

USE OF ARTIFICIAL INTELLIGENCE GENERATIVE TOOLS IN ENHANCING ACADEMIC WRITING OUTPUTS: BASIS IN DESIGNING SKILL-BASED WRITING ACTIVITIES

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Abstract

This study examined how AI generative tools like Grammarly, Quillbot, Gemini, and ChatGPT enhance students' written outputs in grammar, vocabulary, and cohesion. A qualitative approach was used, with purposive sampling gathering twenty-seven essays from third-year English major students. This study was conducted at Isabela State University, Echague Campus during the School Year 2023-2024. Participants wrote two essays: one without any AI assistance and another with AI-enhanced revisions. Findings show that 34% of the improvements focused on grammar, particularly in verb consistency, sentence structure, articles and prepositions, modifiers, punctuation, capitalization, redundancy, and voice and clarity. Enhancements of AI in the cohesion and vocabulary domains were also observed. Based on these findings, a skill-based writing module was developed, concentrating on the most needed grammatical interventions. The module includes engaging activities aimed at helping students internalize grammar rules and apply them in their writing. This research highlights the potential of AI to support writing instruction by addressing specific grammatical weaknesses and improving academic writing outcomes. The study advocates for further exploration of AI-driven teaching methods in education.

INTRODUCTION

Writing, a form of communication, entails crafting visual symbols to signify concepts and notions. It is a complex process that requires skills in various linguistic areas, such as morphology, syntax, semantics, pragmatics, and discourse (Crystal, 2006). Writing also involves students' understanding of micro-linguistic components—grammar, syntax, and semantics—melding these into organized communication (Menggo et al., 2019).

Recent innovations in technology, particularly the rise of digital tools, have transformed academic writing practices (Scholnik, 2018; Strobl et al., 2019). Among these innovations, AI applications such as Grammarly, Quillbot, ChatGPT, and Bard have transformed the writing

experience. These provide functionalities such as grammar verification, language improvement, content creation, and sentence rephrasing (Marzuki et al., 2023). Although AI is proficient in generating technically accurate results, it fails to emulate the creativity and subtle expression found in human writing (Scudder, 2023). Additionally, differences in access to AI, arising from the digital divide, emphasize the necessity for fair distribution of technology and education (Tlili et al. 2023).

AI adoption in the Philippines is still in its early stages. Estrellado and Miranda (2023) emphasize the need for cautious exploration of AI implementation in education. The digital divide, exacerbated by internet connectivity issues and limited device availability, particularly in rural areas, poses significant challenges to equitable AI integration (Whitelock-Wainwright et al., 2023). As observed by Asirit and Hua (2023), there is a wide variation in Philippine higher education in terms of readiness and utilization of AI, hence, there is an interest in the convergence of perspectives on AI integration.

Although the global usage of AI in academic writing is extensively documented, few localized studies focus on its implementation in the educational setting of the Philippines. This research addresses that gap by examining how university students, specifically those enrolled in teacher training programs, view and employ AI in their writing.

This research study aimed to describe and observe how the use of AI generative tools can enhance the writing outputs of students from higher education. Grammar, coherence, and vocabulary were chosen as focal points because they are foundational elements of effective writing. Together, these elements are critical for producing clear, compelling, and professional written communication. Specifically, the researchers aimed to find answers to (1) how artificial intelligence (AI) generative tools enhance the academic writing outputs of students in terms of grammar, coherence, and vocabulary, and (2) what skill-based writing activities can be designed based on the findings of the study.

METHODS

Research Design

A qualitative design was utilized to describe how AI enhances the academic writing outputs of the students. The researchers used discourse analysis to examine written essays through manual coding. This involves reading and examining the text structure and linguistic features of the essays. The enhanced essays were analyzed to identify common patterns and synthesized into broader categories of the observed enhancements. Additionally, based on the observed data collected, a needs analysis was conducted to design a material that aligns with students' needs. This was performed by identifying the domain where respondents were weakest, allowing for targeted enhancements in that area. Discourse analysis and needs analysis were combined as this integration ensures a comprehensive understanding of both the content and the specific areas where respondents require improvement, leading to more accurate and effective results. In the development of the skill-based writing activities, the researchers adopted the ADDIE model. However, only the first three stages were implemented, which are the Analysis, Design, and Development phases to structure the creation of activities. The last two stages which are Implementation and Evaluation were not completed due to time constraints and status of the researchers as students which made it challenging to fully execute and assess the designed material.

