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The Impact of Using ChatGPT and Grammarly on developing Iraqi EFL University Students' Academic Essay Writing.

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Abstract:

Academic writing remains a challenge for Iraqi EFL students due to limited exposure to authentic English and structured writing practice. This case study, conducted in December 2024 with 30 second-year English department students, evaluated the use of ChatGPT for idea generation and feedback, and Grammarly for grammar and style correction. A semester-long program used both pre- and post-tests, surveys, and interviews to measure improvements in coherence, cohesion, grammar, and academic tone. Results showed notable progress, increased confidence, and autonomy in writing. However, concerns included overreliance on AI content and weak critical engagement. The study suggests AI tools can be useful supplements when paired with direct instruction and critical thinking strategies, offering valuable insights for EFL teachers in Iraq.

Keywords: ChatGPT, Grammarly, Feedback, Academic Essay Writing.





في تطوير مهارات كتابة المقالات الأكاديمية لدى ChatGPT و Grammarly استخدام
طلبة الجامعات العراقية الذين يدرسون اللغة الإنجليزية كلغة أجنبية

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المستخلص

لا يزال التعبير الأكاديمي يمثل تحديًا لطلبة اللغة الإنجليزية كلغة أجنبية في العراق بسبب قلة تعرضهم للغة الإنجليزية الحقيقية ونقص التدريب المنظم على الكتابة. تناولت هذه الدراسة، التي أجريت في ديسمبر 2024 بمشاركة 30 طالبًا من المرحلة الثانية في قسم اللغة الإنجليزية، استخدام ChatGPT لتوليد الأفكار وتحسين النصوص، و Grammarly لتصحيح القواعد وتحسين الأسلوب. شمل البرنامج فصلاً دراسياً كاملاً، واستخدم اختبارات قبلية وبعديّة، واستطلاعات وآراء المدرسين لقياس التحسن في الترابط النحوي، والدقة اللغوية، والأسلوب الأكاديمي. أظهرت النتائج تقدماً ملحوظاً، وزيادة في الثقة والاستقلالية في الكتابة، لكن ظهرت بعض السلبيات مثل الاعتماد المفرط على محتوى الذكاء الاصطناعي وضعف التفاعل النقدي مع الملاحظات. توصلت الدراسة إلى أن أدوات الذكاء الاصطناعي يمكن أن تكون مواد مساندة فعالة إذا استخدمت مع تعليم مباشر واستراتيجيات تفكير نقدي، مما يقدم فائدة إضافية للمعلمين في العراق الباحثين عن طرق جديدة لتحسين مهارات الكتابة الأكاديمية لدى الطلاب.



Introduction:

Academic writing Essay is a necessity for English as a Foreign language students, especially at the university level, where they are expected to produce essays, reports, and research papers whose formats conform to the required academic standards. This skill can only come through mastery of grammar and vocabulary as well as coherent organization of ideas, logical development of arguments, and citing sources appropriately. However, many EFL students face challenges to varying degrees before they can write proficiently in an academic context due to a variety of reasons. To mention a few, these include limited exposure to authentic English materials, inadequate writing practice, and a complete lack of constructive feedback. Contexts such as Iraq, where English is not a primary language of communication, offer much more challenge to the students who largely rely on old-fashioned teaching methods focusing more on rote memory and grammar drilling, with little encouragement towards critical thinking and written expression levels. Technology integration into language learning has provided various avenues to solving these problems. With the advancement of Artificial Intelligence (AI), new digital tools-based websites such as ChatGPT and Grammarly were born to help students improve their writing progress. ChatGPT, a conversational AI model, may help students identify ideas, advance the sentence structure, and refine the clarity of content. Grammarly complements this tool by providing real-time feedback on grammar, punctuation, and writing style. However, these two validate student empowerment and independent learning, and improved writing outside classes. Whereas both are being talked about now, the part they play in specific learning environments in Iraq regarding academic writing is yet to be explored. More research needs to be carried out to measure their role in writing difficult areas of a student and the degree to which they can fit into existing curricula in acquiring academic writing proficiency.



