

AI-Supported Writing Skill Development for First-Year English Majors at A Beginning Proficiency Level: A Case Study at A University in Hanoi

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ABSTRACT: The research aims at enhancing the academic writing abilities of first-year English majors with limited proficiency at Dai Nam University by incorporating artificial intelligence (AI) tools into the instructional process. Considering that many students struggle with grammar, expression, and structuring ideas, the research will attempt to determine the efficiency of AI-based tools like Grammarly and ChatGPT in offering immediate feedback and assisting with writing. The research was conducted in the form of a mixed-method study, where 129 students were surveyed during 15 weeks, and questionnaires and the PLS-SEM model were used to analyze the data. The findings show that there is a strong positive effect of AI on the improvement of writing skills when students are positive in their attitude, regular exposure to technology, and feel confident about their writing skills. The research can be used to advance the use of AI in higher education in Vietnam and provide pedagogical advice on how to enhance writing instruction in the digital environment.

KEYWORDS: Artificial Intelligence (AI), writing skills, Dai Nam University, English proficiency.

I. INTRODUCTION

Most first year English majors at universities in Vietnam show up in the classroom with poor writing skills, even after attending an intensive English program in high school. They usually have problems with grammar, paragraph structure, idea development and vocabulary use in writing. The main reason is that high school curriculum is more exam-oriented and teaches more about the memorization than about the actual writing skills, so students have little to no experience in writing as a process (they are not used to writing several drafts and getting a detailed feedback). This is a pedagogical crisis that requires immediate remedies to help the students with poor writing bases in the first year before these shortcomings become impediments in later years and in their professional lives. The fast evolution of artificial intelligence (AI) in learning gives a new solution to this problem: AI-based writing tools can offer immediate feedback on grammar, spelling, and expression recommendations. The question is whether the use of these AI tools in the teaching of writing can improve the learning outcomes and fill the foundation skill gaps of first-year students; this paper will test this hypothesis in the setting of a first-year course at Dai Nam University.

It was done in Dai Nam University, with 152 first-year students majoring in English Language selected among 420 students, depending on a diagnostic writing test at the start of the semester (selecting students with the lowest scores, indicating poor academic writing skills). The one-semester (15 weeks) intervention was aimed at enhancing the key academic writing skills (sentence-level accuracy, paragraph coherence, and short essay writing skills with a full structure) in three major areas: (1) sentence-level accuracy (grammar, punctuation, spelling); (2) paragraph coherence (idea linking, connectors, structure); and (3) short essay writing skills (300 500 words) with a complete structure. In the course of the instruction, AI tools were used as the other form of support, and they only gave feedback and suggestions but did not interfere directly in the writing of students. The instructor taught the whole class to make sure that the method is implemented in the same way.

Though there are various studies that have been conducted on the challenges of English writing skills in foreign language learners, little has been done in the study of first-year English majors with beginning writing proficiency within the Vietnamese universities. The majority of domestic studies simply outline typical writing mistakes and their reasons without actually examining pedagogical interventions to enhance writing abilities in this particular population. More specifically, the use of new technologies like AI in university writing teaching in Vietnam has never been systematically investigated; the gap that the study will address is to combine AI technology and process-oriented writing pedagogy, to empirically measure the efficacy of this combination. Writing is a fundamental skill required by English Language students to excel in their studies and careers, and without early intervention, students who have poor writing abilities will experience severe difficulties in subjects where written assessments are required and will not be able to cope with the demands of their work in the future. Thus, the practical value of this study is also significant: in case the combination of AI turns out to be effective, the findings will open a new direction in writing instruction, as the teachers

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will have one more assistant, and the students will get constant and individual feedback even beyond the classroom, which would significantly enhance their learning performance and level of confidence. Provided that this integrated model is successful, it can be replicated to other institutions of higher learning.