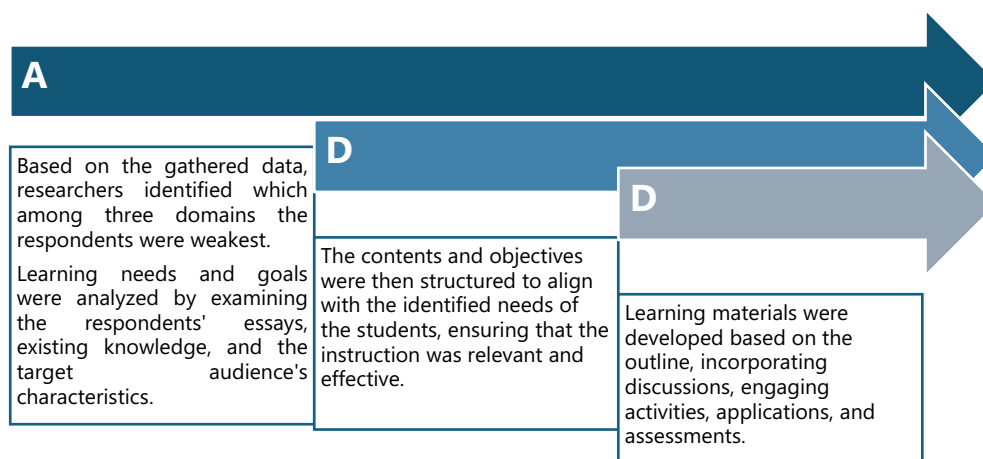


Figure 1. ADDIE Model

Respondents and Locale of the Study

The study involved 27 students enrolled in the BSE program majoring in English at Isabela State University, Main Campus, during the academic year 2023-2024. Purposive sampling was used to select participants who can use AI in writing their academic papers and composing academic papers. The table below illustrates the inclusion-exclusion criteria applied to the respondents.

Table 1. Inclusion-exclusion Criteria of Respondents

Parameters	Inclusion	Exclusion
Background	Must be officially enrolled as a third-year student in the Bachelor of Secondary Education major in English program at Isabela State University.	Students who are enrolled in other programs and courses.
Essay writing task	Must demonstrate the ability to compose an essay independently.	Students who cannot independently compose an essay or require significant assistance in writing.
Familiarity with AI tools	Must be knowledgeable about how to use AI as a guide in the study	Students who are unwilling or hesitant to use AI as part of the study.

Technical requirements	Has access to an internet connection and a device that is capable of running AI.	Students who lack or do not have access to a stable internet connection or the necessary technology to engage with AI.
Language proficiency	Must have at least an intermediate level of English proficiency to ensure understanding of the given topic and use of AI effectively	Students with limited English proficiency that may hinder their ability to understand the topic and engage with AI effectively.
Participation	Must voluntarily agree to take part and sign a consent form to indicate	Students who refuse to provide consent or are unwilling to

Research Instrument

A written discourse task was employed to examine how AI enhances students' writing outputs. The task involved two phases: an initial and an enhanced essay. Written discourse allowed the researchers to evaluate coherence, structure, logical development, and linguistic resources like grammar and vocabulary. Participants adhered to rubrics adopted by the researchers focusing on five dimensions: focus and details, organization, voice, word choice, and grammar. This allowed the participants to demonstrate their writing abilities and knowledge of the use of AI which provided insights into the impact of AI on writing competencies.