1.2 Statement of the Problem:

In spite of increased focus on enhancing Iraqi students' English language proficiency, academic writing still remains a considerable challenge. Many students find great difficulty in such areas as grammatical accuracy, coherence and cohesion, and overall academic tone, thus preventing them from producing decent research papers and essays. Traditional means for teaching writing seldom offer individualized feedback to help students recognize and rectify their mistakes. The study at hand then investigates whether the combination of ChatGPT and Grammarly into the instruction of writing would contribute to the improvement of Iraqi EFL students' academic writing skills. The precise aims are to evaluate the extent to which these AI tools support students in producing logically organized, grammatically correct, and stylistically appropriate academic texts.

1.3 Research Questions:

This study aims to address the following research questions:

1. To what extent do ChatGPT and Grammarly improve the academic writing skills of Iraqi EFL students?
2. How do students perceive the effectiveness of these AI tools in enhancing their writing abilities?
3. What are the potential challenges and limitations of using ChatGPT and Grammarly for academic writing instruction?

1.4 Objectives of the Study:

The primary objectives of this study are:

1. To assess the impact of ChatGPT and Grammarly on Iraqi EFL students' academic writing skills.



2. To analyze students' perceptions of AI-assisted writing tools in their learning process.
3. To identify challenges and provide recommendations for the effective integration of AI tools into academic writing instruction.

1.5 Significance of the Study

This research study is quite significant as it sheds light on a novel approach to ameliorating academic writing skills among Iraqi EFL students, which remains a major area of weakness in the contemporary educational system. The evaluation of the role of ChatGPT and Grammarly, therefore, presents some insights into the advantages and disadvantages of AI-assisted learning with meaningful implications for instructors, curriculum designers, and policymakers in Iraq. Taking the research a step further, it contributes to the corpus of knowledge on AI in language learning—and gives testimony to how technology may complement conventional methods. This also serves as a reference in the hands of the teachers who want to incorporate AI into their writing instruction.

1.6 Scope and Limitations of the Study

This topic was experimented in December 2024. The subjects of this study are second-year students of the Department of English at Misan University. The research restricts itself to observing students' writing development over one academic semester, during which ChatGPT and Grammarly were studied as major AI tools. Other AI writing tools and their influence on students of different proficiency levels were never studied. The limitations within the study include the assumption that students could become overly reliant on AI-generated feedback to the extent that their independent writing might suffer. Motivation levels among students and



prior writing skill could have also affected their results. The authors shall take these factors into account in their interpretation of the study.

2: Literature Review

2.1 Academic Writing

Writing is a complex process, which, according to Hyland, includes language competence, knowledge of discourse structures, argumentation, and critical thinking (2019). Well-structured and coherent text writing is seen as a very important skill for higher education; nevertheless, many students of English as a Foreign Language (EFL) do not meet the expectations of academic discourse. Many things contribute to this dilemma, such as limited exposure to academic writing conventions, few opportunities for writing in-depth work, and a lack of relevant feedback mechanisms that promote the reviewing and refining of written work (Bitchener & Basturkmen, 2021). This challenge becomes even more evident in an institution characterized by little English language use outside the classroom, resulting in some engagement with authentic academic materials and few opportunities to fluently write in real-life academic contexts. There is ample evidence in the literature that EFL learners encounter real challenges in organizing and constructing grammatically correct and lexically rich texts (Ferris, 2018). Students may have difficulty constructing cohesive arguments, maintaining the appropriate degree of formality in tone and register, or utilizing appropriate methods of citation and referencing. Furthermore, self-regulation in writing is difficult for students, who tend to rely on external feedback instead of enhancing their revision strategies. With such persistent problems, the focus has started to shift toward marketing explicit instruction in writing that deals with issues deeper than error correction, focusing on coherence, cohesion, and rhetorical effectiveness (Hinkel, 2020; Hyland and Jiang, 2017).



