while during the revision phase, they assist in refining and polishing the final output. These benefits suggest that AI tools are most effective when used strategically in the writing process, offering significant support in these crucial stages. Understanding the value of AI tools in these specific steps can help educators guide students in their usage, ensuring that they get the most benefit from the tools during these stages.

#### *4.4.6 Challenges and Concerns*

Several challenges, including overdependence and idea exhaustion, were highlighted by students. These concerns call for the responsible application of AI tools and the development of technologies that support rather than replace the creative process. Overreliance on AI tools could potentially stifle students' creativity and critical thinking skills. It is essential that AI tools are used as a supplement to, rather than a substitute for, students' own abilities. Developers must ensure that these tools are designed to foster creativity and maintain diversity in writing styles, rather than promoting uniformity. Addressing these concerns can help ensure that AI tools remain beneficial without diminishing students' unique contributions.

#### *4.4.7 Trust and Reliability in AI Writing Tools*

While most participants expressed trust in AI tools, the data suggests that there is still room for improvement in the credibility and reliability of the feedback provided by these tools. The moderate levels of trust indicate that students have confidence in the assistance these tools offer, but there are concerns about the accuracy and consistency of the feedback. Further refinement of AI algorithms and increased transparency in how feedback is generated could enhance students' trust and improve the overall effectiveness of these tools. Strengthening the reliability of AI feedback will be essential in encouraging greater adoption and satisfaction among students.

#### *4.4.8 Perceived Effectiveness*

The relatively high perceived effectiveness of AI tools reflects a positive estimation of their value in the writing process. Students generally recognize the potential of AI tools to enhance their writing,

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suggesting that these tools are seen as valuable resources. However, there is also potential for improvement, particularly in terms of customizing the tools to better meet individual needs and preferences. Enhancing the effectiveness of AI tools will require ongoing development and user feedback to ensure that they continue to support students in the most relevant and impactful ways.

### *4.4.9 Future Recommendations*

The data suggests that there are several areas for future improvement, particularly in the customization of AI tools, their context-awareness, and their integration with other resources. Personalizing AI tools to better suit the needs of individual students could improve their overall effectiveness. Additionally, increasing the context-awareness of AI tools would help them better understand the specific writing tasks at hand, offering more tailored support. Integration with other resources, such as databases, writing guides, and peer review platforms, could further enhance the utility of these tools. By focusing on these areas, developers can ensure that AI writing tools continue to evolve and meet the diverse needs of students.

### *4.5 Qualitative Data Interpretation*

#### *4.5.1 Enhancement of Writing Style:*

Quantitative results are supported by the qualitative analysis of study participants' responses and demonstrate an overall increase in grammar, clarity of writing, and feedback offered by AI instruments

#### *4.5.2 Emotional Connection with Writing:*

Concerning the emotional bond with writing when using AI, it revealed a desire for tools that can aid in creativity and documentation.

#### *4.5.3 Innovation in Writing Process:*

Considering the examples of applying AI in the fields of brainstorming and idea generation, it can be stated that AI has more opportunities to be developed in creative spheres.

#### *4.5.4 Integration with Traditional Methods:*

Analyzing the considerations of applying the use of AI in teaching along with the concerns voiced one can assert that the middle ground is optimal for students.

#### *4.5.5 Cultural Impact on Writing:*

Thus, the impacts of culture in the usage of the specified tools should be considered given the fact that culture should be incorporated while solving in the development of AI solutions.

### *4.6 Qualitative Data Interpretation*

#### *4.6.1 Enhancement of Writing Style:*

The closed responses generally align with the open responses and with the quantitative analysis to suggest that AI instruments are helpful for grammar, clarity, and the delivery of feedback. Such alignment

that has been applied in this particular case demonstrates just how beneficial the use of AI in improving students' writing standards and quality is.

#### *4.6.2 Emotional Connection with Writing:*

These ambivalent attitudes towards emotion with the help of AI tools stress the need to create technologies not only for improving technical features but also for students' creative and emotional involvement in writing. This implies that there is a need to design other AI applications that support students' notion of belonging to their writing tasks.

#### *4.6.3 Innovation in the Writing Process:*

The new developments in the field of AI concerning creativity in brainstorming point to one potentially fruitful research area in the application of AI techniques in the enhancement of creativity in the writing profession. This means that apart from being useful in writing processes, AI tools may help to encourage fresh thinking about content creation and concepts.

