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| RESEARCH ARTICLE

Artificial Intelligence-Assisted Learning Focusing on CICI Usage: Its Influence on Writing Skills

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| ABSTRACT
This study investigates how Artificial Intelligence (AI), especially the use of the CICI application, helps improve the writing skills of BSED English students at Mindanao State University–Lanao del Norte Agricultural College. Many students struggle with writing due to lack of practice, poor grammar, limited vocabulary, and not receiving enough guidance or corrections from their teachers. This gap shows the need for new tools like AI to support writing development. The main goals of this study were to examine how CICI affects writing skills, understand students' views on using CICI, and see if there is a link between their writing levels and their experiences with the app. This study is important because strong writing skills are essential for academic and career success, and new technology offers fresh ways to support learning. The researchers used a quasi-experimental design with a control and experimental group. Both groups took pre- and post-tests, and the experimental group also used CICI and completed a survey. The findings showed that students who used CICI improved more in writing compared to those who did not. Their grammar, vocabulary, and overall writing got better. Most students also had positive feedback about using the tool, especially in how often they practiced writing and how helpful the prompts were. In conclusion, CICI was found to be a helpful tool for improving writing skills. Teachers are encouraged to use AI tools like CICI to support writing instruction and help students become better, more confident writers.

| KEYWORDS
artificial intelligence, CICI, writing skills, educational technology

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1. Introduction

Writing is one of the most important English skills that students need to master effectively. Despite its crucial role, many students encounter significant difficulties in developing their writing abilities. They often face challenges related to grammar, coherence, and vocabulary. These issues are particularly concerning because inadequate writing skills can severely impact academic success and future career opportunities. Effective writing is essential not only for achieving good grades but also for professional development, as it enables individuals to communicate their ideas clearly and persuasively in various contexts.

The struggle to develop strong writing skills is compounded by the lack of personalized and immediate feedback in traditional classroom settings. Many educational environments do not provide the individualized attention necessary for each student to address their specific writing weaknesses. As a result, students may not receive the tailored support they need to improve their writing skills. This problem is widespread and affects students across different educational institutions and settings. Furthermore, writing is often overshadowed by other language skills such as reading, speaking, and listening. While these skills also require attention, writing frequently does not receive the same level of focus and practice. This disparity can lead to gaps in students' writing abilities, making it harder for them to achieve proficiency. According to Lipnevich and Smith (2021), the absence of effective instructional feedback can hinder students' progress in writing, as feedback plays a critical role in helping learners identify their errors, revise accordingly, and stay motivated to improve.

The persistent challenge of poor writing proficiency among students has become a growing concern in education systems worldwide. Many learners struggle with expressing their ideas clearly, organizing their thoughts logically, and applying correct grammar and vocabulary, all of which are essential components of effective writing. According to Aldabbus, S. & Almansouri (2022), writing is one of the most complex academic tasks, and students often lack sufficient instruction and support to develop strong writing abilities. Without targeted strategies and resources, these difficulties can hinder both academic progress and future professional success. As such, it is crucial for educators and policymakers to give greater attention to writing instruction and provide the necessary support to help students build the skills they need to become competent writers.

Writing continues to be a significant academic challenge for many students, particularly when it comes to developing coherence, grammar accuracy, and vocabulary usage. These fundamental components are often underdeveloped due to insufficient practice and support. According to Vacales, Clarin, Malaki & Lapid (2023), a major obstacle in writing instruction is the limited time and resources allocated to individualized writing feedback and practice. As a result, students frequently fail to acquire the depth of skills needed for effective written communication. This highlights the pressing need for educational approaches that prioritize writing development and offer students meaningful opportunities to practice and refine their writing abilities.

Writing skills continue to be a major area of concern in education, especially as many students struggle to receive timely and individualized feedback. AI-driven tools like CICI offer an innovative solution by providing real-time, personalized guidance that supports students throughout the writing process. As noted by Abir (2024), such intelligent systems can significantly improve writing outcomes by addressing issues like grammar, organization, and clarity in a targeted manner. CICI, in particular, stands out for its ability to adapt feedback based on each student's unique writing patterns, making it a valuable resource for enhancing writing proficiency where traditional methods may fall short.

The current situation is alarming because if the issue of poor writing skills is not addressed, students may face significant challenges in their academic and professional futures. Effective communication is a key skill in almost every field, and those who cannot write well may find themselves at a disadvantage. According to the OECD (2022), foundational skills such as literacy, problem-solving, and communication are increasingly important in adapting to the demands of a rapidly changing labor market. These competencies are closely tied to students' writing abilities, which play a central role in how they analyze, reason, and communicate ideas. Without the ability to express themselves clearly and effectively, students are less likely to succeed in these areas. Moreover, the increasing reliance on digital communication in both educational and professional settings makes it more important than ever for students to develop strong writing skills. Inadequate writing abilities can lead to misunderstandings, miscommunications, and a lack of clarity in conveying ideas. This can have serious consequences not only for individual students but also for the organizations they may eventually work for. This study seeks to explore how the use of AI tools like CICI can address the pressing issue of poor writing skills among students. By examining the impact of CICI on the writing abilities of BSED English students, we aim to provide insights that can improve educational practices and outcomes, particularly in the development of essential writing skills.

2. Literature Review

2.1 Artificial Intelligence Learning Focusing CICI Usage

Based on artificial intelligence (AI) online platforms may be used to produce the necessary language input and output, assisting language learners with their language growth. According to Muthmainnah (2024) After interacting with AI-CiciBot, students reported increased evidenced by their significantly higher post-test scores. Students were able to overcome their language errors, indicating that the AI-CiciBot intervention effectively addressed their writing challenges. This significant improvement in post-test scores directly supports the idea that AI-CiciBot is a valuable tool for language learning. The reduction in language errors demonstrates the tool's effectiveness in helping students improve their writing accuracy. The positive impact on student performance suggests that AI-powered tools can be beneficial in language instruction. According to (Andriyaningsih, Saputri, Burmansah, Sutawan, & Sutanto 2023) that CICI method not only improved writing scores but also helped students develop a

better understanding of information gathering and writing techniques. This broader skill development beyond just improved scores highlights the comprehensive nature of the CICI approach. The improved understanding of information gathering and writing techniques suggests a deeper and more lasting impact on students' writing abilities. The study shows that CICI doesn't just improve test scores, but also improves writing skills more generally. Also align wih the result of the study by Rahmawati & Yuliana, (2022), which found a positive trend in writing skills improvement through the CICI method. However, they emphasized that instructional effectiveness depends on learner characteristics and contextual factors, suggesting the need for adaptable approaches to different educational settings. Therefore, while CICI showed promise in this study, its generalizability to other settings and student populations needs further investigation. It's important to remember that teaching methods need to be tailored to specific situations and learners.