These challenges have historically been addressed with a variety of traditional approaches to writing instruction, including teacher feedback, direct instruction, and peer review. While they are invaluable approaches, they still may fail to meet the diverse needs of EFL learners. Teachers are often unable to give timely feedback due to large class sizes and time constraints, while peer feedback can be inconsistent or ineffective, especially when students are not equipped with the necessary linguistic and analytical skills to assess each other's writing critically (Truscott, 2017).

Moreover, in large classes with few teaching hours, opportunities for providing individualized feedback to writers may decrease, leaving many writers without effective support for enhancing their writing. These are indeed the bright spots in the field of research and development into using digital tools for writing development. New strides in the AI sector have ushered in a plethora of high-spirited automated writing assistants, including ChatGPT and Grammarly, enabling students to receive instant and personalized feedback while writing. While ChatGPT is classed as a conversational model, it supports the learner's brainstorming and sentence structuring–organization–deployment processes; in other words, using ChatGPT is anticipated to create and refine ideas. As for Grammarly, it attaches immediate feedback on grammar, punctuation and writing style to students to allow them to find mistakes and self-correct. Clearly technologies like these hold promise for bridging the divide between limited classroom instruction and the extensive and perhaps unavoidable amount of reinforcement students need when developing writing skills.

2.3 Challenges in EFL Academic Writing

Writing in an academic style is an uphill task that demands one's mastery of the linguistic, structural, and cognitive facets of writing. EFL students face many



challenges while trying to acquire this skill. These arise from limitations in their vocabulary, difficulties in their syntax and grammar, inadequacy of feedback, and differences in cultural rhetorical structures. Thus, given the multifarious nature of academic writing, one has to consider the problems that EFL students encounter and decide on effective methods to assist their growth.

A. Linguistic Challenges

Among the most vital constraints EFL students confront in academic writing, limited vocabulary certainly has a major impact in inhibiting their expression of intricate ideas in a clear and precise manner. Nation (2020) stresses that achieving academic writing entails a vast yet particular vocabulary that encompasses technical terms as well as discipline-based language. However, a wide number of EFL students appear to find difficulties in obtaining and effectively using such vocabulary, leading to vague expressions or stringing instances of the same and, hence, undermining the clarity of their writing and persuasion of their argument. In addition to that, lexical gaps often induce students to take the route of translation from their first language, resulting in structures that sound awkward and unfitting. In addition, the other main hindrances to academic writing for these learners are syntactic complexity and grammatical accuracy. Leki (2018) reported that students tended to construct grammatically correct sentences that followed academic writing conventions. Typical errors include inappropriate verb tense use, subject-verb agreement problems, and incorrect sentence formation. Such concerns are the bane of their readability, as well as coherence and professionalism. Thus, students may find it difficult to reach the high standards that come naturally in the academic world.

B. Structural and Organizational Challenges



The complexities involve not just lingual problems; EFL students have found it quite challenging to appropriately organize their writing. This writing—the dryness of academic essays—partakes in skills like developing clear arguments, advancing by logical progression, and forming appropriate transitions between the ideas being presented. However, most learners find it difficult to organize their thoughts well, leading to essays, which are disjointed and underdeveloped (Hyland 2019). The most formidable challenges are in research writing because students need to synthesize information from a variety of sources, critically evaluate evidences, then organize it for that which they will present. In addition to this, the difference between European languages with regard to rhetorical conventions and those used by the students for writing creates further hurdles. For instance, Connor (2019) goes on to argue that cultural differences in writing would impact EFL learners' ways of arguing, organizing information, etc. A particular language group may have a preference toward the less explicit tipo of argumentation while English formal writing usually is more direct and explicit. Such differences pose challenges that make it difficult for EFL learners to integrate into English academic discourse expectation, hence ineffective argumentations and vagueness in their writing.

