Enhancing Junior High School Students' Procedural Writing through Picture Series: A Pre-Experimental Study

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Article Info	ABSTRACT
	This research explores the impact of using picture series to improve students' ability to write procedural texts at SMP Negeri 1 Palasa. The primary issue addressed is whether picture series can support students in developing writing skills, organizing ideas, and maintaining motivation during writing activities. The study employed a pre-experimental design using a one-group pre-test and post-test approach involving 20 ninth-grade students selected through single-class sampling. The research was conducted over six sessions, comprising a pre-test, instructional treatment, and a post-test. Data were collected through writing assessments administered before and after the intervention and analyzed using paired sample t-tests. The results indicated an increase in the average score from 60.12 in the pre-test to 68.00 in the post-test. Statistical analysis showed that the calculated t-value (3.44) exceeded the critical t-value (2.36) at a 0.05 significance level with 20 degrees of freedom. These findings suggest that using picture series significantly enhances students' performance in procedural writing, highlighting its effectiveness as a teaching strategy. *This is an open-access article under the license.*

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1. INTRODUCTION

Writing can greatly strengthen students' memory, cognitive, affective linguistics, and psychomotor abilities [1]. Cognitive abilities encompass mental processes such as thinking, learning, remembering and problem solving. Writing enhances these by demanding students to organize their thoughts, analyze information and generate new ideas. Affective linguistics involves the emotional and social aspects of language use. Writing fosters empathy, self-awareness and critical thinking by allowing students to express their feelings and perspectives. Psychomotor abilities related to physical skills and coordination. Writing improves fine motor skills, such as handwriting or typing, as well as coordination and skill.

Incorporating writing activities into the learning process significantly benefits students' overall development.

Writing is a crucial skill for EFL (English as a Foreign Language) learners because it facilitates clear and effective communication, which is crucial for personal and professional success. A person with good writing skills is always victorious at expressing oneself [2]. Writing is crucial for organizing thoughts, sharing information, and expressing emotions. In education, it helps students demonstrate their understanding through assignments and essays, while in the workplace, strong writing skills are needed for clear, professional communication in emails, reports, and proposals. Good writing enhances persuasiveness in negotiations, marketing, or daily interactions and fosters personal development through critical thinking and reflection. It also plays a key role in maintaining relationships through letters and social media. Overall, writing is essential for effective communication, personal growth, and success in various areas of life.

Learning to write effectively is a long process, so finding the right teaching and learning methods to help students achieve these goals is important. Finding the right teaching and learning methods is significant in helping students achieve practical writing goals, such as facilitating understanding of the material, increasing student motivation, increasing creativity and critical thinking skills, helping students develop good writing structures, reducing anxiety in writing, and increasing learning effectiveness. So, choosing the right method in teaching writing is very important to ensure that students can understand, are motivated, and write well. With practical strategies, students can improve their writing skills and develop confidence and creativity in pouring ideas into writing. Students must express the idea in written form and connect the sentences using conjunctions. Besides, writing needs to be mastered in some aspects. They are organization, grammar, vocabulary and so on.

Writing is more difficult than teaching other skills because it involves listening first, then speaking, then reading, and then writing. Teachers must find creative ways to apply them in class to motivate students to learn to write [3]. This is important because students will have difficulty developing writing skills without motivation. Therefore, teachers need to use innovative methods so that students are more involved in learning, feel interested in learning to write and ultimately improve their abilities. It is important to have creativity and innovation in teaching writing so that students are more motivated and develop.

Many teachers consider writing the most difficult and tedious English skill to learn [4]. This emphasizes the importance of adopting innovative teaching strategies to make writing activities more engaging and effective for students while ensuring they benefit fully from its cognitive and linguistic advantages. It emphasizes the importance of understanding and using the writing stages for students to produce quality writing. Writing is not just about pouring out ideas; processes or stages such as planning, drafting, revising, and editing must be followed. If students understand and apply the stages of writing well, their writing will be more structured, clear, and effective. By following the correct stages, students' writing will be more coherent, easy to understand, and have goals that are achieved well. A good understanding of how to write will help students create better writing, both in terms of content and structure.

To produce high-quality written work, students must grasp and apply the stages of the writing process [5]. Mastery of these stages is crucial, as it promotes coherence, clarity, and overall effectiveness in writing. This highlights the need for explicit instruction in writing strategies, as a solid understanding of the writing process equips students to create well-organized and meaningful procedural texts.

