

## Effectiveness of Artificial Intelligence in Developing Written Expression Skills Among Secondary School Students

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### ABSTRACT

**Objective:** Artificial intelligence (AI) technologies in the education sector have attracted a lot of attention as they may potentially be leveraged to support teaching and learning in the education field. By leveraging AI algorithms and applications, innovative approaches that offer students real-time personalized feedback and guidance in practice and enhancement writing skills can be achieved. The study aims to investigate the effect of the artificial intelligence application used to improve the written expression of secondary school students who is reflected in the writing organizing ideas, accuracy in written language expression, development of writing content and performance in creative writing writing. **Method:** This study used descriptive-analytical research that started from a literature search related to the problem and literature that has been done regarding the use of AI in writing classroom. The researchers delve into the positive educational impacts AI writing tools can deliver and potential pitfalls for implementing AI in an educational environment. **Results:** The findings obtained in this review implies that AI tools have the potential to positively affect the students' writing competence as it gives feedback immediately, edit facilities, and also provides a logical structure of ideas while stimulating to increase students' creativity in their written production. The results also suggest that the learning potential of these technologies is best when used in a learning setting, in a structured way and under the care and supervision of teachers. **Novelty:** AI is not a substitute for the teaching role of teachers, but can be an effective supplement to help students with the teaching of writing and develop their English

## INTRODUCTION

The rapid development of digital technologies has revolutionized the educational practices in the world, which led to the development of new opportunities and possibilities for improving the educational process as a whole, both teaching and learning, as well as the who and how has changed. Of all these technologies, artificial intelligence (AI) has become one of the most impactful, with numerous applications that can benefit learners, personalise learning and improve learning outcomes. In recent years, AI-powered tools have been used increasingly in the classroom to support students in learning and nurturing their learning, to provide individualized support, and to encourage students' engagement [1], [2], [3], [4], [5].

These technological advances have significantly impacted one of the fields of education, namely language learning. Especially writing is a complex language skill and students need to synthesize their vocabulary knowledge, grammatical competence, critical thinking and creativity to produce their writing. Writing is used effectively to ensure that communication is clear and ideas are structured in a logical way with clear expression of opinion in a coherent and convincing way. It is for this reason that the training of writing ability in every level of education is always a goal of language education.

Although it is significant, there are still some secondary school learners who are facing challenges in writing. They are often faced with difficulties such as within vocabulary, poor grammatical skills, a lack in the development of ideas and the lack of coherence in written texts. These problems frequently impact students' performance, and they create lack confidence in students' written communication. In some situations, the challenges may require alternative approaches to teaching and effective pedagogical supports and there is a need to ensure that children are provided with personalised guidance and ongoing feedback. With the advent of AI applications new possibilities to overcome these limitations are created. AI writing tools can help students come up with ideas, structure their writing, and spot any mistakes or issues related to language and style. These systems can do so using natural language processing and machine learning technologies, which allows the systems to analyze students' writing as they write and offer real-time feedback that can help continuous improvement. These are the features that have garnered increasing interest from teachers and scholars interested in new approaches to improving language learning results.

Several prior studies have shown positive outcomes in relation to AI learning environments and their educational impact. Smart systems are shown to have the potential to enhance and support the active involvement of learners in the learning process, improve learners' achievement, and enhance their level of autonomy. In particular, AI tools in writing have demonstrated their ability to assist in the editing process, aid in the structuring of text, and spark creativity in students' writing. However, there are worries about over-reliance on technology, ethical issues, and teacher preparation and technology needs.

In light of the emerging implementation of AI in educational settings, it is important to investigate the impact of AI on writing skills for secondary school students. Knowledge of pros and cons of AI-assisted writing instruction may serve as a means to help educators make informed decisions about incorporating AI into classroom instruction. In addition, such studies help to formulate evidence-based guidelines for using new technologies to fullest advantage for the student, with the teacher as the pivotal point for learning.

Therefore, this research aims to analyze the effectiveness of artificial intelligence application to improve the written expression ability of Secondary school students. It aims to explore the impact these technologies have on enhancing the quality of writing, structuring ideas, boosting linguistic correctness, and promoting creativity. The study also explores the challenges and opportunities that arise when using AI tools in educational contexts and offers advice for the effective and responsible integration of AI tools in language teaching.

### **Research Problem**

The inclusion of Artificial Intelligence has raised more and more into an educational context but in Secondary School its potential contributions for writing skills development is still debatable. While there are several examples of AI tools that claim to be designed to make writing faster and more efficient, there is still a lot of new data and science on the effectiveness of these tools. So the main problem in this study is the construction of artificial intelligence application contribution levels in students' written expression and understanding of the limitations that can influence the success of the construction that can be used in class.