2.4 The Role of Feedback in Writing Development

In the feedback process that gives direction towards academic writing and development, students detect their weak points and ameliorate upon their writing skills. One of the major problems in an EFL writing instruction is the inability to provide timely and effective feedback. According to Biber and Gray (2019), the absence of feedback makes it difficult for students to detect mistakes and correct them, thereby hindering their progress. Providing feedback in a conventional sense, such as written comments from the instructor, can be a lengthy process, often not providing the student with sufficient feedback to carry out those revisions with a good level of detail. The situation is aggravated by the sheer number of students



per instructor and the enormous workload instructors must bear. Probing peer review have been suggested as a remedy for this situation, but its outcome is mixed. Since many EFL learners lack confidence or skill in giving constructive critique of peer writing, thus the peer review in itself has limited the quality of feedback (Hyland, 2021). Thus, students do not receive the sufficient support they need to better their writing, which only beget obscurity in pointing out areas of improvement.

2.5 The Potential of Digital Tools in Addressing Writing Challenges

Such challenges have made educators and researchers look increasingly to digital tools as a means for developing EFL learners' academic writing skills. The advent of Artificial Intelligence (AI)-enabled applications, such as ChatGPT and Grammarly, has yielded new avenues for providing instant, tailored writing support. While ChatGPT aids students in brainstorming, structuring sentences, and developing content, Grammarly takes care of instant grammar, punctuation, and stylistic checks. These tools facilitate self-regulation and provide immediate feedback to students, thus convincing them that they no longer need instructors at every stage of the writing process. The usefulness of AI-assisted writing tools is much debated. Just because these tools help in removing surface errors and improving fluency, that doesn't mean they suffice to deal with higher order issues like argument development, coherence, or critical thinking. There is also the concern that excessive dependence upon automated feedback will inhibit the student from engaging in the writing process and developing his or her own strategies. Therefore, it becomes imperative to discover how to integrate digital tools in the writing pedagogy in a manner that compliments, rather than replaces, the conventional methods.



2.6 The Role of Technology in Academic Writing

Learning languages has changed because technology has made possible access to many ideas through digital resources that provide better writing skills. Most studies have been conducted using computer-assisted language learning (CALL) as an effective way for EFL students to develop writing (Chapelle, 2020). Online writing platforms, feedback authoring tools, and even AI-enabled writing partners have gained good attention from the learning community as resources increasing the writing proficiency (Godwin-Jones, 2018). Digital tools such as Grammarly and Turnitin are massively used for automated grammar checks and plagiarism detection (Li, 2021). Studies suggest that students were made aware of mistakes within real-time capture and worked toward modifying them, hence promoting self-editing and independent learning (Warschauer and Grimes, 2020). Again, AI-based language models such as ChatGpt help students to conceptualize and chain ideas, plan essay structures, and improve writing (Flor and Lee, 2022). Although great strides have been made in this direction, the two concepts of EFL instruction and the implementation of AI-powered writing tools raise a lot of pedagogical and ethical issues. They may provide immediate feedback but not dynamic learning autonomously, as surface teaching emphasizes error remediation instead of writing processes. This can lead to passive learning ("through the digital assistant") but only sustain activity in low-level writing skills, such as surface error detection and correction instead of much higher-order skills of argumentation, coherence, and critical analysis (Stapleton and Radia, 2021). Concerns about data privacy, academic integrity, and even the potential misuse of AI-generated content further underscore the necessity for instructors to develop clearly stated guidelines for responsible tool use. Therefore, AI-assisted writing tools should effectively enrich curricula around what has previously been taught using traditional methods, thus making sure that they find the use of these technologies maximized.



