

## IMPROVING STUDENTS' WRITING SKILL IN ARGUMENTATIVE TEXT THROUGH PICTURE WORD INDUCTIVE MODEL (PWIM) AT TWELVE GRADE OF SMA NEGERI 4 PEMATANGSIANTAR

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### Abstract:

This study aimed to investigate the effectiveness of the Picture Word Inductive Model (PWIM) in improving students' writing skills in argumentative texts at the twelfth grade of SMA Negeri 4 Pematangsiantar. The study was conducted in response to students' difficulties in generating ideas, organizing arguments coherently, and applying appropriate grammatical structures in argumentative writing. The Picture Word Inductive Model was implemented as an instructional strategy to help students develop vocabulary, construct ideas systematically, and improve their writing organization through visual stimuli. This research employed a quantitative approach using a quasi-experimental design involving two groups: class XII-6 as the experimental group taught using the Picture Word Inductive Model and class XII-8 as the control group taught using conventional teaching methods. Data were collected through pre-test and post-test writing tasks assessed using an analytical scoring rubric covering content, organization, vocabulary, language use, and mechanics. The findings revealed that the mean score of the experimental group increased significantly from 51.39 in the pre-test to 74.58 in the post-test, while the control group showed a smaller improvement from 54.17 to 65.97. The result of the t-test analysis showed that the obtained t-value (12.88) was higher than the t-table value (1.99) at the 0.05 significance level, indicating a statistically significant difference between the two groups. These findings suggest that the Picture Word Inductive Model effectively improves students' argumentative writing skills by enhancing idea development, vocabulary mastery, and text organization. Therefore, PWIM can be considered an effective instructional model for teaching argumentative writing in EFL classrooms.

**Keywords:** *Writing skills; Argumentative text; Picture Word Inductive Model; EFL learning; quasi-experimental research*

## I. INTRODUCTION

Language plays a central role in human life as a medium for communication, interaction, and the expression of ideas, feelings, and opinions. Through language, people are able to convey meaning, exchange information, persuade others, and build social relationships. Crystal (2017) defines language as a structured system of symbols used for communication, while Tannen (2018) emphasizes its social function in shaping identities and relationships within a community. In the context of globalization, language also functions as a bridge that connects people from different cultural and linguistic backgrounds.

Among various languages used internationally, English has emerged as the most dominant global language. It is widely used in education, science, technology, and international communication. Danesi (2017) states that English is not only a means of communication but also a cultural product that reflects the values and perspectives of its users. As a result, English has become an essential subject in Indonesian schools, where students are expected to master four language skills: listening, speaking, reading, and writing.

Writing is considered one of the most complex language skills because it requires the integration of several components, such as idea development, organization, vocabulary, grammar, and mechanics. Cole and Feng (2015) argue that writing involves the process of transforming thoughts into meaningful written language. For many EFL learners, writing is perceived as the most difficult skill to master, particularly when they are required to produce academic or argumentative texts. Students often struggle to express ideas clearly, organize arguments logically, and use correct grammatical structures.

Argumentative writing is an important genre in senior high school English learning because it develops students' critical thinking and reasoning skills. An argumentative text aims to persuade readers by presenting logical arguments supported by evidence. According to Richards and Schmidt, this type of text requires students to understand its purpose, language features, and generic structure, which typically consist of an introduction, a body of arguments, and a conclusion. However, in practice, many students face difficulties in distinguishing argumentative texts from other text types and in constructing coherent arguments.

Based on the researcher's teaching internship experience and classroom observations at the twelfth grade of SMA Negeri 4 Pematangsiantar, many students were found to have low achievement in writing argumentative texts. Most students experienced difficulties in generating ideas, developing arguments, and applying appropriate grammar. In addition, students showed low motivation and confidence in writing English texts. Their writing scores had not yet met the Minimum Mastery Criteria (KKM) of 75, indicating the need for an effective instructional strategy to improve their writing skills.

One of the contributing factors to students' writing difficulties is the limited use of engaging and supportive learning models in the classroom. Traditional teaching methods often rely on textbook explanations and written exercises, which may not effectively stimulate students' interest or support idea development. Therefore, teachers are encouraged to implement innovative instructional models that can help students visualize ideas and build vocabulary systematically.