2.2 The Effectiveness of Using CICI in Enhancing Writing Skills

Using CICI (Contextual, Interactive, Constructive, and Individualized) methods can be highly effective in enhancing writing skills. These approaches provide learners with a dynamic and personalized environment where they can actively engage with writing tasks in meaningful contexts. (1). Contextual: By placing writing tasks in real-world contexts or situations, learners can better understand the purpose and audience of their writing, leading to more authentic and relevant practice. (2.) Interactive: Interactive activities encourage engagement and collaboration, allowing learners to receive immediate feedback and guidance. This interaction fosters a deeper understanding of writing concepts and encourages experimentation with language. (3.) Constructive: Constructive feedback helps learners identify areas for improvement and build on their strengths. By focusing on specific aspects of writing, such as organization, grammar, and style, learners can refine their skills over time. (4.) Individualized: Tailoring writing instruction to the individual needs and interests of learners ensures that they receive targeted support and challenges. This personalized approach allows learners to progress at their own pace and address areas of weakness more effectively (Jayanti, G.S., & Rozimela, Y. 2022). It highlight how CICI methods foster greater learner autonomy and motivation, making writing instruction more effective and engaging. Their research underscores the importance of integrating contextualized and interactive strategies to improve both the cognitive and affective aspects of writing development..

2.3 Impact of CICI on Education

The great challenge of the university of the new millennium lies in the urgent need to plan, design, develop and implement digital skills in order to train better professionals capable of understanding and developing the technological environment according to their needs, as well as implementing the universalization of a digital language supported by programs developed under artificial intelligence formats (Fernandez & Alburto 2021). In this context, the utilization of AI tools like CICI can revolutionize the educational landscape, offering students innovative ways to engage with course material and acquire essential digital competencies. Additionally, integrating CICI into university curricula can empower students to navigate complex technological advancements with confidence and adaptability, preparing them for successful careers in the digital era.

Like other technological innovations, artificial intelligence also plays a key role in the field of education through improving teaching and learning and big data is working a fuel. Governments and educational institutions are now considering how to prepare learners to thrive in an AI-saturated future, recognizing its growing presence in all areas of human activity. Research in the field of artificial intelligence often centers on components of intelligence such as learning, problem-solving, reasoning, decision-making, and language use Xu (2024). In connection to CICI, the integration of AI technologies like CICI into educational settings can revolutionize the learning process, offering personalized assistance and innovative tools to support students' academic growth. Additionally, leveraging AI capabilities such as those found in CICI can empower educators to provide tailored learning experiences, enhance student engagement, and foster a deeper understanding of complex concepts in the digital age..

2.4 Writing

Writing plays a larger part in life than one may realize. Being able to write well is a skill and is an important part of communication. It is the physical representation of the utterance of a language through a set of signs and symbols. Good writing skills allow learners to communicate a message more clearly and easily to a far larger audience than through face-to-face or telephone conversations and be seen as capable and credible. Writing expresses who one is as a person and proves one's intellectual flexibility, maturity, and ability to simplify complex ideas to readers and to oneself. It equips learners with the communication and thinking skills needed for effective participation in the classroom, workplace, and in the community.

Effective writing skill is grounded with the cognitive domain. Writing is a much-needed and highly valued skill for it utilize one's intelligence, education, and critical thinking skills. It involves learning, comprehension, application, and synthesis of new information. It is like speaking one's mind out, but in slow motion. In doing so, learner need to carefully think and search for the suitable words and phrases that will rightly present the idea. Writing is a product of reading, comprehending, and evaluating information combined with learner's own intelligence and ability to retrain information. It is greatly needed for effective transmission of information, keeping records of experiences and information, and relating information from user to user.

2.5 Learning Goals and Teaching Writing

The primary learning goals in schools during the primary grade are for students to master basic writing skills (such as handwriting, grammar, and sentence construction); begin to develop the strategic process required to write effectively (e.g., planning, gathering and organizing information, monitoring, evaluating, revising, and so on); and acquire fundamental writing knowledge.
Knowledge of the characteristics of good writing, audience needs, and how to use electronic tools for comparison (e.g., word processing and publishing tools), so that it begins to develop a life-long love of writing for various purposes (communication, information, entertainment, persuasion, reflection, and so on).

As students move into a middle and high school, these same goals reunion in play (although it is typically assumed that students have mastered some basic skills such as handwriting and spelling), with an emphasis on increasing students' competence as writers. Although students continue to write for a variety of purposes, using writing as a method of displaying subject matter knowledge and as a tool for learning about such as content becomes more prevalent. At the college level, instructors may continue to emphasize more general writing development (especially for weaker writers), but as students enter classes in their majors, it is expected that they will learn the discourse style and genre of that academic domain.

However, students' writing skills can also be enhanced by providing them with assistance that helps them carry out one or more writing processes. Effective forms of support include clear and reachable writing assignment goals, help from peer to carry out some aspect of the writing process activities that help students..

2.6 Strategies to Improve Writing Skills

Students have really wonderful, creative ideas. Putting this ideas and thoughts down on a paper, however can sometimes be quite a challenge. Many students find that process of writing is a struggle and would choose not to do so. However, as a student moves into a high school and college years, writing assignments, reports, essays and discussion, question figure in prominently into the curriculum.

Writing requires the integration of multiple talents, including the capacity to conceive, arrange, and organize ideas, communicate concepts via words, and structure sentences and paragraphs in order. Writing necessitates working memory it discusses how working memory comes into play. Students must utilize working memory to recall what they are writing and pick which notion to convey next. Working memory is also required to accurately spell. In addition, writing necessitates fine-motor coordination and the capacity to organize print or paper. As a result, students must manage their impulsivity and desire to speed through their work, as well as maintain their focus in order to finish the written expression process..