2.7 AI-Powered Writing Assistance in EFL Learning

Personalization of feedback and adaptive learning, according to Burstein et al. (2021), are revolutionizing language learning through artificial intelligence. In addition to grammatical and stylistic choices, McNamara et al. (2023) describe ChatGPT as a model that interacts with both generating writing and suggesting improvements and giving explanations. An automated grammar and style tool for students is Grammarly—an AI writing aid that augments writing clarity and coherence (Ranalli, 2018). AI integration in writing tools would therefore greatly motivate and involve learners in their writing tasks (Zhang and Luo, 2022). Instant feedback from these tools reduces dependency on traditional teacher feedback, while students take on a more active role in their own learning processes (Heift & Schulze, 2021). Such apprehensions have been raised regarding developing independent writing skills through an undue reliance on AI-generated suggestions (Xu et al., 2020).

2.8 Benefits and Limitations of AI Writing Tools



2.6.1 Benefits

Numerous researches highlight the advantages of artificial intelligence tools in the pedagogical activity of writing: Immediate Feedback: AI tools provide instant corrective feedback to enable students' real-time identification and rectification of errors (Ranalli, 2018). It's convinced that Students who underwent training in the use of artificial intelligence grammar checkers displayed a substantial increase in writing grammar and overall writing quality as well (Burstein et al., 2021). They increased their confidence in writing: Increased Writing Confidence: Such Students reported greater writing confidence after using AI tools because they were able to receive guidance through automated feedback systems (Zhang & Luo, 2022).

2.6.2 Limitations

Despite these benefits, AI tools have certain limitations:

- **Over-Reliance on Technology:** Students may become overly dependent on AI suggestions, which could reduce their ability to self-edit and develop critical thinking skills (Xu et al., 2020).
- **Lack of Contextual Understanding:** AI tools sometimes fail to understand the nuances of academic writing, leading to inappropriate or overly simplified corrections (McNamara et al., 2023).
- **Ethical Concerns:** The use of AI in writing raises ethical questions regarding originality, authorship, and the potential for plagiarism (Flor & Lee, 2022).

3: Research Methodology

3.1 Research Design

The study employs the same mixed methodology that has borrowed various aspects of quantitative and qualitative research design to provide a complete approach on



the impact of ChatGPT and Grammarly on academic writing skills. This study incorporates both methods so that it can collect objective measures of writing improvement (i.e., quantitative but also richer, contextual insights into the perceptions of students and instructors).

The research uses a quasi-experimental design where performance is measured before and after an intervention with the use of a pre-test and post-test. Such are quantitative measures supplemented by a student survey and an instructor interview exploring students' perceptions of the AI tools and instructors' observations about changes in student writing quality. The combination would involve triangulation, thus bolstering the validity and reliability of results.

Table (1) Research Design

Research Type	Description	Purpose
Mixed-methods (Quantitative and Qualitative)	Combines objective measurements and subjective insights	To offer a comprehensive understanding of AI tools in writing improvement

3.2 Participants

The research was carried out at the University of Maysan, where it involved 30 students in second-year undergraduate studies within the Department of English. Participants were selected based on this criterion:

- Enrolled in an academic writing course
- English ability in between intermediate to upper-intermediate level
- Wider experience but not much into the use of AI writing tools



In addition, three English writing instructors with experience teaching academic writing were included in the study to provide feedback on student outcomes throughout the intervention as well as conduct interviews for assessing impact from a teaching perspective regarding the use of AI tools.

Table (2) participants selection

Group	Number of Participants	Criteria
Students	30	Intermediate to upper–intermediate proficiency, no prior AI tool experience, enrolled in academic writing course
Instructors	3	Experience in teaching academic writing, knowledge of AI tools

3.3 Data Collection Methods

It reflected pre– and post–tests, surveys, and interviews–the procedures on how to gather information for research. Such forms sought to assess not only objective improvements in writing of the students but also subjective perceptions toward both students and instructors using AI tools.