The Picture Word Inductive Model (PWIM) is a teaching model that uses

pictures as the main stimulus to help students identify vocabulary, generate ideas, and construct sentences and paragraphs inductively. Through PWIM, students observe pictures, label objects or actions, categorize words, and use the collected vocabulary to develop written texts. This model is considered suitable for teaching writing because it provides visual support, encourages active participation, and helps students organize ideas more effectively.

Considering the students' difficulties in writing argumentative texts and the potential benefits of the Picture Word Inductive Model, this study focuses on investigating the effectiveness of PWIM in improving students' writing skills in argumentative texts at the twelfth grade of SMA Negeri 4 Pematangsiantar. The findings of this study are expected to provide pedagogical insights for English teachers in selecting appropriate instructional models to enhance students' writing performance in EFL classrooms.

## **II. RESEARCH METHOD**

### **A. Research Design**

This study employed a quantitative approach using a quasi-experimental research design with a non-equivalent control group. This design was selected because the researcher was unable to randomly assign students to groups due to the school's administrative policy. According to Ary et al. (2011), quasi-experimental research involves the manipulation of an independent variable but does not include random assignment of participants to experimental and control groups.

In this study, the independent variable was the Picture Word Inductive Model (PWIM), while the dependent variable was students' writing skills in argumentative texts. The research

involved two intact classes as samples: an experimental group and a control group. Class XII-6 was assigned as the experimental group and was taught using the Picture Word Inductive Model, whereas Class XII-8 served as the control group and was taught using conventional teaching methods.

The quasi-experimental design consisted of two main stages: a pre-test and a post-test. Before the treatment, both the experimental and control groups were given a pre-test to measure their initial ability in writing argumentative texts. After the pre-test, the experimental group received instruction through the Picture Word Inductive Model. This model guided students to observe pictures, identify and label words related to the pictures, categorize the words, and develop them into sentences and paragraphs, which ultimately supported the development of their argumentative writing skills. Meanwhile, the control group received instruction using conventional writing techniques without the application of PWIM.

At the end of the treatment, both groups were administered a post-test to measure their improvement in writing argumentative texts. The comparison between the pre-test and post-test results of the experimental and control groups was used to determine whether the use of the Picture Word Inductive Model had a significant effect on students' writing skills.



**Table 2.1 Design of the Research**

Sample	Group	Pre-Test	Treatment	Post-test
S	E	X <sub>1</sub>	Y	X <sub>2</sub>
S	C	X <sub>1</sub>	-	X <sub>2</sub>

**Explanation:**

- S : Sample  
E : Experimental Group (XII-6)  
C : Control Group (XII-8)  
X<sub>1</sub> : Pre-test for experimental and control class  
X<sub>2</sub> : Post-test for experimental and control class  
Y : Treatment by Using the Picture Word Inductive Model (PWIM)  
- : Conventional teaching method

From the table above, it can be seen that both the experimental and control groups were given a pre-test before the treatment and a post-test after the treatment. The difference between the two groups lies in the teaching strategy applied during the treatment. The experimental group was taught using the Picture Word Inductive Model, while the control group was taught using conventional writing instruction.

**B. Participants and Sampling Technique**

The participants of this study were twelfth-grade students of SMA Negeri 4 Pematangsiantar in the 2025/2026 academic year. At the twelfth-grade level, there were ten parallel classes with a total population of 360 students. From this population, two classes were selected as the research sample using a purposive sampling technique. This technique was employed because the researcher selected classes based on specific criteria rather than random selection.

The selection of the sample was based on students' previous English writing scores, which indicated that the two chosen classes had relatively similar levels of writing ability. This consideration was intended to minimize

differences in initial competence between the experimental and control groups.

Class XII-8 was designated as the experimental group, while Class XII-6 served as the control group. Each class consisted of 36 students, resulting in a total sample of 72 students. The use of intact classes without random assignment is consistent with the nature of a quasi-experimental research design, where existing groups are utilized to examine the effect of a particular instructional treatment.

**C. Research Instruments**

The primary instrument used in this study was a writing test administered in the form of a pre-test and a post-test. The test required students to write an argumentative text based

on a given topic. The topics were carefully designed to be familiar, relevant, and appropriate to the students' level in order to stimulate idea development, critical thinking, and meaningful written expression. The same test format was used for both the pre-test and post-test to ensure consistency in measuring students' writing performance before and after the treatment.