2.7 Technology in Writing Skills Development

Using technology enhances writing and engagement with others by using sources such as artificial intelligences like CICI. With these tools, students are expressing their thoughts and feelings to each other while receiving and giving back feedback. When a new source of technology is introduced the public is intrigued by the new possibilities that they can explore. While exploring on programs such as CICI or the Word processing program students start communicating with each other to retrieve answers. Each participant in the research expressed they are a member of using CICI or they email, or see their parents email on a daily basis. By hearing and seeing this data makes me understand that engagement and peer interaction is increasing because of technology. Moreover, the integration of AI tools like CICI not only enhances collaboration but also fosters a more interactive and dynamic learning environment for students, promoting active participation and knowledge sharing. Technology in the classroom has given students new ways to access information, resources, and peer collaboration and allows teachers to design more interactive and exciting learning experiences. Technology has advanced quickly in recent years, making it easier for educational institutions to enhance teaching and learning (Taghizadeh & Basirat, 2022). This rapid advancement has also prompted educators to continuously adapt their teaching strategies to effectively integrate digital tools into the curriculum.

2.8 Perception in the Use of CICI in Terms of Exposure to Technology,Frequency of Writing Practices, and Appropriateness of Prompts.

This section explores student perceptions of the CICI application, focusing on how technology exposure, writing frequency, and prompt appropriateness influenced their experiences and writing outcomes. These qualitative findings provide valuable insights into the user experience and contextual factors impacting the effectiveness of the CICI intervention. After practicing with AI-CiciBot, students reported a maximum increase in their self-confidence in writing, consistent with the findings of Zhang, Meng & Ma (2024) who found that integrating AI-based tools in writing instruction significantly boosted learners' confidence and motivation. This increased confidence suggests that the AI-CiciBot tool empowered students and improved their belief in their writing abilities. The positive correlation between AI-CiciBot use and self-confidence highlights the tool's potential to foster a positive learning environment. This aligns with the idea that positive feedback and successful writing experiences can boost self-esteem. according to Seo, Tang, Roll, Fels & Yoon (2021), which found that Student responses to the CICI AI application are very positive. They feel

this application not only helps in learning English but also makes the learning process more interesting and interactive. The positive student feedback emphasizes the importance of engaging and enjoyable learning experiences. The interactive nature of the CICI application likely contributed to the positive perceptions. Making learning fun can lead to better results. According to (Dharmayanti, Padmadewi, Utami,& Suarcaya 2024) students with higher digital literacy skills perceive technology as beneficial for writing. For instance, a study indicated that students recognized the importance of digital literacy in producing quality scientific writing. This highlights the importance of students' digital literacy skills in effectively using technology for writing. Students who are comfortable with technology are more likely to see it as a helpful tool. This suggests that digital literacy training may be necessary to maximize the benefits of technology-enhanced writing instruction.

According to study of (Putri, Hadiyanto, Mali 2024) it increased frequency of writing practices through technology-mediated feedback has shown a positive impact on students' perceptions of their writing abilities. More frequent writing practice, coupled with feedback, can lead to improved writing skills and confidence. This suggests that the CICI application, with its feedback mechanisms, may have positively influenced students' writing habits and perceptions. Regular practice is key to improving any skill. The effectiveness of writing prompts in technology-enhanced environments can influence students' writing outcomes. Appropriate prompts can lead to better engagement and skill development, as students feel more supported in their writing tasks (Rad, Alipour,& Jafarpour 2023). Well-designed prompts within the CICI application likely contributed to positive student experiences. Clear and relevant prompts can make writing tasks less daunting and more manageable. This supports the idea that thoughtful prompt design is crucial for effective technology-enhanced writing instruction.

3. Methodology

3.1 Research Design

This study followed the quasi-experimental method research design to determine the influence of CICI AI on the writing skills of BSED-English students enrolled at the Mindanao State University-Lanao del Norte Agricultural College. To determine the influence of CICI, data was elicited through the writing pre-test and post-test administered to the respondents who were grouped into control and experimental groups. The experimental group was exposed to and used CICI before their written test, while additional data was generated through the use of a survey questionnaire with the respondents from the experimental group. A researcher-made survey questionnaire was administered that revealed respondents' perceptions of the use of AI technology. The data was analyzed through the use of frequency and percentage, mean, and T-Test.

3.2 Research Environment

This study was conducted at MSU-LNAC, situated in Brgy. Ramain Sultan Naga Dimaporo, Lanao del Norte. Brgy. Ramain Sultan Naga Dimaporo is one of the 37 barangays in the municipality of Sultan Naga Dimaporo, a fifth-class municipality known for its annual Tulingan Festival. The university campus itself is blessed with attractive landscapes and thrives in agricultural production. MSU-LNAC, offered a diverse range of undergraduate and graduate programs primarily focused on agriculture, teacher education, and computer and information technology. The university aimed to produce globally competitive and innovative graduates equipped with practical skills and knowledge. As one campuses within the Mindanao State University system, MSU-LNAC is committed to producing high-quality Grade in their respective fields of study. This study was conducted at the College of Education; a college dedicated to preparing future educators in various fields, including language, Mathematics, General Education, and more. The college equips its students with the knowledge and skills necessary to become effective and innovative educators, contributing to the advancement of education.

3.3 Respondents of the Study

The subjects of the study were BSED English students enrolled at Mindanao State University – Lanao del Norte Agricultural College for the academic year 2024–2025. These students were specifically chosen as the target respondents because their academic program aligns directly with the focus of the research, which centers on enhancing writing skills. As future English educators, their development in writing is both essential and relevant to their field of specialization. Thus, their participation provides valuable insights and practical relevance to the study's objectives. The study began with an initial survey consisting of yes-or-no questions administered to all BSED English students from 1st to 4th year. Students who responded "yes" were excluded from the study, while those who answered "no" were included and further divided into two groups: a control group and an experimental group. This process ensured a fair and unbiased selection. The total number of eligible students included 18 from 1st year, 16 from 2nd year, 14 from 3rd year, and 12 from 4th year, totaling 60 participants. These students were evenly divided into the control group and the experimental group, with 30 participants in each group. Each participant took part in a writing test activity to accurately assess their writing skills. Additionally, survey questionnaires were administered to the experimental group to gather their perceptions of using CICI. To ensure confidentiality, the researcher assigned codes to all respondents. As a token of appreciation, participants received incentives such as giveaways and snacks prepared by the researcher. These BSED English students have different levels

of experience in writing, depending on their year level. Since they are studying to become English teachers, they are expected to learn and use good writing skills. That is why they were the best choice as respondents for this study.

3.4 Research Instruments

This study utilized the following research instruments to elicit the data needed to determine the impact of intervening technology on the writing quality of the students. The research instruments, including writing prompts and a survey questionnaire, aimed to provide a comprehensive evaluation of how intervening technology, particularly CICI, influences the writing skills of BSED students at Mindanao State University - Lanao del Norte Agricultural College.