Procedure texts are written to explain how to carry out a task or achieve a goal through a series of ordered steps. These texts are not only part of academic learning but are also encountered in everyday contexts. Examples include game instructions, cooking recipes, and directions for using ATMs—real-life applications that make procedure texts relatable and accessible to students. According to Ameliah [6], a procedure text guides the creation of something by outlining a step-by-step process. Common examples include making coffee, fried rice, or fruit juice. When composing procedural texts, students are expected to express their understanding clearly. The core purpose of a procedure text is to instruct readers on how to perform an activity or create something, typically organized into components such as goals, materials, and steps or methods.

Writing is considered one of the most demanding skills to acquire in English language learning [7]. This challenge often stems from limited vocabulary, uncertainty about content, and an inability to construct proper sentences due to a lack of grammatical understanding. Consequently, teachers and students require effective instructional strategies to enhance student's writing proficiency and overall achievement in this area. The difficulties experienced by students in compiling and developing ideas into a complete and coherent paragraph are difficulties in compiling and developing ideas into a complete and coherent paragraph. The difficulty shows that students cannot choose the right words or expressions, so their writing is unclear and less interesting. This proves that good word choice is essential so that the text is easy to understand and enjoyable for the reader. In addition, they do not know what to write and are sometimes confused about determining the words to be used in the text. Students often face obstacles in applying correct grammar and writing, such as punctuation, spelling, and sentence structure. These deficiencies significantly impact the quality of their procedural text, so it does not meet good writing standards. Therefore, an appropriate strategy is needed to help students overcome this and improve their ability to produce good procedural texts. Also, the media used in teaching and learning activities for writing are still not quite right. So that students easily get bored with writing class activities because writing learning is monotonous.

One media usually used to improve students' writing skills is a picture series. Picture series is one of the effective efforts to deal with writing skills. Ramadhanty [8] found that picture series is one of the media that supports the brainstorming process during the writing process as a visual aid that stimulates and provides inspiration to express something. Picture series is one medium that can stimulate students to get ideas and inspire them to write. Furthermore, picture series attract students' attention and engage the lesson. So, they are excited to receive the material. It will also help the students express their ideas in the texts because picture series systematically have a storyline from beginning, middle and end. The students can write good and clear explanations by seeing the pictures and listening to the

teacher. By giving the students a series of pictures, they are more interested in the learning process that the teacher conducts.

To address these challenges, the researchers implemented a picture series as a teaching aid in the classroom. Visuals, particularly images, serve as effective tools in writing instruction. Colorful images can enhance students' engagement and motivation in learning English [9]. Pictures are crucial in shaping students' interests, encouraging positive attitudes, and fostering motivation. Moreover, visual aids provide concrete contextual support, enabling students to understand the subject matter better. By observing pictures, students can more clearly visualize the content, which allows them to translate their imagination, emotions, and ideas into written form. This is particularly helpful since students often struggle with sequencing steps, constructing coherent sentences, or choosing the right words.

Based on this consideration, the researchers argues that innovative and engaging teaching methods are essential to overcome these writing difficulties. One such approach is the use of picture series as instructional media. Picture series can help students generate ideas and write procedural texts with greater creativity. These visuals help spark students' imagination and boost their enthusiasm for learning. This media type is especially appropriate for junior high school students, as it is simple and effective in increasing their motivation to learn.

2. METHOD

This study adopted a quantitative research approach. Quantitative methods involve using numerical data obtained from observations to describe and explain phenomena that can be inferred from those observations [10]. The research applied a pre-experimental design, specifically involving a single-group format. In this design, a group is assessed using a pre-test, followed by an intervention, and then evaluated again through a post-test [11]. In other words, the study was conducted with only one group of students who received all three phases: pre-test, treatment, and post-test. The research design followed the framework outlined by Gay et al. [12] as follows:

$$O1 \quad X \quad O2$$

Where:
O1　　　　: Pre-test of the experimental group
O2　　　　: Post-test of the experimental group
X　　　　 : Treatment of the experimental group

A population is the entire group of individuals or objects from which a study seeks to understand or draw conclusions. The population refers to the entire group of individuals, objects, or events that share a common characteristic and are the focus of the study [13]. The population in this research consisted of four classes of the ninth-grade students at SMP Negeri 1 Palasa. Each class consisted of 19 to 22 students. The total number of students for each class is 80, divided into four classes: IX A, IX B, IX C, and IX D.

A sample is a subset of individuals or items selected from a larger population for research purposes. A specific group of people or individuals will be asked to participate in the research [14]. The sample was selected single class sampling. Sampling, also known as one-class classification, is a method when only examples from a target class are available or predominant [15]. The sample consisted of 20 students in class IX A.

