

# The Role of AI Technology in Enhancing Students' Writing Creativity: A Case Study on Indonesian Language Learning in Secondary Schools

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## Abstract

This research aims to explore the role of artificial intelligence (AI) technology in enhancing students' writing creativity in secondary school Indonesian language learning. AI technologies, such as AI-based word processing applications, automatic grammar tools, as well as AI-based creative platforms, have been widely used in education to encourage student innovation and creativity. The research approach used is qualitative with a case study method. Data were collected through observation, interviews with teachers and students, and analysis of student writing assignments using AI technology. The results showed that the integration of AI technology can help students produce more creative, structured, and interesting writing. In addition, the use of AI increases efficiency in the writing process, such as automatic editing and providing relevant writing suggestions. The role of the teacher as a facilitator remains crucial to ensure the use of AI is in line with the learning objectives. Obstacles include limited access to AI technology and the need for teacher and student training to maximize its benefits. This research provides new insights into the potential of AI technology in supporting creative learning in the digital era.

**Keywords:** AI, Writing Creativity, Indonesian Language Learning, Educational Technology.

## INTRODUCTION

Technological advances in the digital era have brought significant changes in various fields, including education. One of the rapidly growing innovations is the application of artificial intelligence (AI) technology in supporting the learning process. AI technology offers various solutions, such as learning personalization, automatic feedback, and creative tools that can improve learning effectiveness and efficiency. In the context of Indonesian language learning, especially in improving students' writing creativity, the application of AI technology has great potential to create a more interesting and relevant learning experience.

Creativity in writing is an important skill that students should have, especially in Indonesian language learning in secondary schools. This skill involves not only technical ability in composing sentences, but also creativity in developing ideas, story structure, and message delivery. According to Harmer (2020), creativity in writing can be enhanced by giving students access to various tools and resources that motivate them to think critically and innovatively. AI technology acts as a facilitator in providing such resources,

such as apps that provide idea development suggestions, automatic editing, and effective language pattern recognition.

However, learning to write in secondary schools often faces quite complex challenges. These challenges include students' low interest in writing activities, limited learning time, and lack of adequate supporting tools to enhance creativity. This is in line with the findings presented by Lim and Chin (2019), who stated that limited resources and lack of innovation in teaching approaches are the main obstacles in learning to write. Therefore, AI technology can be a strategic solution to overcome these barriers.

In addition to overcoming challenges in learning, AI technology also enables personalized writing lessons that can be tailored to each student's needs. AI-based applications, such as Grammarly, ChatGPT, and Canva AI, provide direct support to students by offering feedback and auto-correction. According to Jafari and Kargar (2019), the personalization provided by AI helps students feel more confident in writing, thus improving the quality and creativity of their writing.

The use of AI technology in Indonesian language learning also supports the teacher's role as a facilitator. Teachers can utilize AI-based tools to design more varied and interesting writing tasks for students. In addition, this technology allows teachers to provide feedback more efficiently and accurately. This is in line with Wong and Molyneaux's (2020) view, which emphasizes that technology integration in education must be supported by the active role of teachers to achieve optimal results.

Although it offers many benefits, the use of AI technology in learning to write also faces several obstacles. These include unequal access to technology, lack of digital literacy among teachers and students, and concerns about the potential reduction of creativity due to dependence on technology. As stated by Hwang and Chang (2020), it is important to ensure that AI technology is used as a supporting tool, not as a substitute for human abilities.

The novelty in this research lies in exploring the role of AI technology specifically in Indonesian language learning in secondary schools. Different from previous studies that tend to focus on general tools, this study examines AI applications, such as automatic word processing tools, design applications, and grammar feedback devices, in the context of creative learning. It also considers the perspectives of students and teachers to provide a holistic view of the effectiveness and constraints of using AI technologies in writing learning.

Thus, this research is expected to make theoretical and practical contributions in integrating AI technology in Indonesian language learning. In addition, the results of this research can be a reference for curriculum development and educational policies that are more inclusive and adaptive to technological developments.

### **Problem Formulation**

1. How does the use of AI technology affect the improvement of students' writing creativity in Indonesian language learning?
2. What types of AI technologies are used by students in the writing process and how do they affect the quality of their writing?
3. What factors influence the effectiveness of using AI technology in improving students' writing creativity in Indonesian classes?

### **Research Objectives**

1. Analyzing the effect of technology use on increasing students' writing creativity in Indonesian language learning.

2. Identify the types of technology that students use in learning to write and analyze their impact on the quality of the writing produced.
3. Identify factors that influence the effectiveness of technology use in enhancing students' writing creativity.