#### *4.6.4 Integration with Traditional Methods:*

The interaction between AI and SME approaches raises the possibility of achieving the goal of the balanced integration of the discussed tools and the use of AI as a complement to traditional learning techniques. This integration creates a possibility to expand more global and articulate organization of the writing assignment according to the dislikes and likes of a student.

#### *4.6.5 Cultural Impact on Writing:*

When designing AI systems, it is essential to consider cultural factors and develop tools that are adaptable to the cultural context of users. Recommendations derived from cultural analysis should guide the development of these tools. The language models and writing styles used by AI systems should account for the diverse writing traditions and practices of learners from various cultural backgrounds and countries, as the effectiveness of these tools may vary based on cultural differences.

#### *4.7 Alignment with Existing Research*

The findings of this study are consistent with several key studies in the existing literature:

- Liu and Liu (2019) discuss the transformative potential of AI in writing development and instruction, emphasizing its role in providing personalized feedback and guidance to students. This aligns with our findings, which highlight AI's capacity to enhance writing through individualized support.
- The research by Schmohl et al. (2020) also supports our results, particularly regarding AI's ability to improve writing quality and facilitate e-learning through feedback. Their study reinforces the notion that AI can play a significant role in promoting effective learning environments.
- Wang (2022) explores the effectiveness of AI-generated feedback in enhancing writing skills and fostering self-directed learning. This aligns with our research, which similarly emphasizes the value of AI tools in supporting learners' autonomy and improving their writing proficiency.

#### *4.8 Contribution to Knowledge*

This study contributes to the existing body of knowledge by:

##### *4.8.1 Introducing New Insights:*

Nevertheless, even though this paper lies among pilot studies of the mentioned main investigation, the findings arising out of this study enrich the existing literature, to offer practical and realistic application of the neural-based artificial intelligence solutions for teachers and students of the BS English in the educational organizations.

##### *4.8.2 Highlighting Gaps and Needs*

These findings therefore assist in expanding the knowledge on how AI could be used in writing academic papers, the features that could improve the quality of work and its teachability to the learners. Thus, these outcomes enhance the existing literature that is focused on the advancements in academic writing performance with the aid of AI and its effectiveness on students' performance and their outlook toward writing assignments.

This study sets Specific Comparisons to Nazari et al. (2021) following the same context, this study expands the work of Nazari and his colleagues to reveal enhancements of the same characteristics among undergraduate students studying BS English with the help of related AI tools. Liu's (2021), focus on AI as a revolutionary tool in writing instruction correlates with Kahn's and Liu's findings focusing on the part dedicated to the role of AI as one of the radical methods in teaching writing is appropriate in the context of the information unveiled by Kahn & Liu concerning the boost in the productivity and quality of writing. Thus, as per the results provided by Gilat & Cole (2023), it is generally positive; however, recognizing potential biases and mistakes in AI tools satisfies the concern stated by Gilat & Cole (2023) dealing with the need to scrutinize the AI tools to maintain academic responsibility. As for the concrete background that would enable to motivate the subject in question and to extend the findings of Fleckenstein et al. more thoroughly, it is provided by the article under analysis since the authors do not only describe the value of the AI technologies mentioned but also explain how they might be employed on the target beneficiaries, and in this case, the BS English students, to achieve the wanted outcome.

##### *4.9 Alignment with Existing Research:*

The alignment with previous literature serves as a key strength of this research, as it highlights where the study's conclusions correspond with findings from other authors regarding AI in education. For instance, this research supports the positive effects of AI tools on the quality of written content, a finding that aligns with studies on the broader impact of technology on learning outcomes. The research also addresses areas for future studies, such as discrepancies between the current findings and those from previous studies, and identifies potential sources of external validity and reliability concerns, as noted by Gilat & Cole (2023). This shows the author's ability to recognize gaps in the existing literature and position the current study within that context. Additionally, the study contributes to the ongoing

discussion about AI adoption in education by exploring its impact on a specific group of students, namely BS English students, thereby providing a more focused perspective on the subject.