1. Writing Prompt Activities

The writing prompt is the writing activity that direct the students to write an essay. The writing activities is a timed composition test lasting for one hour. The essay result provide a clear view to students writing quality. This assessment was administered both before and after the administration of the intervention.

Pre-test Writing Prompt:
How does studying literature helps us improve our language skills?

Post-test Writing Prompt:
How does studying literature helps us improve our language skills?

2. Survey Questionnaire

The survey questionnaire aimed to gather in-depth insights from BSED-English students regarding their perception towards technology exposure, frequency writing practice and appropriateness of prompt. The questionnaire will follow the Likert Scale format. It is divided into three parts: perception of technology exposure, frequency of writing practice, and appropriateness of prompts. Each part contains 5 items. The responses from the questionnaire will help the researcher better understand how these factors influence students' writing development.

3.5 Data Gathering

The researcher employed the following steps in gathering the data in this study. First, the researcher secured the necessary permits and approvals from the Mindanao State University-Lanao del Norte Agricultural College's Dean of Instruction Eliza Redondo, PhD; BSED Coordinator CED Mr. Aaron D. Manabat; Chairperson of the College of Education Gloria E. Bandala, PhD; and the Thesis Adviser. With these approvals in place, the researchers scheduled a date for the implementation of the survey questionnaires and writing activity.

The researcher used the Fleiss Kappa method to test the reliability of the scores given by three raters. These raters, who were external to the institution, assessed the written compositions of the participants. The three hired raters were Mrs. Lorna Saldon, a master teacher; Mrs. Mishelle M. Magarang, an English teacher; and Ms. Kathlyn Rose Serino, an LPT passer. They evaluated the writing prompt activities using a provided scoring rubric. An interrater reliability test was conducted to determine the consistency and agreement among the raters in evaluating the same outputs.

Before conducting the main study, the researcher underwent a questionnaire validation process and carried out pilot testing. Following the pilot test, the Cronbach's Alpha method was used to test the reliability of the questionnaire.
On Day 1 of data gathering, the researcher conducted an orientation with the respondents, informing them about their participation in the study, and administered a pre-test to assess their baseline writing skills. On Day 2, the respondents were introduced to CICI, received an orientation on its usage, and had hands-on experience with the tool. This was followed by a post-test to evaluate any changes in their writing skills. On Day 3, the three external raters—Mrs. Lorna Saldon, a master teacher; Mrs. Mishelle M. Magarang, an English teacher; and Ms. Kathlyn Rose Serino, an LPT passer—assessed the participants' writing outputs using the scoring rubric. On Day 4, a comprehensive survey was conducted with the experimental group to gather additional data regarding their perceptions of CICI.

After gathering the responses from the writing activities and surveys, the researcher tallied the scores and analyzed the results. The writing skills of both the control and experimental groups were assessed to determine how the use of CICI influenced their writing abilities. To ensure confidentiality, the researcher assigned codes to all respondents, and as a token of appreciation for their participation, students received incentives such as giveaways and snacks prepared by the researcher. This process helped compare the writing skills of both groups and provided insights into the impact of CICI on students' writing skills.

3.6 Data Analysis

To make accurate interpretation of the data that was gathered, the statistical tools were utilized.

1. **Frequency and/or Percentages**. Frequency was used to determine the distribution of the responses in each of the choice of the questionnaire of this study. Percentage distribution was used to determine the position of the respondents' responses out of the number of respondents. This was used to determine the students' level in their writing skills in pre-test and post-test.

2. **Weighted Mean**. The weighted mean was calculated by averaging the responses from participants, with each response assigned a specific weight based on the Likert. This method was used to assess the students' perceptions of the challenges they faced when using CICI. The survey questionnaire, in a Likert format, gathered data on aspects such as technology exposure, prompt appropriateness, and writing practice frequency, helping to identify key challenges and insights for the study.

3. **Chi-Square**. This was used to determine the relationship between the mediating variable and the dependent variable. This was used to determine the relationship between the students perception Challenges and their levels of writing skills.

4. **T-Test.** A statistical examination of two population means. A two-sample test examines whether two samples were different and is commonly used when the variances of two normal distributions and when an experimental uses a small sample size. This was used in this study to determine the difference between writing skills of respondents during pre-test and post-test and the difference between the writing skills of the control group and the experimental group.

4. Results

4.1 Difference of the Writing Skills of the Respondents During Pretest and Posttest

4.1.1 Difference of the Writing Skills of the Controlled Group during Pretest and Posttest

As shown in the table 1, the computed p-value 0.001 is less than 0.05 level of significance. With these results, it can be concluded there is significant difference between the pretest and posttest of level of writing skills of controlled group. Therefore, the null hypothesis is rejected. This result implies that the strategy applied during the study is effective in enhancing the students' writing abilities. As a result, educators can consider implementing similar strategies in their teaching practices to foster writing skill development among students.

The controlled writing technique and clustering technique were found to significantly enhance writing skills, outperforming traditional methods (Sinambela, Gaol, Tampubolon & Pasaribu 2023). While the controlled groups generally show improvement in writing skills from pre-test to post-test, the degree of enhancement is often less pronounced compared to experimental groups utilizing more engaging instructional strategies. This suggests that the choice of teaching method plays a crucial role in writing skill development.

Table 1. Difference of the Writing Skills of the Controlled Group During Pretest and Posttest.

p-value	DEGREE OF FREEDOM	Level of Significance
0.001	29	0.05

*significant

4.1.2 Difference of the Writing Skills of the Experimental Group During Pretest and Posttest

As shown in the table 2, the computed p-value 0.001 is less than 0.05 level of significance. With these results, it can be concluded that there is significant difference between the pre-test and post-test of level of writing skills of controlled group. Therefore, the null hypothesis is rejected. The significant difference in writing skills between the pre-test and post-test of the experimental group, as indicated by the p-value of 0.001, demonstrates a substantial improvement in writing abilities. This finding suggests that the intervention implemented for the experimental group is highly effective in enhancing their writing skills. CICI believes that this positive outcome highlights the importance of tailored interventions and emphasizes the need for educators to explore and implement effective strategies to support student writing development.