A research variable is any characteristic, attribute, or factor that can vary or change within a study and is either measured or manipulated to evaluate its effect on the outcomes. Variables are crucial in social science research, aiding hypothesis formulation, problem clarity, and measurement scale selection [16]. This research includes two variables: the independent variable, represented as the use of picture media technique (x), and the dependent variable, represented as writing skill in procedural texts (y).

The research instruments used were writing tests. The test was pre-test and post-test. Each test required students to write procedure texts clearly, focusing on key assessments such as vocabulary, grammar, content, and organization.

In addition, research techniques are needed for collecting data. Data collection is a crucial process in research and machine learning, involving the gathering and processing of information to evaluate outcomes [17]. Data is collected to gather the necessary information to meet the study's objectives. Effective data collection techniques ensure that the data is relevant, reliable, and sufficiently addresses the research questions or hypotheses. Without appropriate methods, the study's results may be inaccurate, incomplete, or biased. The researchers administered a pre-test, carried out treatment, and performed a post-test to collect the data. To get the data relating to the research questions, the research collected the data as follows:

2.1 Pre-test

A pre-test was conducted before the treatment. The students were given a writing test to determine their writing skills, especially for the material taught. The researchers asked the students to create a procedural text on making juice using their own words.

2.2 Treatment

The treatment was given by the researchers in the class using picture series, and there are six meetings for the treatment with topics about how to make fried rice, noodles, a cup of coffee, french toast, fried banana, and avocado juice. The reason for choosing these topics is because, more frequently, students find it easier to understand how to make them. This research method is a pre-experimental study consisting of one group.

2.3 Post-test

The post-test was administered after the treatment was conducted. The purpose is to assess students' writing skills following the treatment. Additionally, the post-test aims to identify significant differences in students' writing skills before and after the treatment, thereby determining the effectiveness of the applied technique.

The researchers analyzed the data statistically. The assessment was based on a scoring rubric provided by SMP Negeri 1 Palasa, with a maximum score of 40 for each aspect. After collecting the tests, the researchers evaluated students' writing using analytical scores adapted from Hughes, Brown, and Henning [18-19]:

Maximum score: 40

Students score: $\frac{\text{obtained score}}{\text{maximum score}}$ x 100   (1)

2.4 Technique for Analyzing Data

Data analysis systematically applies statistical and logical techniques to describe, illustrate, and evaluate data. Data analysis aims to extract valuable information from collected data using statistical tools and machine learning techniques [20]. This can help ensure that the conclusions drawn from the research are based on actual data and not assumptions. In this study, the researchers used a simple statistical analysis. First, an analysis was carried out on individual student scores on both the pre-test and post-test using the formula proposed by Arikunto [21] as follows:

$$\sum + \frac{\chi}{n} \times 100 \tag{2}$$

After obtaining the individual student scores, the researchers analyzed the average group scores on the initial test and final test using the formula proposed by Arikunto [22] as follows:

$$m + \frac{\Sigma x}{n} \tag{3}$$

Third, to analyze the deviation score, the researchers reduced the standard score obtained in the initial test from the standard score obtained in the final test.

$$d = x_2 - x_1 \tag{4}$$

Then, the researchers analyzed the average deviation value as follows:

$$md = \frac{\Sigma d}{n}$$
$$\Sigma x^2 d = \Sigma d^2 - \frac{(\Sigma d)^2}{N} \tag{5}$$

Last, after calculating the standard deviation, the researchers applied the t-test using the t-test formula proposed by Arikunto [23] as follows:

$$t = \frac{md}{\frac{\sqrt{\Sigma x^2 d}}{N(N-1)}} \qquad (6)$$

3. RESULTS AND DISCUSSION

The findings of this study were examined using statistical analysis. To present the data, the researchers analyzed the pre-test and post-test results administered to the group. These data were utilized to evaluate the effectiveness of the treatment—namely, the use of picture series—in enhancing the writing abilities of ninth-grade students at SMP Negeri 1 Palasa. Furthermore, the researchers provided a detailed explanation of the pre-test and post-test outcomes in the subsequent sections.