II. LITERATURE REVIEW

2.1 Theoretical Foundation

Key Concepts: The research is grounded on a number of key concepts in the area of writing instruction and language education, namely: (1) English as a Foreign Language (EFL) Writing Instruction - the specifics of teaching writing to learners who use English as a second language; (2) Basic literacy skills - the basic skills in phonology, vocabulary, and sentence structure that form the basis of writing; (3) Writing skill development - the process of developing writing ability through practice and feedback; (4) Process Approach to Writing Instruction - the focus on writing through multiple steps and draft

These theories which support writing instruction are the process writing approach by Flower & Hayes (1981), the error correction feedback theory by Ferris (2003), the sociocultural theory by Vygotsky (1978), and the use of AI in language teaching. Flower & Hayes have found that writing is a complicated cognitive process, which involves planning, drafting and revising, and during this process, the writer has to go through various drafts, thinking and decision-making constantly. The theory stresses that writing is not only a finished product but a developmental process, which allows students to discover and improve their writing gradually: brainstorming, outlining, drafting, revising. Ferris (2003) claims that prompt, explicit, and positive feedback plays a very important role in enabling students to detect mistakes and rectify their writing. Feedback does not only allow students to correct their mistakes in the present draft, but it also teaches them self-correction skills in the future writings. Ferris suggests that feedback must be specific (identifying the mistake and the fact that it is wrong), immediate (right after students complete a draft), and positive (suggesting how to correct the mistakes). According to Vygotsky, sociocultural theory indicates that social interaction is the major way of learning with the learners being supported by more experienced people, including the teachers or their peers. The idea of Zone of Proximal Development (ZPD) suggests that the learners will be most effective in learning when they are presented with a challenge that is just a little bit beyond their current capacity, and they can do it with the appropriate assistance. The use of AI in language teaching is considered a means of the ZPD, because, with the help of the program, students can get instant feedback on grammar and vocabulary mistakes and learn and correct in the process of writing. AI not only gives them immediate feedback but also makes students feel more secure in trying out writing without fearing mistakes. Nevertheless, AI cannot completely substitute the role of the teacher because such advanced skills as critical thinking, creativity, and logical argumentation still need to be taught by the instructor. Thus, the combination of AI and teacher instructions is the most effective approach as it can take advantage of the technical support and practice capabilities of AI and still leave the teacher to teach higher-level writing skills that AI cannot teach fully yet.

2.2 Related Studies

Global Studies: The study of writing instructional practices and use of technology in teaching foreign language writing has undergone numerous studies all over the world. To begin with, the process approach to writing has been tested over time (Flower & Hayes, 1981; Hairston, 1986). Students who learn in this way are likely to write better because of the numerous revisions and increased awareness of writing process. Second, peer and teacher feedback has been reported to enhance EFL writing skills, since it offers a second learning avenue based on interaction (Gyamfi et al., 2022). Peer comments provide writers with different opinions, and teacher comments guarantee professional advice. Third, the use of digital tools since the early 2000s has aided the teaching of writing, including Automated Writing Evaluation (AWE) systems, such as Grammarly, Criterion, and WriteToLearn, where learners can get immediate feedback on language mistakes. Numerous studies have shown that AWE is beneficial to writing skills and enhances fluency and accuracy of writing. Ranalli et al. (2017) also discovered that students using AWE showed more significant improvements in grammar and sentence structure than a control group that did not use this tool.

The latest development is the advent of smart AI platforms, which is a new dimension in writing assistance. ChatGPT is not restricted to scoring, but can also converse with the writer: clarifying errors, making suggestions, or even perform as a reader to comment on coherence. There are some early studies that have demonstrated positive outcomes of incorporating AI, including ChatGPT, in the writing practice. As an example, Liu et al. (2021) stated that the group of EFL students who were assisted by an AI system demonstrated great improvement in writing skills in comparison to the traditional approach. On the same note, Yan (2023) tried using ChatGPT in a writing course and found that the students showed a significant increase in their writing grades and the rate of participation. These results indicate that AI can preserve and expand on successful writing practices of the past (like the process approach and regular feedback) by offering a persistent, individualised feedback loop to learners.