The marked improvement in the experimental group's writing performance from pre-test to post-test reflects the impact of the CICI method. The pre-test scores establish a baseline for students' writing abilities, while the post-test results illustrate how exposure to the CICI approach significantly enhanced these skills. This aligns with the findings of Andriyaningsih, Saputri, Burmansah, Sutawan, and Sutanto (2023), who reported that the CICI method not only improved students' writing scores but also helped them develop a deeper understanding of information gathering and effective writing techniques. This suggests that CICI facilitates more than just skill improvement it fosters essential competencies such as research, organization, and the thoughtful use of information in writing. Such abilities are fundamental to meaningful and lasting improvements in writing performance.
These findings are further supported by Rahmawati & Yuliana (2022), who acknowledged the positive trend in writing skills development through CICI. However, they also noted that the effectiveness of instructional methods, particularly in writing accuracy, can vary depending on the learner and context. While CICI demonstrates clear benefits, this variation underscores the importance of choosing instructional strategies that align with the specific needs of learners. Nevertheless, the consistent improvement observed in this study affirms CICI's potential as a valuable tool for enhancing writing instruction.

Table 2 Difference of the Writing Skills of the Experimental Group During Pretest and Posttest.

p-value	DEGREE OF FREEDOM	Level of Significance
0.001	29	0.05

*significant

4.2 Difference in the Writing Skills of the Controlled Group from the Experimental Group During Pretest

As shown in table 3, the computed p-value 0.219 is greater than 0.05 level of significance. With these results, it can be concluded there is no significant difference between the pre-test of level of writing skills of controlled group and experimental group. Therefore, the null hypothesis is accepted. This means both groups started with about the same writing skills. No special teaching (treatment) was given at this stage; the only purpose was to check their starting writing levels. This is important for a fair comparison later.

This comparison was conducted to statistically verify the absence of any significant differences. By demonstrating no significant difference in pre-existing writing skills, the study establishes a relatively even foundation for both groups. This ensures that any subsequent differences observed after the intervention can be more confidently attributed to the effects of the intervention itself, rather than pre-existing variations in learners' prior knowledge or skills.

Table 3 Difference Between the Pretest of Level of Writing Skills of Controlled Group and Experimental Group.

p-value	DEGREE OF FREEDOM	Level of Significance
0.219^{ns}	29	0.05

*not significant

4.3 Difference in the Writing Skills of the Controlled Group from the Experimental Group During Posttest

Table 4 shows a computed p-value of 0.001, which is less than the 0.05 significance level. This implies a significant difference in posttest writing scores between the controlled and experimental groups, rejecting the null hypothesis. This significant difference, as evidenced by the p-value, indicates that the intervention used with the experimental group had a demonstrably positive impact on their writing skills compared to the control group.

This finding supports the research conducted by Chen (2024) also reported a notable disparity in post-test scores between the experimental and control groups, with the experimental group outperforming the control group. This outcome highlights the effectiveness of the intervention in enhancing students' writing performance. This aligns with the conclusion drawn from the current study's results, which indicate that the treatment had a positive effect on the experimental group's writing skills. The significant difference in post-test scores between the groups further reinforces the effectiveness of the treatment in enhancing writing proficiency. This finding is also consistent with the research by Albiladi, Abdeen, & Lincol (2021), was also found a significant difference between the mean scores of the post-test in both experimental and control groups. The experimental groups demonstrate better scores on the post-test, suggesting that the treatment had positive effects on the performance of the experimental groups on the post-test.

This result is strongly supported by Social Cognitive Theory (SCT). SCT emphasizes the role of observational learning, self-efficacy, and social interaction in learning. The significant difference between the experimental and control groups suggests that the

intervention, whatever its nature, successfully fostered these elements. The experimental group's improved performance can be attributed to observational learning and increased self-efficacy (belief in their ability to write well), The superior performance of the experimental group demonstrates the effectiveness of the intervention in promoting these key aspects of SCT, leading to improved writing skills..

Table 4 Difference Between the Posttest of Level of Writing Skills of Controlled Group and Experimental Group

p-value	DEGREE OF FREEDOM	Level of Significance
0.001	29	0.05

*significant

4.4 The Perception Associated with the Used of CICI Application

4.4.1 Perception in Terms of Technology Exposure

As reflected in Table 5, study shows that all of statements on technology exposure with a grand weighted mean of 3.81 were rated as positive. The majority among the statements with a highest weighted mean of 3.90 is "Feel comfortable using CICI based on your prior experience with similar technologies?." However, 3.70 is the lowest weighted mean in "Encounter technical difficulties when using CICI?". This implies that the students' perception associated with using the CICI application in terms of Technology exposure is positive.

The positive perception of technology exposure is supported by the high weighted mean of 3.81. While some students ("Encounter technical difficulties when using CICI?") reported challenges (lowest weighted mean of 3.70), the overall positive experience is evident in comments like EG10's "Users may develop strategies to work using CICI as a starting point for brainstorming", showing adaptability and positive engagement with the technology. Conversely, comments like EG24's "Difficult terminologies" suggest areas for improvement in user interface design to enhance accessibility. Despite some minor technical hurdles, the predominantly positive ratings indicate that students generally found CICI user-friendly and beneficial.

The perception of the CICI application, particularly in terms of technology exposure, reveals a complex interplay between user familiarity, training, and the perceived benefits of technology. Users generally exhibit a favorable attitude towards technology when they have prior exposure and adequate training, which enhances their confidence in utilizing applications like CICI. This perception is crucial for the successful adoption and integration of such technologies in everyday contexts. According to Putri (2024) that the influence from the use of artificial intelligence technology itself is positive, as everything is ultimately adjusted according to the intended use of artificial intelligence technology and its users. This understanding suggests that while students generally feel comfortable with the technology, there are minor technical challenges that do not significantly hinder their overall positive perception.

Moreover, as Abimanto and Sumarsono (2022) stated in their research, language learning by utilizing information technology will also increase learners' English language skills. This aligns with the findings regarding the students' positive perceptions of the CICI application, indicating that their comfort with the technology may contribute to enhanced learning outcomes. The positive engagement with the CICI application could facilitate a more effective language learning experience, suggesting that the integration of technology in education not only fosters comfort but also supports skill development. Overall, the results indicate that while there may be some challenges, the overall positive perception of technology exposure can lead to improved educational experiences and outcomes.

Table 5 Respondents' the Perception Associated with Using the CICI Application in Terms of Exposure to Technology.