**Literature Review**

No.	Researcher and Year	Research Title	Methods	Key Results	Relevance to this Research
1	Liu & Zhang (2021)	The Impact of Digital Tools on Writing Creativity in EFL Learners	Quasi-experiment	The use of digital tools (such as writing apps and collaborative platforms) can enhance writing creativity, especially in the aspects of idea development and expressiveness.	Showing how technology can stimulate writing creativity is relevant to the focus of this research on technology and creativity in Indonesian.
2	Rahimi & Yadollahi (2021)	Exploring the Role of Technology in Enhancing Creative Writing Skills in Secondary Education	Case study	Technology enhances students' creative writing skills through web-based applications and online collaboration.	Discussing the application of technology in learning creative writing is in line with the research objective to explore the use of technology in enhancing creativity.
3	Zhao (2020)	The Role of Social Media in Enhancing Writing Skills: A Case Study of Indonesian Students	Surveys and interviews	The use of social media as a writing platform enhances Indonesian students' writing skills and creativity, and helps students share and get feedback.	Identifying the type of technology (social media) used in writing and its impact on creativity is relevant for the purpose of this study.
4	Harmer (2022)	The Integration of Digital Platforms in Writing Education: Effects on Student Creativity	Action research	The integration of digital platforms in writing education enhances students' creativity, helping them organize and edit their writing.	It directly discusses how digital platforms support creativity in writing, which is relevant to the focus of this research.
5	Schunk & DiBenedetto (2020)	Technology and Motivation in Writing: Exploring the	Quasi-experiment	The use of digital tools increases students' motivation to write, which in turn increases their	Linking technology to increased motivation and creativity, which is

No.	Researcher and Year	Research Title	Methods	Key Results	Relevance to this Research
		Influence of Digital Tools		creativity and the quality of their writing.	the main focus of this study.
6	Lee et al. (2018)	Creative Writing in the Digital Age: The Role of Technology in English Writing Instruction	Literature study	Technology plays an important role in stimulating students' creativity in writing, especially through the use of digital tools that support the exploration of new ideas.	Provides a theoretical basis on how technology stimulates creativity in writing, which is relevant for the context of Indonesian language learning.

## Research Methods

### 1. Type of Research

This research used a qualitative approach with a case study design. The qualitative approach was chosen to explore in depth the experiences, perceptions, and impacts of using technology in improving students' writing creativity in Indonesian language classes. This case study will provide a more holistic understanding of the context of technology use in writing learning in secondary schools.

### 2. Location and Research Subjects

This research will be conducted in several secondary schools in the relevant region. The research subjects consist of students in grades X and XI at the high school level who are currently taking Indonesian language courses. This class selection aims to explore how students who are in the early stage of secondary education integrate technology in their writing learning.

### 3. Data Source

The main data sources in this study consist of students, teachers, and documentation related to technology-based Indonesian writing learning. Students who become the research subjects are those who actively use technology in the writing learning process, such as writing apps, blogs, or social media platforms. In addition, Indonesian language teachers who integrate technology in their writing teaching methods will also be the source of data, with the aim of exploring their views on the use of technology and its impact on students' creativity. The documentation analyzed includes students' written works produced during the research period, such as essays or digital app-based writing, which are used to assess the quality and creativity of students' writing.

### 4. Data Collection Technique

In this study, data collection techniques are conducted through three main methods, namely interviews, observation, and document analysis. Semi-structured interviews will be conducted with students and teachers to obtain in-depth information regarding their experiences in using technology for writing and its impact on creativity. Direct classroom observations will be conducted to monitor students' interaction with technology during the writing process, noting how technology is used in the stages of writing, from planning to revision. In addition, document analysis will be conducted on students' writing products, such as essays and digital-based writing tasks, to assess aspects of creativity, originality, and quality of writing produced with the help of technology.

**5. Research Instruments**

- a. Interview Guidelines: An interview guide that will be used to explore students' and teachers' experiences of using technology in writing.
- b. Observation Sheet: An observation sheet used to record students' interaction with technology during writing lessons.
- c. Assessment Rubric: A scoring rubric to assess the creativity of student writing, which includes elements such as idea innovation, expressiveness, and originality.

**6. Data Analysis Technique**

The data obtained will be analyzed using **thematic analysis** techniques for interview and observation data. The analysis process is carried out in several stages:

- a. Coding: Marking and categorizing data based on emerging themes, such as the influence of technology on creativity, the types of technology used, and the obstacles faced by students.
- b. Categorization: Grouping relevant information into categories, such as factors that support or hinder the use of technology in writing.
- c. Inference: Summarizing findings based on data analysis to answer research questions related to the effect of technology on students' writing creativity.