Vietnam Context: In Vietnam, there are studies that have been conducted on the difficulties experienced by the students in writing English. According to Nguyen (2021), Vietnamese students have a tendency to have problems with coherence and the possibility to express the idea in academic writing, along with the errors in grammar and vocabulary. The identified causes are the

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discrepancies in linguistic and cultural thought (resulting in roundabout expressions or translating word-by-word in Vietnamese), and the absence of a regular writing practice. Moreover, students tend to be reluctant to write because of the fear of making errors, which results in the absence of confidence and passive attitude towards the enhancement of writing skills (Nguyễn & Nguyễn, 2022). Nevertheless, experimental research on the effectiveness of enhanced pedagogical solutions remains insufficient. The application of the AI technology to teaching writing in Vietnamese universities has been barely studied, especially. On educational forums, some initiatives have discussed the use of automated scoring software or Grammarly with students, but no scientific studies have published results in detail. Thus, the research will be among the pioneering efforts to examine how AI can enhance academic writing among Vietnamese students. The findings will help to fill certain gaps in the literature and will also offer practical evidence to serve as the foundation of curriculum innovations in English teaching in Vietnam in the era of technology.

2.3 Research Hypotheses

The current study suggests that the incorporation of AI-based writing support tools will positively affect the academic writing abilities of limited-proficient English majors in their first year. The degree of interaction between students and the AI tool moderates this relationship in the learning process. Particularly, the study generates the following hypotheses:

- H1: Technology Exposure has a positive effect on the level of interaction with AI in writing learning.
- H2: Writing Self-Efficacy has a positive effect on the level of interaction with AI.
- H3: Attitude toward AI-assisted Learning has a positive effect on the level of interaction with AI.
- H4: Perceived Value of Immediate Feedback has a positive effect on the level of interaction with AI.
- H5: AI Engagement (mediating variable) has a positive effect on the improvement of academic writing skills (dependent variable).
- H6: AI Engagement mediates the relationship between input factors (H1–H4) and writing skill improvement.

2.4 Research Model

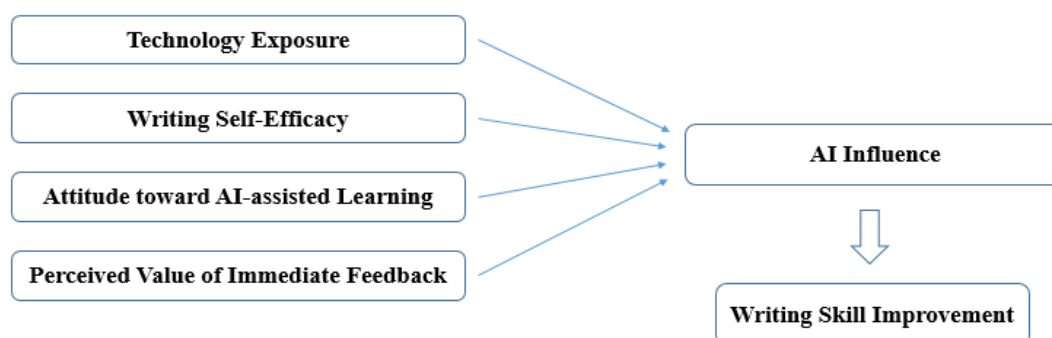


Figure 2.1. Proposed Research Model
(Source: Author's Research Results)

III. RESEARCH METHODOLOGY

The study is a mixed-methods research study involving both qualitative and quantitative research methods to investigate the effect of Artificial Intelligence (AI) tools on the development of academic writing of first-year English Language students at Dai Nam University. The qualitative research method will be applied to investigate the aspects that affect the writing skills of students, including challenges in academic writing, attitude of students to using AI tools, and the extent of their interaction with these tools in the learning process. Qualitative data are collected using in-depth interviews and focus group discussions with both instructors and students, which gives a clearer picture of the situation, needs, and real issues students have to address to enhance their writing skills. This forms the theoretical and practical basis of the hypotheses in the quantitative section of the research.