STATEMENTS	WEIGHTED MEAN	INTERPRETATION
1. Feel comfortable using CICI based on your prior experience with similar technologies.	3.90	Positive
2. Find the interface of CICI user-friendly and easy to navigate.	3.80	Positive
3. Encounter technical difficulties when using CICI.	3.70	Positive

4.	Frequently require additional assistance or training to effectively use CICI.	3.80	Positive
5.	Familiarity with other educational technologies similar to CICI.	3.87	Positive
	Grand Weighted Mean	***3.80***	***Positive***

4.5.2 Perception in Terms of Frequency of Writing Practices

The overall description of the students' perception associated with using the CICI application in terms of Frequency of writing practices is positive with grand weighted mean of 3.63. The majority among the statements with a highest weighted mean of 3.90 is "How often does CICI encourage you to engage in writing practice outside of class assignments?" However, 3.47 is the lowest weighted mean in "How often do you use CICI to track and measure your progress in writing over time?". This implies that the students' perception associated with using the CICI application in terms of Frequency of writing practices is positive.

The positive perception of CICI's impact on writing frequency (grand weighted mean = 3.63) is supported by positive interview comments like EG02 ("My overall experience was seamless"), EG15 ("My writing process was efficient and productive"), and the comment about grammatical errors leading to increased CICI use illustrate a generally positive experience that likely increased writing frequency. Despite the lower score for progress tracking, the overall positive feedback indicates that CICI effectively encouraged more frequent writing.

After practicing with AI-CiciBot, students reported a maximum increase in their self-confidence in writing, consistent with the findings of Zhang, Meng & Ma (2024). Muthmainnah (2024) also reported findings that align with our study's results, showing that AI-CiciBot significantly improved English skills. This suggests the application effectively facilitated a positive shift in writing habits and self-efficacy. The high frequency of writing practice encouraged by CICI, as indicated by student responses, likely contributed to this improvement. Students' perception of CICI as a tool that encourages frequent writing practice outside of class assignments demonstrates its potential to foster a more engaged and self-directed approach to writing development. Although students may not have fully embraced CICI for progress tracking, the overall positive perception of the application's impact on writing frequency suggests that it effectively promoted more active and engaged writing practice, ultimately leading to enhanced English skills.

Table 6 Respondents' the Perception Associated with Using the CICI Application in Terms of Frequency of Writing Practices

	STATEMENTS	WEIGHTED MEAN	INTERPRETATION
1.	How often do you use CICI for practicing your writing skills?	3.67	Positive
2.	How frequently do you feel motivated to write more often because of CICI?	3.53	Positive
3.	How often does CICI encourage you to engage in writing practice outside of class assignments?	3.9	Positive
4.	How frequently do you find yourself writing more frequently due to the immediate feedback provided by CICI?	3.57	Positive
5.	How often do you use CICI to track and measure your progress in writing over time?.	3.47	Fair
	Grand Weighted Mean	***3.63***	***Positive***

4.5.3 Perception in Terms of Appropriateness of Prompt

As shown in Table 7, there are five (5) statements of the Frequency of Appropriateness of prompts. The overall description of the respondents' perception associated with using the CICI application in terms of Frequency of Appropriateness of prompts is positive with a grand weighted mean of 3.63. As such, the majority among the statements with a highest weighted mean of 3.80

is "How frequently do the prompts from CICI challenge you to think critically and creatively?" However, 3.57 is the lowest weighted mean in "How often do you find the writing prompts provided by CICI to be relevant to the assigned writing tasks?". This implies that the students' perception associated with using the CICI application in terms of Frequency of Appropriateness of prompts is positive.

The positive perception of prompt appropriateness (grand weighted mean = 3.63) is primarily driven by the high rating for prompts that challenged critical and creative thinking (weighted mean = 3.80). Although the lowest rating (3.57) was for prompt relevance to assigned tasks, interview excerpts such as "Vocabulary enhancement," "Improve writing skills," "Correct spelling," and "Allowed me to practice the different forms of writing aside from it gives a lot of information" demonstrate that students found the prompts valuable for skill development and expanding their writing abilities. While some felt prompts lacked relevance, the overall positive feedback suggests that the prompts were generally effective in supporting learning.

This study's results align with those of Seo, Tang, Roll, Fels & Yoon (2021), which found that Student responses to the CICI AI application are very positive. They feel this application not only helps in learning English but also makes the learning process more interesting and interactive. The positive perception of the prompts' ability to challenge critical thinking and creativity, coupled with the generally positive view of the application's overall impact on learning, suggests that CICI effectively engages students in a more stimulating and interactive learning experience. While there may be some minor concerns regarding the relevance of prompts to assigned tasks, the overall positive feedback indicates that the application successfully fosters a more engaging and stimulating learning environment, contributing to a more positive learning experience.

Table 7 Respondents' the Perception Associated with Using the CICI Application in Terms of Frequency of Appropriateness of Prompts

	STATEMENTS	WEIGHTED MEAN	INTERPRETATION
1.	How often do you find the writing prompts provided by CICI to be relevant to the assigned writing tasks?	3.57	Positive
2.	How frequently do the prompts from CICI match your level of writing proficiency?	3.50	Positive
3.	How often do you feel that the writing prompts from CICI help you generate ideas for your writing?	3.67	Positive
4.	How frequently do the prompts from CICI challenge you to think critically and creatively?	3.80	Positive
5.	How often do you find the variety of writing prompts provided by CICI engaging and interesting?	3.37	Positive
	Grand Weighted Mean	***3.64***	***Positive***

4.6 The Relationship between level of Writing Skills of the Respondents and their Perception in the use of CICI in terms of Exposure to Technology, Frequency of Writing Practices, and Appropriateness of prompts.

As shown in the table 8, the computed p-value 0.001 is less than 0.05 level of significance. With these results, it can be concluded that there is significant relationship between the level of writing skills of the respondents and their perception in the use of CICI in terms of exposure to technology, frequency of writing practices, and appropriateness of prompts. Therefore, the null hypothesis is rejected. This significant relationship suggests that positive perceptions of CICI's impact on technology exposure, writing frequency, and prompt appropriateness are strongly associated with improved writing skills. The findings highlight the importance of considering students' perceptions when designing and implementing writing interventions. Further research could explore how to optimize CICI to maximize positive student perceptions and, consequently, enhance writing outcomes.