3.3.1 Pre–Test and Post–Test

Before and after the eight–week intervention, the students were given a pre–test and a post–test, respectively, to measure progress in writing skills. The pre– and post–tests gave them the same task, which is writing an academic essay on a certain topic with a word count between 500 and 600. The essays were assessed against the following criteria:



Table (3) Pre-Test and post-test

Writing Criteria	Pre-Test Focus	Post-Test Focus	Description
Coherence and Cohesion	Logical organization of ideas, paragraph structure	Improved flow and connection of ideas	Focus on logical structure and cohesive argumentation
Grammar and Mechanics	Basic grammar, sentence structure errors	More accurate grammar, fewer errors	Focus on proper grammar and clear sentence structure
Academic Style	Informal or non-academic tone	Formal, academic style, appropriate tone	Focus on academic tone and formal language
Lexical Resource	Limited vocabulary, frequent repetition	Rich vocabulary, varied word choices	Focus on vocabulary variety and appropriate word selection

3.3.2 AI Intervention (Use of ChatGPT and Grammarly)

Students were taught how to use ChatGPT for tasks such as generating ideas, structuring sentences, and expanding content with Grammarly running mainly for grammar checks in sentence clarity and stylistic improvement during the 8-week intervention. Below is how the intervention was organized:



Table (4) the intervention structure

Weeks	Activities	Focus of Intervention
Weeks 1–2	Training on ChatGPT and Grammarly	Introduction to the tools, understanding their functions
Weeks 3–6	Weekly writing assignments with AI tools	Practical use of ChatGPT and Grammarly to improve drafts
Weeks 7–8	Final writing task and reflection survey	Applying AI tools to a final writing task, student reflection on AI tool usage

3.3.3 Student Surveys

At the conclusion of the study, students were administered a Likert–scale questionnaire (with ratings 1 = Strongly Disagree, 5 = Strongly Agree) in order to assess their perceptions of the AI tools. The survey focused upon the following main areas:

Table (5) A Likert–scale questionnaire main areas

Survey Area	Focus of Question
Ease of Use	Clarity and simplicity of using AI tools
Perceived Improvement in Writing Skills	The extent to which students feel their writing improved
Usefulness of AI Feedback	The effectiveness of feedback



	provided by AI tools
Challenges Faced	Difficulties or obstacles faced while using the tools

3.3.4 Instructor Interviews

Semi-structured interviews were conducted with three instructors to collect qualitative data on the perceived effectiveness of AI tools. The interviews focused on the following areas:

Table (6) Instructor Interviews

Focus Area	Description
Effectiveness of AI tools in student writing	Instructors' opinions on whether the AI tools were effective in improving student writing
Observed Changes in Student Writing Quality	Specific improvements noted in students' writing after the intervention
Challenges and Pedagogical Implications	Difficulties in using AI tools and how instructors adapted their teaching methods

3.4 Data Analysis

Paired t-tests were performed to analyze the pre-test and post-test data and check for significant improvements in writing performance after using ChatGPT and Grammarly. Descriptive statistics (mean and standard deviation) were performed to compare the pre- and post-test scores for the major writing components. The survey results were also analyzed with descriptive statistics to summarize students' perception of the AI tools.



Table (7) data analysis method

Data Type	Analysis Method
Pre-Test and Post-Test Scores	Paired t-test, Descriptive statistics (mean, standard deviation)
Survey Responses	Descriptive statistics (mean, standard deviation)

3.4.1 Pre-Test and Post-Test Analysis

This study examined the use of pre-and post-test scores in order to gauge whether the writing has indeed improved after the two-month use of ChatGPT and Grammarly. Evaluation of the scores was done along four main criteria: coherence and cohesion, grammar and mechanics, academic style, and lexical resource. Paired t-tests were conducted to assess the statistical significance of any differences between the pre-test and post-test scores.