Regarding the quantitative research approach, the research will be carried out on a sample of 129 first-year English Language students who have below-average writing scores at Dai Nam University within one semester (15 weeks). The participants of the study will be trained on the basic principles of academic writing, such as correct sentence structure, proper paragraph structure, and brief essay writing. The tools that are incorporated into the learning process are the AI writing support tools, including the platforms that give immediate feedback on grammar, spelling, and sentence structure to help students self-edit their writing. The survey is used to gather data based on a validated measurement scale, which will consider the technology exposure, attitude to the use of AI, perceived value of immediate feedback, and improvement of writing skills. The obtained data will be processed with the help of

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descriptive statistics and hypothesis testing, and the SPSS and PLS-SEM software will be used to study the reliability and validity of the measurement scales and the correlation between the factors included in the research model.

IV. RESULTS AND DISCUSSION

4.1. Research Results

4.1.1. Descriptive Statistics of the Sample

The sample of the research is made up of 129 participants whose demographic features will be analyzed in detail, including gender and age. In gender, the findings indicate a clear division between the groups. In particular, 57 participants (44,2 percent of the total) were male and 67 participants (51,9 percent of the total) were female. The participants in the Other gender group were 5, representing 3,9%. The analysis reveals that the proportion of the female group is higher in the survey sample; yet, the existence of the Other gender group, which is small, nevertheless, indicates the gender diversity in the contemporary society. The given data gives an idea of the gender distribution in the research sample, which allows understanding better the social structure of the survey participants.

Table 4.1: Gender Distribution in the Survey Sample

Gender	Quantity	Percentage (%)
Male	57	44,2
Female	67	51,9
Other	5	3,9
Total	129	100%

(Source: Author's Research Results)

The survey sample age distribution indicates an imbalanced distribution across the age groups. In particular, 6 respondents were younger than 18 years, which constituted 4.7 percent of the total sample. The largest percentage was represented by the age group of 18 to 20 years, having 112 participants, which constituted 86,8%, indicating that the main target population was adolescents and young adults. Then, the participants aged between 21 and 23 years old consisted of 9 participants, which comprises 7%, and the group aged above 23 years consisted of 2 participants, which constitutes 1,6%. This breakdown shows that the survey sample is largely composed of people who are in their teenage and early adult years with the group aged 18-20 years being the majority.

Table 4.2: Age Distribution in the Survey Sample

Age Group	Quantity	Percentage (%)
Under 18	6	4,7
18 - 20	112	86,8
21 - 23	9	7,0
Over 23	2	1,6
Total	129	100%

(Source: Author's Research Results)

4.1.2. Measurement Model Testing Results

The scale testing results were carried out to determine the reliability and validity of the scales by use of indicators: Cronbach Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE). On internal reliability, Cronbach Alpha of all research factors was above the minimum of 0.7, which means that the scales are highly reliable. In particular, the Cronbach alpha values of the factors are: Impact of AI (AI) = 0.723, Attitude toward learning through AI (AT) = 0.735, Perceived value of instant feedback (PV) = 0.863, Writing self-efficacy (SE) = 0.777, Technology exposure (TE) = 0.846, and Writing skill improvement (WS) = 0.842. Such values ensure that the study scales are highly internally reliable. To maintain consistency in scale, the Composite Reliability (CR) indices are also very stable, with all the research factors demonstrating CR values greater than 0.7. In particular, the CR values of the factors are: Impact of AI (AI) = 0.845, Attitude toward learning through AI (AT) = 0.849, Perceived value of instant feedback (PV) = 0.907, Writing self-efficacy (SE) = 0.856, Technology exposure (TE) = 0.907, and Writing skill improvement (WS) = 0.894. These values prove the reliability and consistency of the scales in the model. All the research factors have an Average Variance Extracted (AVE) of more than 0.5, which shows convergent validity of the scales. Particularly, the AVE of the factors are: Impact of AI (AI) = 0.645, Attitude toward learning through AI (AT) = 0.652, Perceived value of instant feedback (PV) = 0.709, Writing