Data Gathering Procedure and Analysis

This study used qualitative data collection through direct interaction with 27 respondents knowledgeable in Grammarly, Quillbot, ChatGPT, and Gemini. Participants wrote a 500-word essay. In the initial phase, respondents crafted their essays without AI, while in the second phase, they enhanced their initially written essays using AI. Each phase lasted 30 minutes, and participants recorded their screens while writing to document their use of AI. An adopted analytic rubric was provided beforehand, guiding respondents to focus on certain dimensions. Data collection included observations, recordings, and photographs for documentation. Researchers maintained anonymity by assigning code names to participants. Confidentiality was upheld, ensuring limited access to participant data.

Thematic analysis was utilized to examine the data collected from participants. The collected essays were subjected to qualitative content analysis. Each essay was examined in a detailed manner and the observed errors that were enhanced after the utilization of AI were categorized into three domains, which are grammar, cohesion, and vocabulary. This flexible approach allowed the researchers to observe and describe how AI-enhanced the outputs. The noted findings served as the basis for designing skill-based writing activities in a learning material.

Ethical Considerations

To follow ethical guidelines, the researchers assured the participants that all information would stay confidential. Screen recordings of them writing their essays were only used for the study, with their privacy and shared information kept safe.

RESULTS AND DISCUSSION

Artificial Intelligence Generative Tools Enhancement of Academic Writing Output

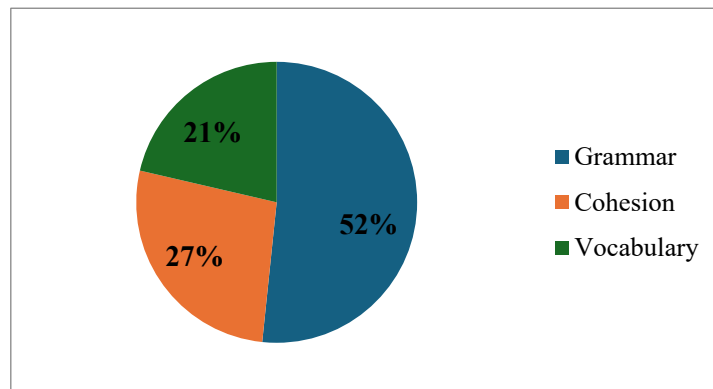


Figure 2. Analyzed Written Outputs before Integration of AI Generative Tools

Figure 2 illustrates the quantified areas needing enhancements in the essays of respondents, revealing grammar accounted for the majority (52%), followed by cohesion (27%), and vocabulary (21%). Among these, grammar issues, particularly verb usage and sentence structure, were the most prominent in students' first drafts. On the other hand, cohesion-related errors such as disjointed flow, insufficient use of cohesive devices, and lack of clarity stem from students' limited knowledge of using linking words, pronouns, and transitions effectively. Lastly, the vocabulary domain characterizes errors such as inappropriate word choice and redundancy were attributed to students' limited range of operational terms in academic writing, leading to frequent use of basic words or incorrect terms, thereby affecting clarity and accuracy. Overall, these findings underscore the need for focused grammar instruction, cohesive writing practice, and vocabulary development to enhance students' clarity and coherence in writing.