Table (8) pre-test and post-test scores analysis

Criteria	Pre-Test Mean	Pre-Test Std. Dev.	Post-Test Mean	Post-Test Std. Dev.	T-Value (p-value)
Coherence and Cohesion	5.44	1.10	6.49	1.30	-12.36 (0.000)
Grammar and Mechanics	4.51	0.91	5.38	0.99	-10.14 (0.000)
Academic Style	5.09	0.77	6.04	0.99	-10.09 (0.000)
Lexical Resource	5.51	1.02	6.47	1.16	-11.55 (0.000)



After treatment with ChatGPT and Grammarly, the paired t-test findings demonstrated a statistically evident enhancement of writing performance in all the parameters under evaluation. The mean score for Coherence & Cohesion rose from 5.44 in the pre-test to 6.49 in the post-test, with the standard deviation increasing from 1.10 to 1.30. The importance of Grammar & Mechanics was also from 4.51 to 5.38, with better grammatical accuracy and better mechanical correctness. The strongly significant t-values (-12.36 for the first and -10.14 for the second, with p-values of 0.000) provide evidence that the improvements made in coherence and grammar were very important and not merely as a result of random error. The findings suggest that effective AI tools had been employed in organizing ideas and fine-tuning grammar to facilitate writing that is clearly and logically structured and academically sound. Accounting for marked improvement was the Academic Style and Lexical Resource, increasing from 5.09 to 6.04 and from 5.51 to 6.47, respectively. In addition to the standard deviation increase suggesting that most students benefited from the tools, individual improvement levels varied somewhat. Statistically significant were the t-values (-10.09 and -11.55 , both $p=0.000$). In terms of academic style, the improvement would indicate that students were using more formal and precise language, whereas gains in the lexical resource suggest greater vocabulary use and better word choice. Overall, results suggest that the application of AI tools like ChatGPT and Grammarly can be a valuable enhancement to writing instruction and may enhance student proficiency more in respect of coherence, grammar, style, and vocabulary.

3.4.2 Survey Responses Analysis

Descriptive statistics such as mean and standard deviation were used to summarize the survey data. In addition to the pre- and post-test analysis, the survey responses were analyzed to summarize the students' perceptions of the AI tools. Students were surveyed for their perceptions on ease of use, actual improvements



in writing skill levels, usefulness of AI feedback, and challenges faced in the course of the intervention.

Table (9) Survey Responses Analysis

Survey Area	Mean	Standard Deviation
Ease of Use	4.12	0.49
Perceived Improvement	4.64	0.80
Usefulness of Feedback	4.31	0.44
Challenges Faced	2.86	1.10

The results of the survey disclosed that students generally rated ChatGPT and Grammarly positively, attaining high means in most of the key measures. Ease of Use, rated at 4.12 against an almost negligible standard deviation of 0.49, suggested that generally students found the AI tools user-friendly and easy to navigate. Perceived Improvement was rated the highest out of all categories: 4.64 (SD = 0.80), indicating that the students were convinced that the tools helped improve their academic writing skills. The slightly higher standard deviation might suggest that students had differing perceptions of the benefits, likely attributed to their own prior writing ability or engagement levels with the tool. Similarly, Usefulness of Feedback received a high mean score of 4.31 (SD = 0.44), meaning the students appreciably counted AI-generated feedback in improving their writing texture, grammar, and vocabulary choices. In contrast, the category of Challenges Faced drew considerably lower mean ratings for AI use (2.86) with a relatively high standard deviation (1.10), indicating that there were varied firsthand experiences regarding challenges. Some students might have found the AI tools easy to operate; others, however, really had difficulties interpreting AI-generated suggestions or



drawing a line between AI help and their own writing abilities. That evident variability hints at significantly differentiated experiences by individual respondents and challenges faced, possibly due to factors such as digital literacy, past usage of AI tools, or the varying level of autonomous writing in collaboration with AI corrections. Overall, the survey results indicate that, while ChatGPT and Grammarly were generally well-rated and were thought to be efficiently improving the quality of academic writing, some students were struggling with these technologies, leaving a gap in the necessity to train them better and guide them well in using these tools.