## **Research Question**

What role do AI applications play in secondary school students' learning about writing skills?

## **Research Significance**

This study is important because it explores a subject that is current and relevant in today's society: the issue of education. There is a need for both teachers and curriculum developers to better understand its educational worth, while school policy makers must also recognize the significance of artificial intelligence possibilities in education, as they address ongoing digitalization in the educational sphere. Overall, this study adds to the existing studies on the use of AI in language learning, specifically in the context of improving students' writing skills.

In particular, the study aims to:

- Identify ways to help students learn how to use AI for writing instruction.
- Explain how intelligent technology can overcome common problems students have with writing.
- Create a theory of teaching language using AI tools.
- Encourage continued educational reform work focused on digital innovations.
- Expand on the current AI in L2 literature.
- Promote further studies for the use of AI in the development of other languages and/ or cognitive skills.

## **Research Objectives**

This study is aimed at examining the effectiveness of the artificial intelligence application in enhancing the written expression of secondary school students. The following specific goals are:

1. To give the idea of artificial intelligence and its key educational applications.
2. To analyse the significance of the writing skills in secondary school.
3. To investigate the contribution of the use of AI applications in improving students' writing performance.
4. To evaluate how AI tools are helpful for organizing ideas, linguistic accuracy, and creative writing.
5. To determine the problems and difficulties of implementing AI for writing instruction.
6. To make recommendations for successful implementation of AI technologies in educational practice.

## **RESEARCH METHOD**

### **Research Design**

This study aimed to examine the educational value of Artificial Intelligence (AI) applications in developing writing skill of secondary school students. A descriptive-analytic type of research was used. This study aimed to analyze available knowledge, be aware of previous studies, and synthesize findings about the use of AI technologies in writing instruction, which is why the descriptive approach was deemed suitable.

### **Data Sources**

The study was done through extensive literature search on the available academic publications which focus on artificial intelligence, educational technology, language learning and writing instruction. Articles, books, conference proceedings, and educational reports with a peer-reviewed publication process, as well as published

studies conducting in-depth analysis of the integration of AI technologies in educational contexts, were included.

Studies related to automated feedback systems, intelligent tutoring systems, natural language processing applications, digital learning environments for improving the writing of students, and development of students' writing were highlighted.

### **Data Collection Procedures**

Articles, books, conference proceedings, and educational reports with a peer-reviewed publication process, as well as published studies conducting in-depth analysis of the integration of AI technologies in educational contexts, were included.

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### **Data Analysis**

The collected studies were analysed by the systematic process of review. Initially, terminology about AI was identified and defined, regarding writing skills. Second, the distinctly different functions of various educational applications of AI were explored in terms of their benefits. Thirdly, the results of the mentioned studies were analyzed and integrated, and common trends, benefits and challenges were extracted from AI-assisted writing instruction.

As part of the analysis, the following aspects of the fabric were targeted:

- Correction of grammatical and spelling errors.
- Organization of ideas and Text coherence.
- Development of creative writing abilities.
- Student Enhancement - Motivation.
- Academic performance outcomes.
- Challenges associated with implementation and adoption.

### **Scope and Limitations**

The investigation focused on the literature available on use of AI applications to support the development of writing for secondary school students. It did not involve the gathering of experimental data, classroom observations, surveys, or direct observations of the student's work. So, the conclusions were drawn from the findings the literature of education and the previous research [6], [7], [8], [9], [10].

## **RESULTS AND DISCUSSION**

### ***Results***

The results found from the literature assessment indicated that there was enough evidence that artificial intelligence applications are able to positively contribute to writing instruction. Overall, the results suggest that AI technologies can be used to assist various facets of writing development, from the linguistic aspects to the creative expression.

### Improvement of the quality of writing skills.

One of the most frequent findings reported is related to improving overall writing quality. Grammatical and spelling errors, as well as stylistic problems, can be detected within the writing process with the support of AI-powered writing assistants. Immediate corrective feedback makes learner aware of his/her mistakes and helps to correct the work more effectively. This is a continuous feedback mechanism that helps the learners to reach a higher degree of linguistic accuracy and which helps them write more coherent and clearer written compositions.

**Table 1.** The influence of Artificial Intelligence Applications on the growth of Writing Expression abilities.

Domain	Impact of Artificial Intelligence
Error Correction	Improves linguistic accuracy and reduces grammatical and spelling errors
Idea Organization	Enhances text coherence and logical sequencing of ideas
Feedback	Provides immediate and continuous feedback to students
Creative Writing	Encourages the generation of new ideas and diverse writing styles
Learning Motivation	Increases engagement and willingness to practice writing
Academic Performance	Improves the quality of assignments and writing tasks

### Improvement of Idea Organization

The studies examined indicate a significant contribution of AI applications in supporting students' brain organization in written production of their thoughts. Often, intelligent tools will offer paragraph suggestions about paragraph structure, Word Order, and content building. This has consequently enabled pupils to express ideas in a coherent way which leads to greater readability and enhanced standards of writing.