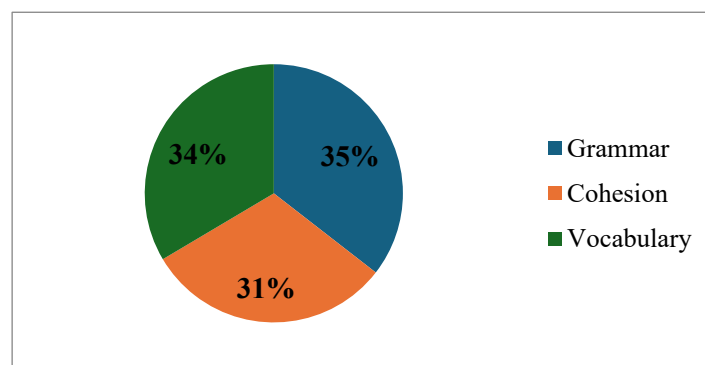


Figure 3. Analyzed Written Outputs after Integration of AI Generative Tools

Figure 3 shows improvements after using AI, highlighting changes in the distribution of enhancements. Grammar accounted for 35%, cohesion increased to 31%, and vocabulary rose to 34%. While grammar remained the highest category, the significant rise in cohesion and vocabulary suggests a more balanced improvement across all areas than the earlier grammar-focused issues. The increased distribution in cohesion and vocabulary indicates that AI contributed to a more even spread of enhancements, addressing not only grammar but also the clarity and connection of ideas and the precision of word choices. This demonstrates the capability of AI to provide effective corrections and suggestions for grammar, style, coherence, and vocabulary, leading to more polished and balanced writing.

Enhancements in these domains can be attributed to the working mechanisms of the AI used. In grammar, Grammarly uses an algorithm that has been programmed to detect grammatical errors like subject-verb agreement, punctuation, and other structure issues. Such tool provides feedback and suggestions that allow students to correct their mistakes leading to improved grammatical accuracy. In vocabulary, ChatGPT and Quillbot offer suggestions for alternative word choices that are more appropriate and precise. These can help students avoid repetitive words and improve the impact of their text. Lastly, AI also contributes to enhanced cohesion by recommending transitional words, sentence restructuring, and conjunctions to improve the flow of the text. These suggestions help students create logically connected ideas and make their output easier to follow.

Table 2. Grammar-Related Needed Enhancements in Respondents' Essays

Grammar	Frequency	Percentage
Sentence structure	87	16.3%
Verb usage and Consistency	90	16.9%
Articles and preposition	83	15.5%
Modifiers and clarity	76	14.2%
Punctuation and Capitalization	64	12.0%
Redundancy and Conciseness	51	9.6%
Voice and Clarity	83	15.5%
Total:	534	100%

Table 2 shows that students made 534 grammar-related errors before using AI, with verb usage errors being the most frequent (16.9%). These errors often happened due to two main factors: overgeneralization of grammar rules and limited exposure to English. Overgeneralization occurs when students apply incorrect rules. Limited exposure to English means that students are not regularly practicing the language, which makes it harder for them to learn and recognize correct verb forms in real-life situations.

There were also 16.3% of sentence structure errors. These were mainly due to issues with subject-verb agreement and irregular verbs. These problems occur because students struggle to grasp more complex grammar rules and often apply regular patterns to irregular verbs, leading to mistakes. Another common error involved articles and prepositions, with 15.5%. These mistakes often result from first-language interference, where students' native languages do not use articles or prepositions the same way English does.

Finally, 15.5% is attributed to voice, and clarity issues were observed. These errors occur when students are unsure whether to use the active or passive voice, which can lead to

awkward or unclear sentences. These issues arise from a lack of practice and understanding of how the choice of voice affects sentence clarity and structure.

Table 3. Cohesion-Related Needed Enhancements in Respondents' Essays

Cohesion	Frequency	Percentage
Logical flow and transitions	88	31.5%
Cohesive devices	50	17.9%
Sentence cohesion	80	28.7%
Structural clarity	61	21.9%
Total	279	100%

Table 3 shows that students faced 279 cohesion issues in their writing. The most common problem with 31.5% was poor logical flow and transitions. This issue occurred because students struggled with planning, organizing their ideas, and using transitional words. As a result, their writing seemed disjointed and hard to follow.

The second most common issue, at 28.7%, was sentence cohesion. Students had trouble connecting sentences smoothly due to weak grammar, limited vocabulary, and poor punctuation, such as run-on sentences. These problems were made worse by a lack of planning and editing.

Structural clarity, with 21.9%, was another challenge. Students had disorganized paragraphs, used too many long sentences, and often missed topic sentences. Repeating ideas unnecessarily made their writing harder to understand. These disrupted the flow and coherence of their writing.