## **5. Conclusion**

This research delves into the multifaceted impact of AI writing tools on the academic writing practices of BS English students, shedding light on both the advantageous and challenging aspects. The findings indicate that students frequently and comfortably use AI tools, reporting improvements in writing quality, particularly in clarity, grammar, and style. These tools have become essential in the academic process, notably enhancing productivity during the drafting and editing stages. However, the study also underscores concerns such as potential loss of originality, over-dependence on AI tools, and privacy issues. These insights call for a balanced and mindful integration of AI in academic writing to ensure students benefit from technological advancements while maintaining their unique creativity and critical thinking skills.

The research significantly contributes to the discourse on AI in education, offering valuable insights for educators, policymakers, and technology developers. It emphasizes the need for AI tools to be more customizable, and provide enhanced feedback to explore the long-term effects of AI on writing skills and academic achievement. Thus, in sum, the given body of research reveals the broad-spectrum impact of AI writing tools on the academic writing proficiency of BS English students' systems, and better recognize context, paving the way for future improvements. Furthermore, the study highlights the importance of diverse learning environments and individual student needs, advocating for ongoing research to. On the one hand, our study presents positive attitudes towards the changes in the quality of writing as observed on the forum participants' posts, but on the other hand, it reveals some samples of difficulties regarding the effect on productivity and concerns about dependency. These complexities prove the importance of moderation and the more sophisticated view towards the AI application in the academic writing processes. The study finally calls for further research into AI's application in creative writing and related disciplines to explore its potential to foster creativity and innovation in educational contexts.

## **6. Implications**

### *6.1 Theoretical Implications:*

#### *6.1.1 Summary of Key Findings*

The results of this study contribute to the understanding of useful trends concerning the usage and awareness of AI writing tools by BS English students. Although it was clear all the participants used these tools often in their work and professionalism, differences in the level of awareness and often the usage frequency also presented different interactions with the AI writing technology. Regarding the opinions of AI writing tools to improve writing quality, the results revealed more positive spectrums of feedback with a delineation enhancement in the aspects of grammar, style, and clarity. However, while positive feedback about productivity effects, some concerning aspects that were mentioned included possible

over-reliance on the tool and loss of uniqueness pointing to the dilemma of integration of AI into writing practices.

#### *7.1.2 Changed Engagement Levels*

The overview shows that there are assorted levels of engagement among BS English understudies with AI composing instruments. Whereas a lion's share of understudies utilizes these instruments regularly, there's still a noteworthy parcel that employments them once in a while or once in a while. This recommends that whereas AI devices are broadly received, there are contrasting inclinations and propensities among understudies concerning their utilization.

#### *6.1.3 Positive Affect on Composing Quality*

Both quantitative and subjective information recommend that AI composing devices have a for the most part positive effect on the quality of students' composing. Understudies report enhancements in language structure, clarity, and organization of their composing when utilizing these apparatuses, showing their viability in upgrading composing capability.

#### *6.1.4 Upgrade of Efficiency*

The examination uncovers that a considerable number of understudies see an increment in efficiency when utilizing AI writing apparatuses. Usually especially apparent in assignments such as substance organization, time-saving highlights, and mechanized editing, which streamline the composing handle and permit understudies to center more on substance creation.

#### *6.1.5 Challenges and Concerns*

Despite the benefits, understudies express different concerns concerning the utilization of AI composing apparatuses, counting feeling overpowered, security issues, and periodic mistakes in input. These challenges highlight the significance of tending to client concerns and progressing the unwavering quality and straightforwardness of AI apparatuses to cultivate more noteworthy beliefs and acknowledgment among understudies.

#### *7.1.6 Direct to Tall Believe Levels*

Whereas most understudies express direct to tall levels of belief in AI composing instruments, there's still room for enhancement, especially in upgrading criticism exactness and straightforwardness. Variables such as ease of utilization and suggestions from peers or teachers impact belief rates, showing the significance of client encounters and peer approval in building belief in AI apparatuses.

#### *6.1.7 Crave for Customization and Setting Mindfulness*

Understudies express a craving for AI composing instruments to offer more customization alternatives and set mindfulness, permitting personalized suggestions and custom-fitted criticism. This proposes a requirement for encouraging improvement of AI tools to better cater to person understudy needs and inclinations.