### Immediate and Continuous Feedback

AI tools offer immediate feedback on learners' work, which is not possible in traditional learning methods. Thus, there is some immediate support for students to locate their deficiencies, correct them and finalize their work. With the continuous feedback, students learn actively and pay attention to the writing process.

**Table 2.** The use of Artificial Intelligence in the teaching and learning of writing expression poses several challenges. There are several obstacles in the implementation of Artificial Intelligence in writing expression learning.

Challenge	Impact
Inadequate Technological Infrastructure	Difficulty accessing AI-powered educational applications
Insufficient Teacher Training	Reduced the effectiveness of implementation
Overreliance on Technology	Decreased student intellectual independence
Ethical Concerns	Potential misuse of AI tools
Limited Internet Access and Devices	Restricted implementation of digital learning activities

### Increased Motivation and Engagement

Results from several studies indicated that learners who interacted with AI learning environments showed a higher level of engagement. Interactive screens, individualized feedback and instruction lead to a better learning environment. Students often expressed confidence in their writing skills and enthusiasm for engaging with writing tasks through the use of AI.

### Development of Creative Writing Skills

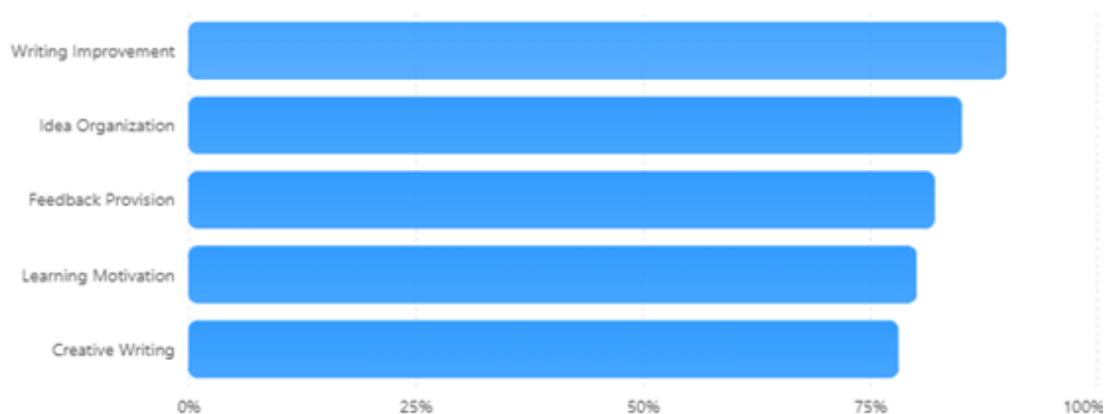
The literature also speaks to the help of artificial intelligence in the areas of creative thinking and creative writing. The use of AI technology allows for prompt generation, alternative expression suggestions, and prompts for imagination, inspiring students to think outside the box. These can inspire learners to try various writing genres and styles, and eventually enhance the quality and originality of their writing.

**Table 3.** Summary of the Study Findings.

No.	Finding
1	Artificial intelligence contributed to improving writing expression skills.
2	It enhanced idea organization and text coherence.
3	It provided immediate and continuous feedback to students.
4	It increased students' motivation toward writing activities.
5	It supported the development of creative thinking and creative writing skills.
6	Effective implementation requires adequate training and technological infrastructure.
7	Artificial intelligence cannot replace the teacher; rather, it serves as a supportive educational tool.

### Academic Performance

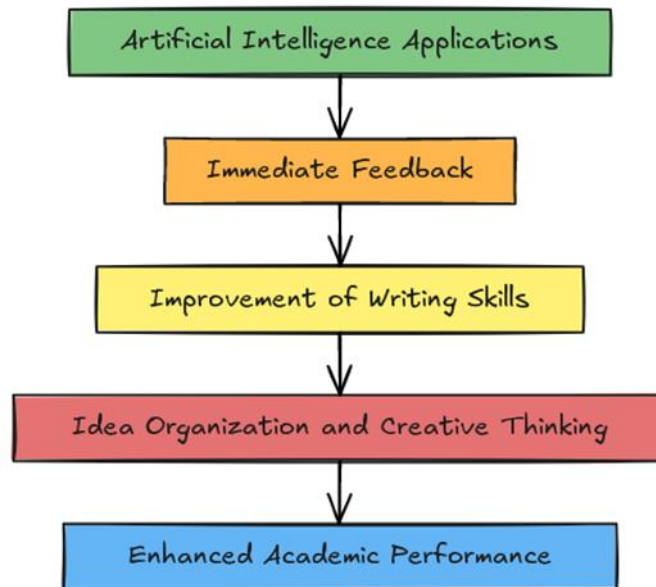
The results show that if you improve your writing you will improve your quality, organisation and motivation, which in turn will improve your academic outcome. Students using AI applications regularly showed greater achievement in written-work and language-related tasks.