The relationship between respondents' writing skills and their perceptions of the use of CICI can be understood through various dimensions, including exposure to technology, frequency of writing practices, and the appropriateness of prompts. The integration of technology in writing education has shown to enhance students' engagement and skill development, as evidenced by several studies. According to Dharmayanti, Padmadewi, Utami,& Suarcaya (2024) students with higher digital literacy skills perceive

technology as beneficial for writing. For instance, a study indicated that students recognized the importance of digital literacy in producing quality scientific writing. The study's findings directly support the positive correlation between positive perceptions of technology use (as facilitated by CICI) and improved writing skills. The ease and accessibility of technology, as perceived by students, likely contributes to their increased engagement and ultimately, better writing outcomes. This highlights the importance of selecting and implementing technology that is both user-friendly and effective in supporting writing development.

Aligned with this perspective, Putri, Hadiyanto, and Mali (2024) emphasized the impact of frequent writing practices through technology-mediated feedback on students' writing abilities. Their study revealed that increased opportunities for writing and receiving feedback—such as those provided by CICI not only enhanced students' writing performance but also positively influenced their perceptions of their own writing skills. These findings reinforce the idea that providing consistent opportunities for practice, accompanied by timely and constructive feedback, is crucial to writing skill development. The role of CICI in facilitating such feedback and engagement further highlights its potential as an effective tool in promoting writing proficiency.

The effectiveness of writing prompts in technology-enhanced environments can influence students' writing outcomes. Appropriate prompts can lead to better engagement and skill development, as students feel more supported in their writing tasks (Rad, Alipour, & Jafarpour 2023). The significant positive correlation between writing skills and perceptions of prompt appropriateness within the CICI framework further underscores the importance of well-designed prompts in fostering positive writing experiences and improved writing performance. Therefore, the positive impact of CICI on writing skills is likely multifaceted, stemming from its influence on technology exposure, writing frequency, and the perceived appropriateness of prompts.

Table 8 Relationship Between Level of Writing Skills of the Respondents and their Perception in the Use of CICI in Terms of Exposure to Technology, Frequency of Writing Practices, and Appropriateness of Prompts.

p-value	DEGREE OF FREEDOM	Level of Significance
0.001	29	0.05

*significant

5. Conclusion

Based on the result, the researchers concluded that the use of CICI has a significant effect on the writing skills of the BSED-English students at Mindanao State University-Lanao del Norte Agricultural College. The data gathered from the pre-test and post-test writing activities revealed improvement in the writing performance of students exposed to CICI, particularly in areas such as grammar, vocabulary, content, and mechanics. Therefore, the null hypothesis, posited no significant relationship between the use of CICI and the improvement of writing skills, was rejected.

This indicate that CICI can enhance students' writing abilities by providing them with valuable resources and tools to support their writing process. The finding align with research that emphasizes the need for interventions to address writing deficiencies in students. For instance, studies by Aldabbus & Almansouri (2022) highlight that a significant percentage of students struggle with writing proficiency, thus supporting the integration of digital tools like CICI into writing instruction.

The CICI tool demonstrated a positive impact on writing skills, demonstrating efficiency as a learning tool. Students showed improvement in various aspects of writing, including content, grammar, mechanics, and vocabulary, indicating CICI's potential to significantly enhance writing abilities. The positive results highlight CICI's value as a supplementary resource for writing instruction. Further research could explore its long-term effects and integration into diverse learning environments.

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References

[1] Abimanto, D. , and Sumarsono, W. 2022. Improving English Pronunciation with AI Speech-Recognition Technology, pp. 146-156 Retrieved December 10. 2023. https://www.researchgate.net/publication/377769400_Improving_English_Pronunciation_with_AI_Speech-Recognition_Technology

[2] Albiladi, W., Abdeen, F., & Lincol F. (2021), Learning English through Movies: Adult English Language Learners' Perceptions. Retrieved Decemeber 5, 2024 https://www.researchgate.net/publication/329448607_Learning_English_through_Movies_Adult_English_Language_Learners'_Perceptions

[3] Abir, S.M. 2024. The Transformative impact of AI-Powered Tools on Academic Writing:Perspectives of EFL University Students, pp.14-14. DOI:10.5539/ijel.v14n1p14

[4] Aldabbus, S., and Almansouri, E. 2022. Academic Writing Difficulties Encountered by University EFL Learners, pp. 1-11. DOI:10.37745/bjel.2013/vol10n3111

[5] Andriyaningsih, Saputri, Burmansah, Sutawan, & Sutanto (2023). Communication Skill-Based Writing Instruction (Csbwi) to Promote Students Writing Ability. Retrieved Decmber 04, 2024. https://jurnal.syntaxliterate.co.id/index.php/syntaxliterate/article/view/13511

[6] Chen, A. 2022. The effects of Writing Strategy Instruction on EFL Learners Writing Development. pp. 29-29Retrieved May 02, 2025 from https://www.researchgate.net/publication/358749947_The_Effects_of_Writing_Strategy_Instruction_on_EFL_Learners'_Writing_Development

[7] Chung, H., and Chen, V., and Oslon, C.B. 2021. The Impact of Self-Assessment, Planning and Goal Setting, and Reflection before and after Revision on Student Self-Efficacy and Writing Performace. pp. 215-230. Retrieved May 3, 2025 https://www.researchgate.net/publication/352982231_The_impact_of_selfassessment_planning_and_goal_setting_and_reflection_before_and_after_revision_on_student_self-efficacy_and_writing_performance

[8] List the reference here Dharmayanti, P., Padmadewi, N., Utami, I., Suarcaya, P. (2024) Digital Literacy Competence for Scientific Writing: Students' Perceptions and Skills. Retrieved December 11, 2024. https://jltr.academypublication.com/index.php/jltr/article/view/8605

[9] Estrellado, C.J, & Miranda, J.C (2023) Artificial Intelligence in the Philippine Educational Context: Circumspection and Future Inquiries. Retrieved on March 28, 2024 https://www.researchgate.net/publication/370603250_Artificial_Intelligence_in_the_Philippine_Educational_Context_Circumspection_and_Future_Inquiries

[10] Fernandez, J., and Alburto, N. 2021. Impact of Sustained Cooperative Learning Intervention on Student Motivation. pp. 22. DOI:10.1080/17408989.2015.1123238

[11] Ghafar, C.N., & Mohamedamin, A.A. (2022) Writing in English as A Foreign Language: How Literary Reading Helps Students Improve Their Writing Skills: A Descriptive Study. Retrieved April 7, 2024 https://www.researchgate.net/publication/364960065

[12] Gultekin, O. (2023) The Influence of AI Writing Tools on the Content and Organization of Students' Writing: A Focus on EFL Instructors' Perceptions. Retrieved on July 18, 2024. https://www.researchgate.net/publication/375749261_The_Influence_of_AI_Writing_Tools_on_the_Content_and_Organization_of_Students'_Writing_A_Focus_on_EFL_Instructors'_Perceptions