Table 4. Vocabulary-Related Needed Enhancements in Respondents' Essays

Vocabulary	Frequency	Percentage
Word choice refinement and precision	108	48.9%
Reduction and simplification	79	35.7%
Specificity and clarity	84	38.0%
Total	221	100%

Table 4 highlights key linguistic challenges in students' academic writing, with three primary issues standing out: word choice refinement and precision (48.9%), specificity and clarity (38.0%), and reduction and simplification mistakes (35.7%). These issues illuminate significant gaps in students' ability to express themselves effectively and concisely in written communication. The most prevalent issue was word choice refinement and precision with 48.9%. This reflects students' struggle in selecting appropriate words for their intended message, often stemming from limited vocabulary or overreliance on familiar but imprecise terms. Specificity and clarity, (38.0%), represent another area of concern. Students often default to ambiguous language or overly complex sentences, obscuring their intended meaning. Lastly, reduction and simplification mistakes (35.7%) highlight students' tendency to overcomplicate language unnecessarily. Influenced by the academic setting, many students equate complexity with sophistication. However, this often leads to redundancy and diminished readability.

Table 5. Overview of Distribution of Grammar-related Enhancements

Grammar	Frequency	Percentage
Sentence structure	73	19.41%
Verb usage and consistency	125	33.24%
Articles and preposition	42	11.17%
Modifiers and clarity	6	1.60%
Punctuation and Capitalization	36	9.57%
Redundancy and Conciseness	38	10.11%
Voice and Clarity	56	14.90%
Total:	376	100%

Table 5 highlights the distribution of grammar improvements across various categories. The most significant enhancement was in verb usage and consistency (33.24%), addressing weaknesses in tense and subject-verb agreement. Sentence structure (19.41%) showed notable progress, as students struggled with proper sentence formation and parallelism. Voice and clarity (14.90%) reflected improvements in making writing more persuasive and reader-friendly. Enhancements in articles and prepositions (11.17%) indicated better positioning and usage of these components. Redundancy and conciseness (10.11%; 38 occurrences) improved as AI avoided unnecessary repetitions. Punctuation and capitalization (9.57%) also showed progress. Finally, modifiers and clarity had minor adjustments.

Subject-verb agreement showed the most improvement in students' essays. For example, S1's essay was revised from "learners' minds" to "learners' minds" to match the plural subject. Grammarly identified and corrected this inconsistency, improving clarity and grammatical accuracy.

The second was sentence structure. Unnecessary phrases were removed, and sentences were simplified for clarity. For example in S11's essay, "When it comes to this" "good articulation will help us to" was replaced with concise expressions, focusing on the main idea. ChatGPT was used to revise complex sentences and simplify them while retaining a natural tone, improving sentence structure.

Table 6. Overview of Distribution of Cohesion-related Enhancements

Cohesion	Frequency	Percentage
Logical flow and transitions	123	37.50%
Cohesive devices	29	8.84%
Sentence cohesion	104	31.71%
Structural clarity	72	21.95 %
Total:	328	100%

Table 6 shows improvements in students' writing cohesion after using AI. The biggest enhancement was in logical flow and transitions (37.50%), improving the organization and connection of ideas. Sentence cohesion followed with 31.71%, helping link sentences for smoother reading. Structural clarity improved moderately (21.95%), making the organization of ideas clearer. The least improvement was in cohesive devices (8.84%), with minor progress in using connectors like "therefore" and "however."

AI enhances logical flow by improving sentence transitions, eliminating redundancy, and correcting grammatical errors. For example, sentences like "As one who lives now in the 21st century..." were restructured to improve flow and clarity, such as "Living in the 21st century, we have access to various digital tools that aid in our everyday lives." This improves cohesion by linking ideas logically, like connecting cause (living in the 21st century) with effect (access to digital tools).

AI also strengthens sentence cohesion by making lists and transitions more consistent. For instance, in the sentence "Being able to express ourselves well can lead to better relationships..." AI restructured it to maintain parallel structure and improve clarity: "Good articulation fosters better relationships, opens up opportunities..." Furthermore, AI enhances sentence structure by ensuring ideas follow a logical order.