Students' writing performance was assessed using an analytical scoring rubric adapted from Jacobs et al. (1981). The rubric evaluated five key components of writing, namely content, organization, vocabulary, language use, and mechanics. Each component was scored separately, and the total score represented the students' overall writing ability on a scale ranging from 0 to 100. The use of an analytical rubric allowed for a more detailed and objective assessment of students' strengths and weaknesses in writing.

To establish the validity of the instrument, the writing test and the scoring rubric were examined by two lecturers from the English Education Department and one senior high school English teacher. Their evaluations focused on content validity, clarity of instructions, and the appropriateness of the test for measuring argumentative writing skills at the twelfth-grade level. Based on their feedback, minor revisions were made to enhance the clarity and suitability of the instrument.

The reliability of the instrument was examined through a pilot test conducted in a class outside the research sample. The students' writing scores from the pilot test were analyzed using Cronbach's Alpha formula. The analysis yielded a reliability coefficient of 0.87, which indicates a high level of reliability and suggests that the instrument was

consistent and dependable for assessing students' argumentative writing skills.

#### **D. Research Procedures**

The research procedures of this study were conducted in three main stages: pre-test, treatment, and post-test.

The first stage was the pre-test. In this stage, a writing test was administered to both the experimental and control groups to measure students' initial ability in writing argumentative texts. The pre-test served as a baseline to identify students' writing competence before the implementation of the instructional treatment. Both groups were given the same test and instructions to ensure equal conditions.

The second stage was the treatment. During this stage, the experimental group received instruction through the implementation of the Picture Word Inductive Model (PWIM). The treatment was conducted over several teaching sessions. In each session, students were presented with pictures related to particular issues or topics. They were guided to observe the pictures carefully, identify and label key vocabulary, categorize the words, and use the collected vocabulary to construct sentences. These sentences were then developed into coherent argumentative paragraphs. The PWIM activities were designed to help students generate ideas, expand vocabulary, and organize arguments more effectively.

Meanwhile, the control group was taught using conventional teaching methods. The instruction focused on teacher explanations, textbook-based exercises, and individual writing practice without the use of pictures or the PWIM strategy.

The final stage was the post-test. After the completion of the treatment,

both the experimental and control groups were given a post-test using a writing task similar in format and level of difficulty to the pre-test. The post-test was administered to measure students' improvement in writing argumentative texts after the treatment.

Finally, the results of the pre-test and post-test from both groups were compared and analyzed to determine the effectiveness of the Picture Word Inductive Model in improving students' argumentative writing skills.

#### **E. Data Analysis Technique**

The data obtained from the writing tests were analyzed using quantitative statistical techniques. The analysis began with descriptive statistics to summarize students' writing performance in both the experimental and control groups. The descriptive statistics included the calculation of mean scores and standard deviations for the pre-test and post-test results, which were used to describe the distribution and variation of students' writing scores.

Prior to hypothesis testing, assumption tests were conducted to ensure the suitability of parametric statistical analysis. These included tests of normality and homogeneity of variance. After the assumptions were met, an independent samples t-test was employed to examine whether there was a statistically significant difference between the post-test scores of the experimental group and those of the control group.

The level of significance was set at 0.05 ( $\alpha = 0.05$ ). If the obtained significance value (p-value) was less than 0.05, the null hypothesis was rejected, indicating a significant effect of the Picture Word Inductive Model on students' argumentative writing skills.

Conversely, if the p-value was greater than 0.05, the null hypothesis was accepted.

The results of the statistical analysis were used to test the research hypothesis and to determine the effectiveness of the Picture Word Inductive Model in improving students' writing skills in argumentative texts.

### **III. RESULTS AND DISCUSSION**

This section presents the findings of the study and discusses the effects of the Picture Word Inductive Model (PWIM) on students' writing skills in argumentative texts. The data were obtained from pre-test and post-test writing scores of twelfth-grade students of SMA Negeri 4 Pematangsiantar, involving class XII-8 as the experimental group and class XII-6 as the control group. Both groups were given the same writing tests before and after the treatment to measure their writing improvement.

Students' writing performance was assessed using an analytical scoring rubric adapted from Heaton (1990) and Brown (2004), which evaluated five aspects of writing: content, organization, vocabulary, language use, and mechanics. The Minimum Mastery Criteria (KKM) for English at the school was set at 75. Students who obtained scores of 75 or above were categorized as having achieved mastery, while those who scored below 75 were considered not yet successful. The data were analyzed quantitatively by comparing mean scores, standard deviations, and the number of students who met the KKM in both groups.