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self-efficacy (SE) = 0.599, Technology exposure (TE) = 0.766, and Writing skill improvement (WS) = 0.678. These findings indicate that the study scales are quite valid.

Table 4.3: Reliability of the Measurement Scales

Research Factor	Cronbach's Alpha	Composite Reliability	AVE
AI Influence (AI)	0,723	0,845	0,645
Attitude toward AI-assisted Learning (AT)	0,735	0,849	0,652
Perceived Value of Immediate Feedback (PV)	0,863	0,907	0,709
Writing Self-Efficacy (SE)	0,777	0,856	0,599
Technology Exposure (TE)	0,846	0,907	0,766
Writing Skill Improvement (WS)	0,842	0,894	0,678

(Source: Author's Research Results)

4.1.3. Evaluation of the Measurement Model

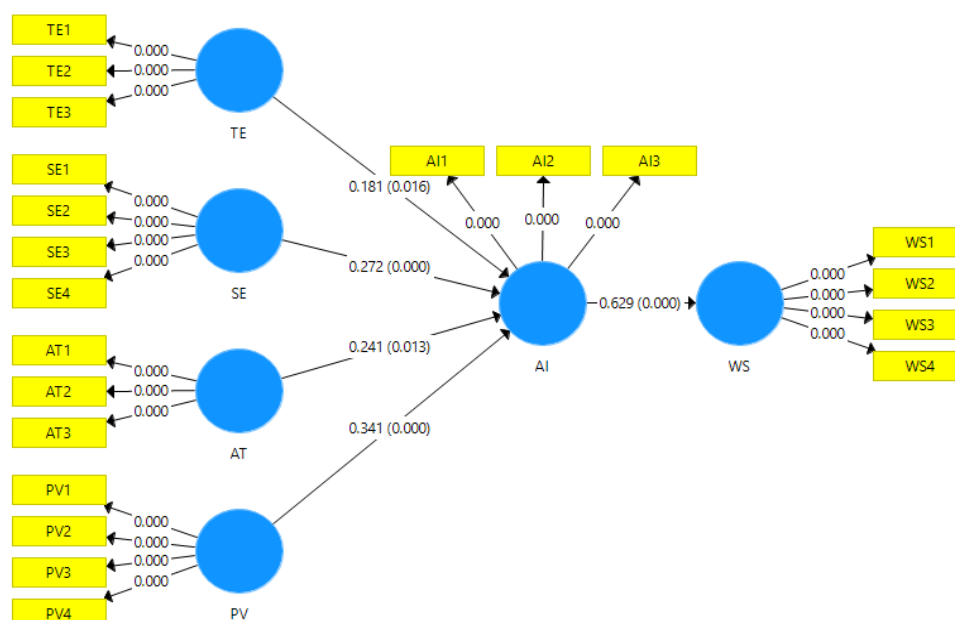


Figure 4.1. Measurement Model
(Source: Author's Research Results)

The measurement model was evaluated based on the analysis of the values of the Outer Loadings and indicators of reliability tests. The results of the analysis show that the observed variables of the research factors are all at the level of high accuracy and reliability in the measurement of the research factors with the value of Outer Loading being greater than 0.7. All these factors, including AI Engagement (AI), Perceived Value of Immediate Feedback (PV), and Attitude toward AI-assisted Learning (AT), have high Outer Loadings values, which means that these factors have a strong influence on the research model. The findings validate that the observed variables are able to adequately quantify the research factors, thus improving the quality of the model.