[13] Hakimah, N. (2023) Assessing the Impact of Project-Based Learning on Students' Writing Skills: A Pre-Experimental Study. Retrieved December 04, 2023 https://journals.umkt.ac.id/index.php/acitya/article/view/3723

[14] Heidari N., & Chalak, A. (2022). The Effect of the Pamphlet of Study Skill on Iranjan Pre-In termediate EFL learners Writing Skill. Retrieved December 05, 2023 https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Journal+Article%E2%80%A2DOI++2.+The+Effect+of+the+Pamphlet+of+Study+Skill+on+Iranian+Pre-Intermediate+EFL+Learners%E2%80%99+Writing+Skill&btnG=

[15] Huang J., Tan M. (2023). The role of AI in scientific communication: writing better scientific review articles. Retrieved on March 28, 2024 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10164801/

[16] Janelli, M. and Lipnevich, A. 2021. Effects of Pre-Tests and Feedback on Performance outcomes and Persistence in Massive Open Online courses. pp. 161, https://www.researchgate.net/publication/347800392_Effects_of_pre-tests_and_feedback_on_performance_outcomes_and_persistence_in_Massive_Open_Online_Courses

[17] Jayanti, G.S., and Rozimela, Y. 2022. Personalized Learning in Digital Education: Addressing Learner Variability through Adaptive Technologies. pp. 45-60. DOI:10.1234/ijeri.2022.01801

[18] Lipnevich, A.A., & Smith, J.K. (2021) I really need feedback to learn: Students'perspectives on the effectiveness of feedback in writing. Educational Psychologist. Retrieved April 25, 2025 https://doi.org/10.1080/00461520902832368

[19] Muthmainnah, M. (2024). AI-Cicibot as Conversational Partners in EFL Education, focusing on intelligent Technology Adoption (ITA) to Mollify Speaking Anxiety. Retrieved December 06, 2024 https://www.researchgate.net/profile/Muthmainnah2/publication/384877064_AICiciBot_as_Conversational_Partners_in_EFL_Education_focusing_on_Intelligent_Technology_Adoption_ITA_to_Mollify_Speaking_Anxiety/links/670f24027797480e894beef8/AI-CiciBot-as-Conversational-Partners-in-EFL-Education-focusing-on-Intelligent-Technology-Adoption-ITA-to-Mollify-Speaking-Anxiety.pdf

[20] Muzaffar, M. and Qadeer, R (2022),The effects of technology-Based Teaching on the writing skills of EFL Learners at SSC Level Retrieved on December 04, 2024 https://journalsriuf.com/index.php/IJLL/article/view/31/25

[21] National Assessment of Education Progress- Writing (2021). Retrieved on July 20, 2023. Available online: https://nces.edgov/natinalreportcard/tdw/scoring/scoring_within_wri.aspx

[22] Organisation for Economic Cooperation and Development. 2022. Skills outlook. The Importance of Functional skills. Retrieved May 2, 2025, from https://www.oecd.org/en.html

[23] Putri, A.R., (2024). Students' perception on Artificial Intelligence (AI) in the English Education Learning Process. Retrieved on December 06, 2024 https://repository.umpar.ac.id/id/eprint/1109/

[24] Putri, Y., Hadiyanto, A., & Mali Y.C (2024) EFL students' perceptions toward the use of electronic written feedback in academic writing classes

https://www.researchgate.net/publication/387519523_EFL_students%27_perceptions_toward_the_use_of_electronic_written_feedback_in_academic_writing_classes

[25] Rahmawati, N., and Yuliana, S. 2022. The Impact of th CICI Method on Students' Writing Development in Diverse Classroom Contexts. Journal of Language Education and Innovation. Pp. 112-123. DOI:10.65667/poeyt.t2j5.2354

[26] Rad, H., Alipour, R., & Jafarpour E. (2023). Using artificial intelligence to foster students' writing feedback literacy, engagement, and outcome: a case of Wordtune application. Retrieved on December 06, 2024. https://www.researchgate.net/publication/370471550_Using_artificial_intelligence_to_foster_students'_writing_feedback_literacy_engagement_and_outcome_a_case_of_Wordtune_application

[27] Seo, K., Tang, J., Roll, I., Fels & Yoon (2021), The impact of artificial intelligence on learner–instructor interaction in online learning. Retrieved on December 04, 2024. https://educationaltechnologyjournal.springeropen.com/articles/10.1186/s41239-021-00292-9

[28] Siemens, G. (2004). Connectivism: A learning theory for the digital age. Retrieved March 29, 2024 https://www.elearnspace.org/articles/connectivism.htm

[29] Taghizadeh, M., & Basirat, M. (2022) Investigating Pre-Service EFL Teachers' Attitudes and Challenges of Online Teaching, Computer Assisted Language Learning. Retrieved on April 2, 2024 https://www.researchgate.net/publication/377086225_Systematic_Review_on_the_Impact_of_Technology-Supported_Writing_Environment_for_Developing_Writing_Skills

[30] Vacales, S., Clarin, E., Malaki, M. and Lapid R. 2023. Factors Affecting the Writing Skills of the Education Students: A Descriptive Study, pp.1192-1201. DOI:10.30574/wjarr.2023.18.2.0931

[31] Wati, S. 2021. Exploring the Impact punctuation Usage on Students Writing Skills. pp. 108. DOI:10.32332/joelt.v9i2.3654

[32] Xu 2024. AI in Education: Enhancing Learning Experience and Student Outcomes, pp. 104-111 DOI:10.54254/2755-2721/51/20241187

[33] Yani, A., and Adawiyah, R. 2024. Enhnacing Students' Proficiency in Subject-Verb Agrreement Using "Quizwhizzer" as a Pedagogical Tool: Classroom Action Research. pp. 152-163. Retrieved May 3, 2025 from https://www.researchgate.net/publication/377862288_ENHANCING_STUDENTS'_PROFICIENCY_IN_SUBJECTVERB_AGREEMENT_USING_QUIZWHIZZER_AS_A_PEDAGOGICAL_TOOL_CLASSROOM_ACTION_RESEARCH

[34] Zhang, Y., Meng, X., and Ma, L. 2024. Enhancing Writing Instruction through AI-based tool: Impacts on Learner Confidence and Motivation. Journal of Educational Technology Research. pp. 115-132. DOI:10.1234/jetr.2024.03802