#### **A. Experimental Group**

Prior to the implementation of the Picture Word Inductive



Model, the students in the experimental group were given a pre-test to determine their initial ability in writing argumentative texts. The results of the pre-test indicated that most students experienced difficulties in developing ideas, organizing arguments coherently, and using appropriate vocabulary and grammatical structures.

After the pre-test, the experimental group received treatment through the application of

the Picture Word Inductive Model. In this learning process, students were presented with pictures related to particular issues, identified and labeled relevant vocabulary, grouped words into meaningful categories, and used the collected vocabulary to construct sentences and develop argumentative paragraphs. After several instructional sessions using PWIM, a post-test was administered to measure students' improvement.

**Table 1. Students' Listening Scores in the Experimental Group**

TEST	SUM	MEAN	SD	STUDENTS	STUDENTS	TOTAL
				PASSED	FAILED	
Pre-Test	1850	51.39	7,85	5	31	36
Post-Test	2685	74.58	7,42	24	12	36

As shown in Table 1, the mean score of the experimental group increased significantly from 51.39 in the pre-test to 74.58 in the post-test, indicating an improvement of 23.19 points. In addition, the number of students who achieved the Minimum Mastery Criteria (KKM) increased from 5 students (13.9%) in the pre-test to 24 students (66.7%) in the post-test. This substantial improvement suggests that the implementation of the Picture Word Inductive Model effectively enhanced students' writing skills in argumentative texts, particularly in terms of idea development, vocabulary enrichment, and text organization.

## **B. Control Group**

The control group was taught using conventional teaching methods, which mainly involved textbook-based explanations and individual writing exercises without the use of PWIM. Similar to the experimental group, the control group was also given a pre-test and a post-test to measure their writing progress.

**Table 2. Students' Writing Scores in the Control Group**

TEST	SUM	MEAN	SD	STUDENTS PASSED	STUDENTS FAILED	TOTAL STUDENTS
Pre-Test	1950	54.17	8.03	11	25	36
Post-Test	2375	65.97	7,91	16	20	36

As presented in Table 2, the mean score of the control group increased from 54.17 in the pre-test to 65.97 in the post-test, showing an improvement of 11.8 points. The number of students who met the KKM also rose slightly from 11 students (30.5%) to 16 students (44.4%). Although there was some improvement, the increase was relatively modest compared to that of the experimental group, indicating that conventional teaching methods were less effective in improving students' argumentative writing skills.

### **C. Comparison Between Experimental And Control Group**

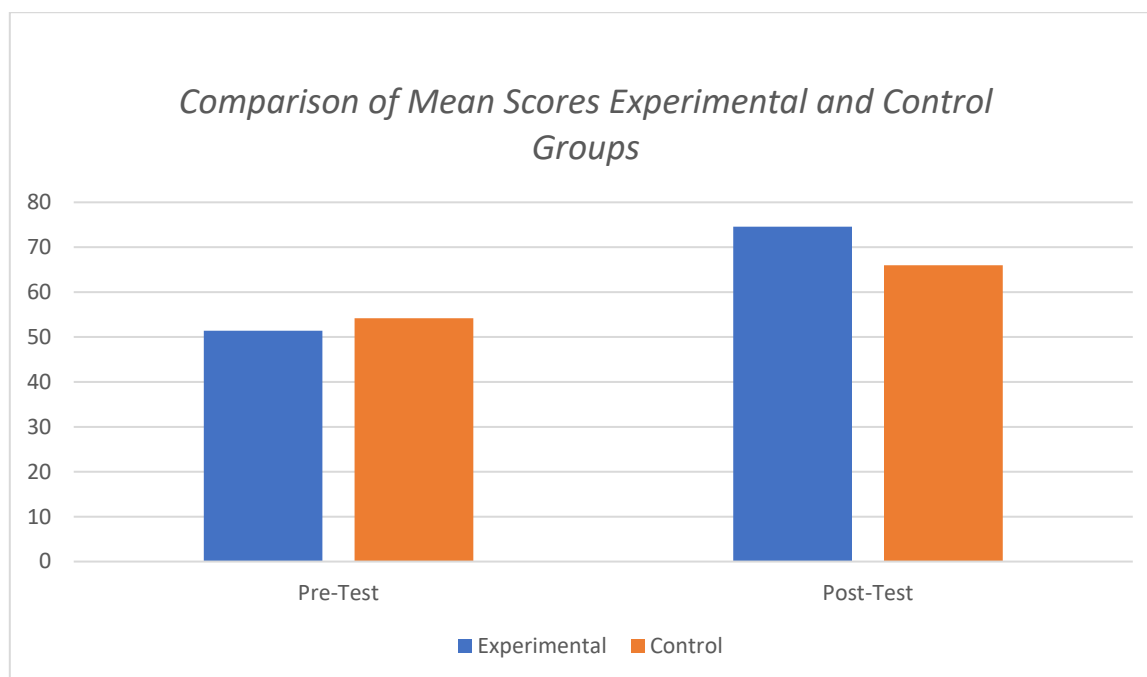
The comparison between the experimental and control groups demonstrates that both groups experienced improvement in their writing performance; however, the experimental group showed significantly greater progress. The mean score improvement in the experimental group (23.19 points) was nearly double that of the control group (11.8 points). Furthermore, the standard deviation values in both groups decreased after the treatment, indicating more consistent student performance, with a greater reduction observed in the experimental group.