Table 4.4: Outer Loadings of the Observed Variables

Observed Variable	AI Influence (AI)	Attitude toward AI-assisted Learning (AT)	Perceived Value of Immediate Feedback (PV)	Writing Self-Efficacy (SE)	Technology Exposure (TE)	Writing Skill Improvement (WS)
AI1	0,772					
AI2	0,766					
AI3	0,867					

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Observed Variable	AI Influence (AI)	Attitude toward AI-assisted Learning (AT)	Perceived Value of Immediate Feedback (PV)	Writing Self-Efficacy (SE)	Technology Exposure (TE)	Writing Skill Improvement (WS)
AT1		0,838				
AT2		0,787				
AT3		0,797				
PV1			0,844			
PV2			0,832			
PV3			0,804			
PV4			0,886			
SE1				0,780		
SE2				0,742		
SE3				0,792		
SE4				0,780		
TE1					0,894	
TE2					0,902	
TE3					0,826	
WS1						0,850
WS2						0,830
WS3						0,760
WS4						0,849

(Source: Author's Research Results)

4.1.4. Evaluation of the Mediating Relationships

The evaluation of the mediating relationships in the research model based on the indirect effect coefficient shows that these relationships are significant and are of a significant impact on the improvement of writing skills. In particular, the indirect connection between Perceived value of instant feedback (PV) and Writing skill improvement (WS) mediated by AI has a standardized effect coefficient of 0.214 and a P-Value of 0.003, which indicates a strong and statistically significant influence. In the same manner, the correlation between Writing self-efficacy (SE) and Writing skill improvement (WS) via AI has a standard effect coefficient of 0.171 and P-Value of 0.000, which further proves a strong and statistically significant indirect effect. The third correlation, between Attitude toward learning using AI (AT) and Writing skill improvement (WS) using AI, has the standardized effect coefficient of 0.151 and the P-Value of 0.012, which shows that the relationship is present but on a lower level than the other two relationships.

Table 4.5: Mediating Relationships

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
AI -> WS					
AT -> AI					
AT -> WS	0,151	0,154	0,060	2,521	0,012
PV -> AI					
PV -> WS	0,214	0,216	0,072	2,977	0,003
SE -> AI					
SE -> WS	0,171	0,174	0,046	3,709	0,000
TE -> AI					
TE -> WS	0,114	0,114	0,047	2,412	0,016

(Source: Author's Research Results)

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All the indirect relationships in the model have P-Values smaller than 0.05, confirming that these relationships are statistically significant. These results highlight the important role of AI in improving writing skills, particularly through mediating factors such as the Perceived Value of Immediate Feedback and Writing Self-Efficacy.

4.2. Discussion

According to the study, the use of artificial intelligence (AI) tools in the teaching of academic writing can enhance the writing abilities of first-year English Language students in Dai Nam University. The AI tools give immediate feedback on grammar, spelling, and sentence structure and thus enable students to improve the effectiveness of their writing. These findings are consistent with the preceding research, including Liu et al. (2021) and Yan (2023), which indicate that AI positively influences writing skills, especially in the learning of foreign languages.

Nevertheless, this paper brings something new to the field by implementing the AI technology in the educational setting of higher education in Vietnam where the use of technology in teaching writing remains scarce. Besides enhancing writing skills, the study informs about the role of such factors as attitude toward technology, the degree of technology exposure, and writing self-efficacy in determining how students interact with AI, which has not been highlighted in previous studies.

Although the study has shown encouraging findings, it has a number of limitations. To begin with, the study was carried out in a short time (15 weeks) and a small sample size (152 students) which can influence the applicability of the results. Second, AI tools primarily aid in grammar and sentence structure, and other key elements, including critical thinking, creativity, and idea development are not yet fully assisted by the tools but still require instructor guidance. This indicates that AI is not capable of completely taking over the role of the instructor in building the overall academic writing skills.