**Figure 1.** AI's Positive Impact on How People Express themselves through Writing.

## Difficulties in AI Adoption

However, there were a number of challenges identified. However, there are still some obstacles such as limited technological infrastructure, lack of teacher preparation, inequitable access to technology resources and ethical issues about over-reliance on technology. These challenges indicate that implementation is likely to be successful if sufficient care is put into planning, training and institutional support.



**Figure 2.** Study's Conceptual Framework.

## Discussion

This study demonstrates the relevance of the emergence of AIs as a powerful learning tool that can support the teaching and learning of writing. The literature examined reveals that AI technologies can be beneficial at each phase of the writing process.

One of the biggest gains that AI offers is that it can give feedback instantly. It is hard to give one-on-one feedback in the traditional classroom setting due to time pressures and the quantity of students. AI-driven systems, on the other hand, can render assessments almost instantaneously, and help with immediate identification and correction of mistakes by the student. It is an ongoing learning feature, giving greater autonomy to the students.

This improvement in idea organization is notable, too. Writing is difficult for many secondary school students since they have a problem in logical progression and in writing it together. AI can assist students in organizing their thoughts, planning, and writing, including providing structure and transitions. Such support is useful to pupils when they are writing more structured and learned texts.

The writers additionally mention the inspiring components of AI bolstered learning architectures. One of the aspects that can influence in the language learning process and language writing development is the aspect of MOTIVATION. The use of interactive digital tools fosters a learning environment that's frequently felt to be more engaging and less intimidating than traditional teaching and learning methods. Valued and valued

feedback and support for instant concept and progress shall continue to be a crucial factor in preserving pupils engaged.

A key discovery relates to creativity development. Writing must be written grammatically but it must also be original, imaginative, or expressive. AI applications can generate innovative ideas, alternate sentence structures and vocabulary choices, which can encourage students to think creatively. Thereby, students tend to search for language and to write their style more.

But this doesn't imply that issues can be ignored. Technology, teacher readiness and policy in practice are key factors associated to good integration. When educators with no training use these technologies, they may find challenges in maximizing use and educational return from the technologies. Similarly, if not monitored adequately, excessive use of AI may lead to a decrease in opportunities for independent thinking and problem-solving skills.

Ethical issues also need to be addressed. Concerns about academic honesty, data confidentiality and judicious use of technologies are all among the factors that should be re-negotiated within the institutional policies and initiatives, which should be constructed or conveyed in a well-defined manner. AI is a learning tool that can help, it's not replacing learning and thinking [11], [12], [13].

As a whole, the results indicate that the most educational uplifts are achieved by combining AI in a well-rounded pedagogical approach that uses technology to augment, not supplant, the skills and abilities of educators [14], [15].

## CONCLUSION

**Fundamental Finding :** This study was a needs-based literature review by reading previous studies related to the problem and conducted study on AI role in writing education specifically for secondary school students. Based on the results obtained, it can be concluded that AI technologies can be useful in writing in many positive aspects that can support students in improving their linguistic accuracy, arranging their thoughts and ideas, and offering feedback, increasing student motivation, and stimulating students to think creatively. When technological innovation is combined with good pedagogical skills results are likely to be favorable in the field of education. **Implication :** Overall, the evidence investigated holds the potential to translate AI applications to a more interactive, personalized and learner-centered teaching of writing. But for these benefits to be realised, an appropriate implementation strategy, technological infrastructure, and ongoing educator professional development is necessary. Key, however, is the fact that AI should not be regarded as a substitute for educators. Rather, it should be a compendium with educational activities which can be employed where supplements activities are needed and where they support teaching practices. Recommendations The results of this study suggest the following recommendations: Ensure that AI-assisted writing tools are in a way that are systematic and sound pedagogically in the language curriculum. 2 The teacher is to receive a specialised training programme to upskill teachers and build the necessary skills to effectively use AI technologies. 3. Enhance technological support for schools for provision of equity in ICTs in learning. Teacher and student awareness of ethical and responsible use of AI. 5. Enhance building of

Educational AI systems forLLWD. 7. Develop institutional policies that will enable a balance between technological innovation and academic integrity and independent learning. **Limitation** : The researchers delve into the positive educational impacts AI writing tools can deliver and potential pitfalls for implementing AI in an educational environment. **Future Research** : Conduct experimental and longitudinal studies to account for possible lasting impacts of using AI for writing.

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