3.5 Discussion of Results

The findings from the current research have shown that the integration of AI-powered applications such as ChatGPT and Grammarly can very well strengthen the academic writing skills of Iraqi EFL students. The analysis of pre-test and post-test has presented a significant difference for all the writing criteria included in the research: Coherence and Cohesion, Grammar and Mechanics, Academic Style, and Lexical Resource, with t-values and p-values of not less than 0.000 throughout all the areas tested. The difference in mean scores between the pre- and post-test thus indicates that students were able to produce more structured, grammatically correct, and appropriately styled writing after the intervention. These findings further indicate how technology-assisted writing tools might aid learners of EFL to a great extent in their resolution of such writing problems, particularly in sentence construction, word choice, and the coherence of argument development.

The survey results also provide beneficial insights regarding students' perceptions about AI tools within academic writing. High scores registered on Ease of Use (4.12), along with Usefulness of Feedback (4.31), show that most of the students found ChatGPT and Grammarly accessible and helpful in polishing their writing



skills. The aspect which garnered the highest score, Perceived Improvement (4.64), suggests that students believed strongly in the effectiveness of these tools for enhancing academic writing. Such favorable responses underscore the potential of complementing face-to-face writing instruction with contactless instant, pre-programmed feedback on which learners might base self-corrections and improvement. That said, the study also recognizes technology will never make instructors obsolete, especially in addressing deeper matters of academic writing, like critical thinking and debate. On the whole enthusiastic side of the study, AI writing challenges were also mentioned. Challenges Faced scored lower than expected in the mean (2.86) but with marked standard deviation (1.10), indicating that while some students managed to adapt to AI tools, others faced severe challenges in applying AI feedback in their writing. Within this context, factors such as digital literacy, AI familiarity, and previous writing competency seem to have impacted students' experiences. By the same token, some students might be said to have been too reliant on AI for their corrections, while others may have had issues interpreting specific AI suggestions. Thus, training for critical AI tool use versus passive acceptance of correction becomes necessary.

In conclusion, this study establishes that ChatGPT and Grammarly can have a bearing on the improvement of academic writing skills for Iraqi EFL students. These tools have caused the major changes in students' writing performance and, from their perspective, positively contributed to the course, thus justifying their application in writing teaching. On the contrary, the study demonstrates that students should receive proper instruction on employing AI writing tools as a supplement to their writing skills rather than as a substitute. In future work, it would be interesting to consider issues such as long-term consequences, negative sides like AI dependencies, and how best to incorporate AI tools into EFL writing curricula.

Conclusion





This study has shown that AI-enabled tools such as ChatGPT and Grammarly have great potential in developing the academic writing skills of Iraqi EFL students. Results of the pre-test and post-test comparisons showed that students had measurable improvement in coherence and cohesion, grammar and mechanics, academic style, and lexical resources in the writing they produced after using these tools. The statistically significant improvement in these areas shows that properly harnessed AI-based feedback can support students in producing more coherent, grammatically accurate, and stylistically appropriate writing. The survey responses also indicated students generally found the tools user-friendly and helpful in enhancing their writing. Conversely, the disparate challenges faced by students suggest structured guidance is needed to safeguard against AI being considered an outright replacement for actual learning. For all the good AI tools do, in this study, their functioning as an ideal writing assistance calls for a careful examination. While ChatGPT and Grammarly could offer near-instant feedback and suggestions for improvement, they need to be carefully sewn into the learning process and not used in place of traditional instruction. Educators have to encourage students to use AI but at the same time develop independent critical thinking and writing skills so that students do not lean too heavily on technology. Long-term implications, methods on how to optimize AI integration into writing classes, and possible alternatives for resolving students' issues about effective use of AI feedback could be part of forthcoming research. This study points out that, in conjunction with appropriate pedagogical support and training, AI has potential as a valuable educational tool.

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