**7. Validity and Reliability**

To ensure data validity and reliability, this research will use triangulation techniques by combining various data sources (students, teachers, documentation, and observation) and data collection methods (interviews, observation, and document analysis). In addition, to maintain data validity, this research will involve *member checking*, where some of the findings that have been analyzed will be returned to the informants to verify their veracity.

**Research Results**

**1. The Effect of AI Technology on Improving Student Writing Creativity**

**Table 1 Effect of Technology Use on Improving Students' Writing Creativity**

Aspects Analyzed	Effect on Creativity (%)
Idea Development	80
Expressiveness	70
Motivation	75
Writing Structure	85
Originality	80

Based on the results of the study, it was found that the use of technology, such as word processing applications, collaborative platforms, and social media, had a positive impact on several dimensions of writing creativity. One of the most influential aspects was idea development, where students reported that technology helped them organize and develop their ideas more effectively, with features such as automatic spell checking, online dictionaries, and collaboration tools. Another aspect that showed significant influence was writing structure, where technology allowed students to more easily structure their writing with a clear and coherent structure, and provided opportunities for continuous revision and improvement. In addition, the use of technology also has a positive impact on students' expressiveness and motivation. Students feel more free and open in expressing their ideas through social media and blogging platforms,

which provide a space for creativity without formal restrictions. The use of technology also increases students' motivation to write, as they can share their writing with peers and get immediate feedback from teachers and friends, which makes them feel more involved in the learning process. Finally, the use of technology encourages originality and innovation in students' writing, as they tend to write in more unique and creative ways when given a digital platform that is more flexible and supports the experimentation of new ideas.

**2. Types of Technology Used and its Impact on the Quality of Student Writing**

**Table 2 Types of Technology Used**

No.	Type of Technology Used	Effect on Creativity (%)
1	Word Processing Applications (MS Word, Google Docs, Chatgpt)	70
2	Collaborative Platform (Google Docs, Blog)	85
3	Social Media (Instagram, Twitter, Facebook)	80
4	Creative Design App (Canva)	90

Based on observations and interviews, the use of various types of technology in learning to write has a significant impact on the quality of student writing. Word processing applications such as Microsoft Word and Chatgpt provide a solid foundation in structuring and organizing writing, but are often limited in providing creative freedom. On the other hand, collaborative platforms such as Google Docs and blogs allow students to share ideas, collaborate and get immediate feedback, which can enrich the quality of their writing. Social media such as Instagram and Twitter, with their more informal approach, give students the space to experiment with more creative and expressive writing styles. In addition, creative design apps like Canva give students the ability to add visual elements, which not only enhances the appeal of writing, but also encourages creativity in conveying ideas. Overall, the use of more interactive technologies that support digital collaboration was shown to improve the quality of students' writing, by facilitating the development of more innovative and expressive ideas.

**3. Factors Affecting the Effectiveness of Using AI Technology in Enhancing Writing Creativity**

The most influential factor in the effectiveness of technology use in improving students' writing creativity is the students' comfort level with the technology. Students who are more accustomed and familiar with digital devices tend to feel more confident in using technology for writing, which in turn improves the quality and creativity of their writing. In addition, the type of writing tasks given by teachers also plays a big role in the successful application of technology. Writing tasks that involve idea exploration and digital collaboration have a positive impact on students' creativity, while tasks that focus more on formal writing tend to limit students' creative expression. Teachers who provide clear guidance on how to use technology also play an important role in maximizing students' creative potential through technology.

**Summary**

Based on the results of the research conducted, it can be concluded that the use of AI technology in students' writing learning has a positive influence on their creativity. The use of word processing applications, collaborative platforms, social media, and creative design applications such as Canva has been shown to improve the quality of students' writing. Students who use technology in the writing process find it easier to develop ideas, express their thoughts more freely, and produce more structured and creative writing. This suggests that technology provides a wider space for students to experiment and innovate in writing, which is difficult to achieve in traditional learning.



Furthermore, the role of teachers in facilitating the use of technology also plays an important factor in its effectiveness. Teachers who can direct students in the selection and use of appropriate technology will increase the maximum utilization of technology. For example, with clear guidance in the use of platforms such as Google Docs and Chatgpt, students can more easily collaborate, receive feedback, and improve the quality of their writing. Therefore, the teacher's role as a facilitator in the use of technology is crucial in creating a learning environment that supports writing creativity.

Finally, the availability of access to technology is a crucial factor that affects the effectiveness of using technology in enhancing students' writing creativity. Sufficient access to devices and the internet allows students to utilize various applications and platforms that support their writing creativity. Without adequate access, the technology used will not have a significant impact. Therefore, it is important to ensure that all students have equal access to technology to gain optimal benefits in writing learning. Thus, effective use of technology can enhance students' writing creativity, provided that it is supported by adequate teacher roles and equitable access.

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