Table 7. Overview of Distribution of Vocabulary-related Enhancements

Vocabulary	Frequency	Percentage
Word choice refinement and precision	268	75.49%
Reduction and simplification	42	11.83%
Specificity and clarity	45	12.68%
Total:	355	100%

Table 7 highlights significant enhancements in students' vocabulary after utilizing AI to enhance their writing. The most notable enhancement was word choice refinement and precision (75.49%), indicating a substantial increase in students' output that had improved the use of words that effectively conveyed their intended meaning. This demonstrates the AI's efficacy in improving lexical accuracy and precision. Additionally, a moderate improvement was observed in specificity and clarity (12.68%), where AI employed more precise and clear language, resulting in more targeted and understandable writing. The least improved was reduction and simplification (11.83%), where essays became slightly more concise. While this category showed the smallest change, it still reflects the tools' potential to assist students in streamlining their expressions for better readability.

Data highlights improvements in word choice refinement and precision, with notable changes in the writing of respondents. For example in S13's essay, phrases like "so many ways" were replaced with "numerous ways," and "how we articulate words that we find difficult to say" was changed to "learning proper articulation." These revisions made the writing more precise and professional. Conciseness was also emphasized, with unnecessary phrases like "I believe that" being removed to make statements more direct. S4's essay saw similar improvements, where "outstanding" was replaced with "remarkable" to use a more specific term.

Second was specificity and enhancement. For example, S13's sentence "Our pronunciation is important as it will convey the meaning of the words that we speak" was revised to "Accurate pronunciation is crucial as it conveys the intended meaning of our words," improving clarity and precision. Additionally, vague terms were replaced with specific language, such as changing "a lot of" to "many" in S11's essay. This enhanced the formality and clarity of the writing, avoiding generalizations and ensuring a more concise, direct, and academic tone.

I. Artificial Generative Tools on Academic Outputs

Grammar

Findings provided significant insights into the role of AI in enhancing academic writing, particularly within the grammar domain. Grammar emerged as the area requiring the most improvement in the respondents' initial drafts, with significant challenges identified, particularly in verb usage, sentence structure, and voice and clarity. These findings align with prior studies, which emphasize how grammatical inaccuracies can compromise the clarity and coherence of academic writing (Myhill & Watson, 2013).

Verb usage and consistency were a common area of concern. For instance, an original sentence such as "First, we will gain respect and be underestimated by our students" was revised by AI to "Firstly, it helps us gain respect from our students and prevents us from being underestimated." This correction highlights improvements in subject-verb agreement and verb tense consistency, addressing a frequent issue in students' drafts. Other errors were also prominent, as seen in sentences like "The teacher explained the lesson, but it was not clear to the students." AI changed this into "Although the teacher explained the lesson, it was not clear to the students," demonstrating the resolution of run-on sentences and enhancing logical flow.

Additionally, voice and clarity presented challenges in the initial drafts. For example, the sentence "Keeping students engaged is also important. A teacher who speaks with enthusiasm and varies their tone keeps lessons interesting" was revised to "Engaging students is also crucial; a teacher who speaks with enthusiasm and varies their tone keeps lessons interesting." The adjustment strengthens the statement's clarity and directness of the sentence. These findings align with research by Marzuki et al. (2023), which demonstrated that AI is effective in refining tone and focus to align with academic writing conventions. Such revisions reflect the AI's ability to refine tone and focus, ensuring alignment with academic writing conventions.

Enhancements in the grammar domain reflect significant challenges faced by learners, often stemming from a limited understanding of grammatical rules and linguistic interference. Issues like inconsistent verb usage, improper sentence structure, and unclear sentence focus often result from unfamiliarity with English grammatical conventions, particularly when students' native languages differ structurally (Megantari and Budasi, 2018). Improvements in sentence structure showcase AI's capability to identify and correct run-ons, fragmented sentences, and unclear constructions, thereby enhancing readability and ensuring logical coherence.

These findings reinforce the critical role of grammar as a foundation for effective academic writing and underscore the transformative potential of AI in addressing grammatical errors. By combining targeted grammar instruction with AI-enhanced feedback, educators can bridge linguistic gaps and empower students to produce clear, polished, and academically sound outputs.