### *6.2 Interpretation of Findings*

Since many students and professionals use AI writing tools, it can be inferred that there is a growing dependence on technology to complete academic assignments. Opinions on increasing the general quality are positive referring to the findings of the impact of artificial intelligence in increasing grammatical correctness and cohesion. Still, the amendments concerning the increase in productivity evoked doubt about the reliability of AI's tool usage depending on the individual writing and editing style. It is important that with the embedding of such tools, there is a balance so that the traditional writing techniques are not fully replaced as raised by concerns of overuse and lack of creativity.

## **7. Future Research Directions**

Further research could investigate various effects of AI writing tools on learner writers' writing ability as well as academic achievement, as such, adopting a longitudinal study approach. Moreover, the understanding of the multifaceted impacts of the AI tools for different groups of students and different learning environments will enhance the overall understanding of the AI tools as the part of academic writing process. Learning stakeholders' preferences and usage patterns, and how language proficiency and cultural background affect the performance of the AI tools will help in designing appropriate interventions to promote writing skills among students.

Moreover, future studies have to identify means to develop further the functionalities of developed AI tools, which have to correspond to students' requirements and preferences. Thus, the developers should enhance the users' feedback as a crucial factor while designing the tools for AI writing. Discovering new features such as a higher level of context recognition as well as compatibility with other writing-related sources can expand the efficiency of AI tools in the context of learning environments. In conclusion, future studies should strive to enhance the possibilities of using AI writing tools to improve students' performance.

### *8.1 Practical Implications for Stakeholders*

In this context, the results presented in our study can be considered as a compass for stakeholders who are attuned to the educational environment and act within its framework, while the world around them is turned upside down by the invasion of technologies. Thus, the need for educators, policymakers, and practitioners to remain as flexible as possible and, at the same time, protect the academic model. It becomes our duty to imbibe a culture of innovation that supports the right use of technology as a tool for learning.

## الذكاء الاصطناعي كمدرب على الكتابة: تأثيراته على طلاب بكالوريوس اللغة الإنجليزية

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### الملخص

تبحث هذه الدراسة في تأثير أدوات الكتابة بالذكاء الاصطناعي على الناتج والجودة والأصالة في الكتابة التي ينتجها طلاب اللغة الإنجليزية في مرحلة البكالوريوس باتباع نهج الأساليب المختلطة، يجمع البحث بين البيانات الكمية التي جُمعت من خلال استطلاعات منظمة مع رؤية نوعية تم الحصول عليها من مقابلات متعمقة، وحللت استجابات الاستطلاع باستخدام تقنيات إحصائية، بما في ذلك الإحصاءات الوصفية لتحديد الاتجاهات والتحليل الاستدلالي لتقييم الارتباطات والأهمية. من ناحية أخرى، خضعت بيانات المقابلة لتحليل موضوعي، وتضمن ترميز النصوص لتحديد الموضوعات المتكررة والأنماط والمنظورات الفريدة المتعلقة بفعالية أدوات الكتابة بالذكاء الاصطناعي، وقدم هذا التحليل المزدوج الطبقات فهماً شاملاً لتأثير الأدوات على كتابة الطلاب، إذ تكشف النتائج أن الطلاب يرون إلى حد كبير تحسناً في جودة كتابتهم، وبخاصة في القواعد والأسلوب والوضوح. ومع ذلك، تم التعبير عن مخاوف كبيرة بشأن خطر الإفراط في الاعتماد على مثل هذه الأدوات والانخفاض المحتمل في الأصالة، وتؤكد الدراسة على أهمية دمج أدوات الكتابة بالذكاء الاصطناعي بشكل مدروس في البيئات الأكاديمية. وتوصي الدراسة بموازنة التعلم بمساعدة الذكاء الاصطناعي مع تعليم الكتابة التقليدي لضمان التنمية الشاملة. هذه النتائج ذات صلة خاصة بالمعلمين وصناع السياسات والمطورين الذين يسعون إلى تحسين دور الذكاء الاصطناعي في الكتابة الأكاديمية.

**الكلمات المفتاحية:** أدوات الكتابة بالذكاء الاصطناعي، نظرية التعلم البنائية، برنامجي جرامارلي وورد تيون، نظرية المعرفة بالمحتوى التربوي التكنولوجي، الذكاء الاصطناعي.

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