These shortcomings present research opportunities in the future, such as conducting the same research in other universities to determine the viability and success of AI tools in various learning environments. The integration of AI with other teaching techniques might be examined further as well, especially when it comes to advanced writing skills development, including argumentation, creativity, and critical thinking. The other possible research avenue would be the creation of AI that would aid these aspects and would allow students to not only become more proficient in grammar but also in their general academic writing skills. Lastly, more studies are required to understand the effects of application of AI on the psychological elements of students, including confidence and interest in the learning process, to enhance AI tools that can not only facilitate technical writing but also instill motivation and self-learning.

V. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This paper has demonstrated that the use of artificial intelligence (AI) tools in teaching academic writing to first-year English Language learners at Dai Nam University produces clearly positive outcomes. Students have been able to write better academic papers, especially in simple aspects, like sentence accuracy, paragraph structure, and essay organization, through the use of AI tools, which offer immediate feedback on grammar, spelling, and sentence structure. By applying AI as an aid tool, students are able to recognize and fix errors in the writing process, thus forming a continuous and proactive learning loop.

Furthermore, the study reveals the significance of the factors that might affect the interaction of students with AI tools, including attitude to technology, the degree of exposure to technology, and writing self-efficacy. Positively minded students who have a high level of exposure to technology are more likely to communicate effectively with AI tools, which has a substantial impact on their writing abilities. Nevertheless, the study suggests that AI is not able to completely substitute the role of the instructor in the development of the critical thinking, argumentation skills, and structure of the essay. Thus, an instructional methodology that involves both AI technology and instructor-led training is needed to maximize the learning experience.

The findings of this research are not only important in enhancing the writing abilities of first-year students, but also provide a new avenue of implementing technology in university teaching. The use of AI technology in education, especially in writing education, may be a significant measure in the process of teaching methodology reformation, improving the quality of education, and assisting students in acquiring the necessary academic skills.

5.2 Recommendations

Resting on the research findings and on the hypothesis tested, the following main recommendations are offered to enhance the efficiency of academic writing teaching to the first-year English Language students, especially by means of artificial intelligence (AI) tools integration:

To begin with, students should be exposed to more technology as soon as they enroll. The findings of the research indicate that the degree of exposure to technology positively affects the interaction of students with AI tools. The universities must offer free or discounted AI writing assistance tools to the students. Also, courses and workshops on learning technologies should be periodically conducted whereby students will acquaint themselves with them and make maximum use of AI tools in their writing process.

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Second, training on AI and writing skills should be developed. The use of AI in teaching should not only be restricted to the provision of tools, but also to special courses that could enable students to understand better how to use AI tools to improve their writing skills. Such training programs must also incorporate the academic writing skills into other topics, so that students can practice writing frequently and get feedback not only by the instructors but also by the AI tools.

Third, the positive attitude towards technology in learning should be promoted. The study shows that the attitude of students towards AI tools is a major determinant of their interaction levels with the tools. Thus, educators and school administrators should establish a technology-aided learning environment, in which students should be encouraged to utilize AI as a powerful tool to enhance their writing abilities. Workshops or discussions introducing the advantages of AI may assist in shifting the attitude of students and making them more involved in the educational process.

Fourth, there is a need to develop confidence and motivation in writing among the students. The findings of the research indicate that the level of confidence in writing skills has a positive impact on the way students interact with AI tools. Thus, learning activities must be aimed at making students realize that they can do it and make them practice as much as possible and enhance their writing skills with the help of writing assignments. This does not only assist in improving the quality of their writing but also encourages the students to learn further.

Fifth, it requires the constant assessment and modification of the AI application in teaching. Since the technological progress is rather fast, it is necessary to evaluate and adjust the application of AI tools in instruction on a regular basis. Administrators and instructors are encouraged to pay attention to the efficiency of AI tools in teaching and adapt their teaching strategies to the needs and the technological trends so that the students could get the best results in their learning.

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