3.1. The result of pre-test

The pre-test was conducted in class on March 12th, 2025. The researchers conducted a pre-test to measure the student's abilities before using a picture series. In analyzing the data taken from the pre-test, the researchers respectively presented the pre-test results.

$$\Sigma = \frac{x}{N} \text{ X } 100$$
$$= \frac{30}{40} \text{ X } 100 = 75$$

The researchers counted the mean scores of the students by applying the mean formula as proposed previously. The researchers added all standard scores and divided them by the number of students. The mean computation is as follows:

$$M = \frac{\Sigma x}{N}$$
$$M = \frac{1.202.5}{20} = 60.12$$

The mean score of the students was 60.12

3.2. The result of post-test

The researchers conducted the post-test on March 20th, 2025. After the treatment, the post-test was given to the students to improve their writing skills in procedure text through pictures series. The researchers expected the students' writing skills to be developed using picture media. After getting the result, the researchers found the mean score by applying the formula:

$$M = \frac{\Sigma x}{N}$$
$$M = \frac{1.360.0}{20} = 68.00$$

The mean score of the students was 68.00.

The computation result showed a significant difference between students' mean scores in pre-test and post-test. The students' mean score on the pre-test was 60.12, lower than the students' mean score on the post-test 68.00. It shows that student achievement increased in the post-test compared to the pre-test.

3.3. The result of deviation

After calculating the students' mean scores on the pre-test and post-test, the researchers computed the deviation and square deviation of the pre-test and post-test scores. Besides that, after getting the scores deviation between the scores of the pre-test and post-test, the researchers computed the mean deviation of the student's scores presented below:

$$\text{Md} = \frac{\Sigma d}{\text{N}}$$

$$\text{Md} = \frac{162.5}{20} = 8.12$$

After getting the mean deviation, the researchers computed the sigma square deviation as follows:

$$\sum X^2 d = \sum d^2 - \frac{(\Sigma d)^2}{N}$$

$$= 2.131.25 - \frac{(8.12)^2}{20}$$

$$= 2.131.25 - \frac{65.93}{20}$$

$$= 2.131.25 - 3.30$$

$$= 2.127.95$$

After having the sum square deviation, the researchers needed to analyze the data statistically in order to know the significant difference between the pre-test and post-test scores by using the t-counted formula as follows:

$$T = \frac{Md}{\sqrt{\frac{\Sigma X2d}{N(N-1)}}}$$

$$= \frac{8.12}{\sqrt{\frac{2127.95}{20(20-1)}}}$$

$$= \frac{8.12}{\sqrt{\frac{2.127.95}{3.30}}}$$

$$= \frac{8.12}{\sqrt{5.5893}}$$

$$= \frac{8.12}{2.36} = 3.44$$

By applying a 0.05 level of significance with the degree of freedom (df) N-1 = 19. The researchers found that the t-counted (3.44) was higher than (2.36) in the table, which means the research hypothesis was accepted.

3.4 Hypothesis

The purpose of the hypothesis was to determine whether it would be accepted or rejected based on the research findings. Specifically, the researchers aimed to verify whether picture series could enhance the writing skills of ninth-grade students at SMP Negeri 1 Palasa. The hypothesis testing criteria were as follows: if the calculated t-value (t-counted) exceeded the critical t-value (t-table), the hypothesis would be accepted; otherwise, it would be rejected.

According to this criterion, the researchers found that the t-counted was 3.44. To determine whether there was a statistically significant difference between the pre-test and post-test results, the t-counted value (3.44) was compared to the t-table value (2.36), using a significance level of 0.05 and degrees of freedom (df) = N - 1 = 20 - 1 = 19. The hypothesis was accepted since the t-counted value was greater than the t-table value. This indicates that the implementation of picture series in teaching procedural writing to students at SMP Negeri 1 Palasa was effective. The method for determining the t-table value is explained as follows:

Degree of freedom   = N - 1

                               = 20 -1

                               = 19

Level of significance = 0.05

3.5 Discussion

This research aimed to determine whether using picture series can improve the writing skills of procedural texts of grade IX students of SMP Negeri 1 Palasa. Based on the results of data processing, it was found that there was an increase in the average score of

students in the pre-test and post-test. Statistically, the t-counted value is higher than the lower t-table, indicating that picture series significantly improves students' writing ability.

The interpretation of these results shows that picture series are practical as a learning because they can help students have new ideas, help them understand the sequence of steps in the procedure text and provide a concrete picture of the object or action that must be described in their writing. This is because the procedure text requires clarity, logical sequence and specific language, all of which can be helped by visual representation.

In addition, using picture series in the learning process also helps create a more enjoyable and interactive learning atmosphere. Students appear more motivated and actively involved in writing because the pictures they see can enhance imagination and creativity. This reinforces the understanding that visual media helps in the technical aspects of writing and the affective aspects of students, such as motivation and self-confidence.