Cohesion

Beyond grammar, the study revealed enhancements in cohesion, with AI effectively addressing issues related to linking ideas. For example, sentences lacking conciseness, such as

"However, students like us don't get what they deserve especially if the Professors are also not good or an expert when it comes to good articulation." were improved to "Unfortunately, students often do not get the instruction they deserve, particularly if their professors aren't skilled in pronunciation." AI improved the cohesiveness of the sentence by recommending more appropriate transitional phrases while also improving sentence structure. This aligns with findings from Bui et al. (2021), who noted that students often struggle with the proper use of linking words, transitions, and pronouns to maintain coherence. Additionally, Faradhibah and Nur (2017) found some of the challenges experienced by the students in the aspect of coherence and cohesion in the writing process, particularly, formulation and assertion of ideas, meeting the support details, and appropriate signals, spelling, and punctuation.

Vocabulary

Vocabulary was another domain with significant improvements, particularly in word choice and precision. For example, a sentence like "Language is the most valuable and outstanding invention of humankind" was refined to "Language is one of the most valuable and remarkable inventions of humankind." AI-enhanced the sentence by using a more precise term that conveys significance without redundancy. The phrase "one of the" adds nuance by acknowledging that there are multiple valuable inventions. Such enhancements demonstrate the AI's ability to suggest more precise and contextually appropriate words, thereby elevating the tone and specificity of writing. Sedita (2023) emphasized the challenges students face in using words in the correct context, highlighting the role of AI in addressing these issues. Furthermore, Wero et al. (2021) revealed that many students possess a limited productive vocabulary, which impacts their ability to express ideas effectively—an area where AI provides critical support.

Observed improvements across three domains underline the transformative potential of AI in addressing common writing challenges. AI not only corrected these errors but also provided valuable models for students to learn from, promoting better writing habits over time. By identifying and addressing specific areas of weakness, these tools play a crucial role in enabling learners to produce clear, coherent, and polished academic outputs. Coupled with targeted instruction and practice, the integration of AI feedback can bridge linguistic gaps and empower students to succeed in academic writing tasks.

Potential Weaknesses of AI Tools in Writing

AI shows potential to enhance grammar, vocabulary, and cohesion in writing, but there are some important weaknesses to consider. First, is overreliance where students might depend too much on these tools for corrections and suggestions, which can reduce their active involvement in the learning process (Zhai et al., 2024). Instead of thinking and learning from their mistakes, students may just let AI fix their outputs, making the learning experience passive. This could prevent them from fully understanding grammar rules and developing strong, independent writing skills.

Another is the possible limitation of the development of cognitive skills (Zhai et al., 2024). Writing is not only about using correct grammar and vocabulary, it is also about creating clear ideas, forming strong arguments, and being creative. If students rely too much on AI, they might not engage deeply in the writing process like planning, drafting, and revising. They

might just accept AI's suggestions without considering if they make sense of their ideas, which can hinder them from developing critical thinking skills.

Although AIs are helpful in the short term, depending too much on them might make it hard for students to perform without AI support (Amoozadeh et al., 2024). For example, students could struggle with writing when AIs are unavailable, like during exams, which could lead to reduced ability to write well. Additionally, AI might encourage standardized writing patterns, leading students to produce more predictable and less creative content. Another, AI may not inspire students to experiment with different ways of expressing their ideas. This can limit their creativity and individuality in writing.

In conclusion, while AIs are useful, it is important to balance their use with efforts that help students continue developing their cognitive thinking skills. Educators should be aware of the risks of over-relying on AI and make sure that students stay engaged in active learning that helps them become better writers.

Challenges Faced by Students in the Philippines and the Role of AI in Overcoming Them

Despite the technological advancements, students from the Philippines face challenges that can hinder their academic performance, particularly in writing and language skills.

Access to Technology

Many students in rural and underprivileged areas have limited access to the internet and digital devices. This digital divide can affect their ability to utilize AI and other educational resources (Talandron et al., 2016). AI-driven initiatives, like offline-capable learning platforms and government-supported technology programs, can help bridge this gap, by making educational tools more accessible to students.