The significant improvement in the experimental group can be attributed to the characteristics of the Picture Word Inductive Model. PWIM provides visual stimuli that help students generate ideas more easily, expand their vocabulary, and organize their thoughts systematically before writing. By actively involving students in observing pictures, identifying key words, and constructing sentences inductively, PWIM encourages active learning and reduces students' anxiety in writing. These findings support previous studies which reported that visually supported inductive models can enhance students' writing skills, particularly in argumentative or opinion-based texts.

Overall, the results of this study indicate that the Picture Word Inductive Model has a significant positive effect on students' writing skills in argumentative texts. Compared to conventional teaching methods, PWIM not only improved students' writing scores but also increased the number of students who achieved the Minimum Mastery Criteria, demonstrating its effectiveness as an instructional model in EFL writing classrooms.



Figure 1. Comparison of Pre-test and Post-test Mean Scores



This figure shows the comparison of students' mean writing scores in the experimental and control groups before and after the implementation of the Picture Word Inductive Model (PWIM).

#### IV. CONCLUSION

This study concludes that the Picture Word Inductive Model (PWIM) is empirically proven to be an effective instructional model for improving students' writing skills in argumentative texts in an EFL senior high school context. The results of the quasi-experimental analysis indicate that students who were taught using PWIM achieved significantly higher writing performance than those who were taught using conventional teaching methods. This significant difference confirms that the improvement in students' writing ability was not incidental, but was directly attributable to the systematic implementation of PWIM during the instructional process.

The substantial improvement observed in the experimental group demonstrates that

PWIM effectively supports the essential components of argumentative writing, including idea generation, vocabulary development, logical organization, and appropriate language use. Through an inductive learning process supported by visual stimuli, PWIM enables students to construct meaning progressively from identifying words, forming sentences, to developing coherent and well-structured argumentative paragraphs. This learning process promotes deeper cognitive engagement and helps reduce common difficulties faced by EFL learners, such as limited ideas, weak argument structure, grammatical inaccuracy, and low writing confidence.

Furthermore, the comparative findings between the experimental and control groups highlight the pedagogical advantages of PWIM over traditional teaching approaches. The greater increase in mean scores and the higher proportion of students who achieved the Minimum Mastery Criteria (KKM) in the experimental group indicate that PWIM

functions as a learner-centered instructional model that actively involves students in the construction of knowledge rather than passive reception. These findings contribute to the existing body of EFL writing research by providing quantitative evidence that visually supported and inductive learning models can significantly enhance students' argumentative writing performance.

In conclusion, the Picture Word Inductive Model offers both pedagogical and theoretical value in the teaching of EFL writing. Pedagogically, PWIM provides English teachers with an effective and engaging alternative strategy for teaching argumentative writing that fosters active learning, critical thinking, and systematic idea development. Theoretically, this study reinforces the relevance of inductive and visual-based learning frameworks in improving higher-order writing skills in EFL contexts. Therefore, PWIM is strongly recommended for integration into senior high school EFL writing instruction, particularly for teaching argumentative or opinion-based genres. Future research is encouraged to explore the application of PWIM across different educational levels, text genres, and research designs—such as mixed-method or longitudinal studies to further investigate its long-term effectiveness and broader instructional potential.

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