However, the results of this research show that the effectiveness of using picture series has several limitations, including, first, the research design used pre-experimental or one group without control, so it cannot fully guarantee that the increase in learning outcomes is caused only by the treatment. External factors such as teacher influence, out-of-class exercises or individual factors may also influence the results. Second, the small sample consisted of only 20 students from just one SMP Negeri 1 Palasa class. This limits the generalizability of the findings to a broader population or other school contexts. Third, limited duration only conducted for six meetings. In writing learning, a process, short learning time may be insufficient to show optimal writing skills development. Fourth, as mentioned in this research, four components of writing were assessed: the students' vocabulary, grammar, content, and writing organization. Students lacked several components and had difficulties expressing their ideas in English due to a lack of vocabulary. The problem is mainly the lack of vocabulary and ability to operate English grammar. Next, writing content must focus more on language structure and function. Last, the students had difficulty building and cutting off ideas due to limited vocabulary.

The previous research supported the results of this research as in the related studies. Firstly, the research was conducted by Nasution, which explains the importance of visual aids such as pictures and diagrams in helping students understand and produce written material [24]. However, they mention that there has not been much research that specifically examines the impact of visual media on procedural texts. This study complements the shortcomings mentioned by Nasution, namely the absence of research that discusses explicitly the influence of using picture series in writing procedural texts. In this case, the research proves that picture series media can help students write procedural texts. The results of this study also strengthen Nasution's opinion that visual media such as pictures help improve writing skills, mainly because procedural texts require a clear and systematic sequence of steps. Secondly, the research was conducted by Gendroyono, who found that picture series helped students to organize and convey ideas more clearly and increased their motivation in writing [25]. The visualization of the pictures helped students to structure their writing better. The results of this research confirmed Gendroyono's findings. Students at SMP Negeri 1 Palasa also experienced improvements in terms of writing structure and writing motivation. It was seen that the picture series provided visual stimulation that made

it easier for students to understand the logic of the procedural flow, which impacted the quality of their writing. Thirdly, the research was conducted by Tarigan. This study applied a picture-based method in two cycles, and the results showed a significant increase in students' procedural text-writing skills [26]. This study used a classroom action approach with quantitative-qualitative data cycles and analysis. Although the design was more complex, Tarigan's findings align with this research: using pictures effectively improves procedural writing skills. The difference is that this research only used a one-group design with a shorter duration but still showed positive results. This shows that even with a simple approach, the use of visual media still has a significant impact. Fourthly, Fitri conducted the research using a quasi-experimental design with a control group and found that picture series significantly improved writing components such as content, organization, and grammar [27]. So, the research did not isolate specific assessment components, but the increase in scores indicated that overall writing ability improved. Most likely, as in Fitri's study, the improvement occurred in the development of content and organization of writing because the pictures helped students understand and organize the steps of the procedure in a logical and clear order.

From the comparisons with previous studies, it can be concluded that picture series is a practical and applicable media in learning to write procedural texts. This media supports students in developing ideas, organizing steps and increasing active participation in the learning process. However, to strengthen the results, further research is recommended to use a stronger experimental design, such as an actual experiment or quasi-experiment with a control group, to expand the number of samples and measure aspects of writing in more detail. That way, the effectiveness of the picture series can be evaluated more comprehensively and accurately.

Based on the results of this research, several implications can be drawn for EFL teachers. Firstly, picture series can be a valuable tool in teaching writing, especially in procedural texts. Teachers are encouraged to incorporate visual media in their writing lessons to help students generate ideas and understand the logical sequence of steps. Picture series helps to provide clear and concrete representations of what students need to describe, making it easier for them to organize their thoughts and improve the overall quality of their writing. Secondly, the findings highlight the importance of creating a supportive and engaging environment. Teachers should leverage picture series to promote interactive learning, boosting students' motivation and self-confidence. Teachers can help students overcome limited vocabulary and grammar challenges by making writing activities more visually engaging. Furthermore, the research suggests that picture series are practical but must be used with other teaching strategies. Teachers should provide additional support in vocabulary development and grammar practice to address students' weaknesses. Additionally, because procedural text writing requires a clear organizational structure, teachers can design activities that focus on arranging ideas and connecting them cohesively and logically. Lastly, teachers should be aware of the limitations of short-term interventions. Consistent and sustained with other teaching strategies will be more effective in developing students' writing skills.

4.   CONCLUSION

This study concludes that using picture series as a teaching medium significantly enhances students' abilities to write clear and structured procedural texts. Teachers are encouraged to integrate picture series in their writing instruction to scaffold students' ideas, improve technical components (vocabulary, grammar, content, organization), and also help to enhance students' motivation and engagement. For future research, researchers could examine the effects of picture series on other types of texts and expand the scope by including more diverse student populations to validate these extend these findings.

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