Quality of Grammar Instruction

In some regions, the quality of English instruction can vary significantly. In some areas, students may not receive sufficient guidance instruction in grammar, which could limit their ability to write effectively. AI can supplement traditional teaching by providing personalized grammar feedback and interactive exercises that cater to individual learning paces. This can help students improve their grammar skills outside the classroom (Arriola, 2023).

Influence of Mother Tongue

The multilingual nature of the Philippines means that students often think and speak in their native languages, which can interfere with English proficiency. It is important to give students consistent and effective grammar instruction in the early years of education to enhance writing proficiency (Robinson and Feng 2016). AI that incorporates language translation and localized content can assist in making the transition from native languages to English, providing contextual learning that respects cultural nuances.

By integrating AI carefully into education, teachers in the Philippines can mitigate some of these challenges by ensuring that students have the opportunity to develop strong writing and critical thinking skills despite the challenges they may face.

II. Skill-Based Writing Activities

Results revealed grammar exhibited the most significant refinements, with 35% of the total 1,059 counted enhancements. A study by Rehman and Perveen (2021) highlights that students often struggle with grammar due to confusion, lack of understanding of rules, and first language influence. These lead to approximations of grammar rules and choices that simplify writing but may result in errors.

Recognizing grammar as a cornerstone of clear and coherent communication, the researchers developed a learning module targeting common grammatical challenges entitled **"Enhancing Grammatical Skills for Academic Writing,"** which aims to equip learners with the skills needed to construct accurate and effective academic outputs. The learning material aims to enhance students' grammatical competence by addressing common writing errors and equipping them with the skills to construct precise and coherent sentences. Based on the findings, the module focuses on teaching grammar rules and showing how they work in different types of writing, like essays. This helps students understand how grammar affects clarity and flow. The module also included practical activities where students can apply grammar rules in real writing tasks, such as fixing errors in written texts. The tasks start with basic grammar and move to more complex tasks, allowing students to build their skills over time. Finally, regular practice through different exercises will keep students improving and applying their grammar skills in various writing situations.

CONCLUSION AND FUTURE WORKS

This study highlights that AI tools such as Grammarly, ChatGPT, Gemini, and Quillbot can enhance students' writing by improving grammar, expanding vocabulary, and organizing ideas more coherently. Significant improvements were observed in grammar, particularly in verb usage, consistency, and sentence structure, highlighting the potential of these tools to address common writing challenges. Teachers can leverage these findings to design targeted activities that integrate AI with instructional strategies, fostering skill development. While AI supports the writing process and boosts confidence, students must focus on independently developing their grammar and writing skills. AI should be viewed as a complement to learning, not a substitute, enabling students to produce unique and improved outputs while enhancing efficiency and quality. Educators can start by introducing AI and demonstrating how to use the chosen AI tool to enhance their grammar, structure, and idea generation while emphasizing its role as a learning aid, not as a replacement for student's output. Another would be encouraging students to use AI for their drafting or revision. Lastly, educators must communicate to students the importance of originality and integrity of their work. AI should be used only for guidance. Providing a rubric that assesses both the use of AI and the final output of a student can also be considered.

AI is becoming essential in higher education, significantly improving students' grammar, vocabulary, and writing coherence. To support effective use, teachers are encouraged to provide students guidance through workshops, tutorials, and one-on-one consultations. The study recommends integrating the "Enhancing Grammatical Skills for Academic Writing" module, developed to address common grammatical errors, into Bachelor of Secondary Education writing courses, particularly for English majors at institutions like Isabela State University. Furthermore, to maximize the benefits of AI such as Grammarly, ChatGPT, and Quillbot, students should receive training in prompt engineering and AI-assisted

writing to foster originality and critical thinking. Lastly, training lecturers in AI technology for learning should also be included like hands-on workshops, continuous professional development, clear guidelines, collaboration, ethical considerations, student-centered strategies, and regular assessments to effectively integrate AI while preserving academic integrity.

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CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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