Vocabulary Enrichment through Picture Word Inductive Model (PWIM)

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Abstract

Vocabulary is one of the important aspects in learning English. This study sought the answer of the following question: 1). Is there a significant difference on the students who are taught using Picture Word Inductive Model (PWIM) to improve vocabulary knowledge and students who were taught using conventional method? The sample in this research are 8th grade students of SMPN 3 Parongpong, Bandung Barat in academic year 2019/2020. The students were divided into two groups, one class was taught using Picture Word Inductive Model (PWIM) and the other one was taught using conventional method. This is quantitative research with an experimental design. The instrument used for this study was vocabulary test, which contained 35 questions. The result of the study showed that the pre-test for the experimental group was 51.73 and the conventional group was 51.63 while the post-test results for the experimental group was 78.63 and the conventional group was 60.83. In summary, it can be concluded that there is a significant different between students who were taught using Picture Word Inductive Model (PWIM) and the students who were taught using conventional method in improving students' vocabulary knowledge. For further researcher, this study can be a reference for researchers to do another study with different level of students.

Keyword: *vocabulary knowledge, Picture Word Inductive Model (PWIM) method, experimental.*

INTRODUCTION

Language is used to communicate ideas and emotions. Language can be used to communicate an idea. People will find it difficult to communicate their ideas and messages if they do not have access to language. A vocabulary is a list of words for a specific language or a set of words that a single speaker of a language may use. It means that vocabulary is essential in communicating with others in both first language or mother tongue and foreign language. Without vocabulary, no one can effectively communicate or express ideas orally or in writing, even in first and second languages (Hatch & Brown, 1995; Zimmerman in Coady & Huckin, 1998). To put it another way, vocabulary is the heart of language.

Vocabulary is an important part of learning English. Many foreign language learners, particularly Indonesian students, find it difficult to learn English because the vocabulary in English is not the same as the vocabulary in Indonesian, including elocution and spelling. As a result, many English learners struggle with vocabulary; students struggle with English because they have a limited vocabulary. In fact, the students' vocabulary knowledge is limited, making it difficult for them to understand English sentences and words (Rohmatillah, 2014; Khan, Radzuan, Shahbaz, Ibrahim, & Ghulam, 2018). The most difficult aspect of learning English is vocabulary.

Many secondary school teachers instruct their students in vocabulary memorization. It bores and demotivates students who want to learn English, especially to improve their vocabulary. Students can benefit from vocabulary learning if they learn at a rapid pace and understand the concept of words before the concept of grammar. It's important to learn or present vocabulary carefully and precisely, but the English teacher can begin by introducing things that students can see, feel, play with, touch, and experience on a daily basis. This is why

an effective vocabulary teaching strategy is critical, as it determines the outcome of vocabulary instruction. Word mapping, dictionary, picture, guessing, and authentic material are just a few of the strategies for teaching vocabulary in Junior High School. English vocabulary teaching is under pressure in many schools due to a variety of factors and challenges (Marpaung, 2021, Marpaung & Situmeang, 2020).

Calhoun developed the Picture Word Inductive Model (PWIM), which uses images of familiar objects, actions, and scenes to elicit words from children's listening and speaking vocabularies. This model assists students in adding words to the appropriate reading and writing vocabulary, as well as discovering phonetic and structural principles present in those words. This model is a useful tool for teachers to use as they strive to meet their goals for all students, and it may help students improve their vocabulary learning achievement (Yuliana, 2011). The use of the Picture Word Inductive Model (PWIM) encourages students to think inductively by seeing the pictures and identified words to build sentences, and it can attract students to learn English in a fun and easy way.

The goal of the study is to see if there is a significant difference in vocabulary knowledge between students taught using the Picture Word Inductive Model (PWIM) and students taught using the traditional method. Three research questions were developed to answer the study's objective:

Research Question

1. What are the students' prior knowledge?
2. Is there a significant difference in vocabulary knowledge between students who were taught using the Picture Word Inductive Model (PWIM) and students who were taught using the traditional method?

The Hypothesis of the Study

Null Hypothesis (H_o) - There is no difference between students taught using the Picture Word Inductive Model (PWIM) and students taught using the traditional method.

Alternative Hypothesis (H_a) - There is a difference between students taught using the Picture Word Inductive Model (PWIM) and students taught using the traditional method.

LITERATURE REVIEW

The fourth ability in English, listening, speaking, reading, and writing, is the most important aspect of language learning. Vocabulary is an essential part of learning a foreign language. If we don't have a large vocabulary, we tend to be unable to communicate effectively. Vocabulary is the most important aspect of language because it influences all four language skills: listening, speaking, reading, and writing. Mariannce (in Murcia, 2001) stated that vocabulary learning is critical to language acquisition, whether it is the first, second, or foreign language.

Calhoun developed the Picture Word Inductive Model (PWIM), which employs images of familiar objects, actions, and scenes to elicit words from children's listening and speaking vocabularies. This model helps students add words to their correct reading and writing vocabulary while also discovering phonetic and structural principles present in those words. PWIM serves several purposes. It is used to get students to ask questions about words, add words to their sight-reading and writing vocabularies, discover phonetic and structural standards, and use perception and examination in their thinking about reading and writing.

The goal of using PWIM is to teach young readers to think inductively and generalize mindfulness of phonetic and auxiliary rules by developing locate vocabularies, learning basic investigation of words and sentences, and writing sentences passage. The strategy also aims to

assist students in improving their vocabulary concepts, paragraphs, and sentence structures in general content subjects such as math, reading, science, and social science. This strategy's ultimate goal is to assist language beginners in becoming proficient language learners. The Picture Word Inductive Model's primary goal is to capitalize on students' ability to think inductively and generalize the foundation structural and phonetic analysis. They also state that the goal of this strategy is to assist students in the development of vocabulary, word concepts, paragraph and sentence structures. Because of that, this strategy, students can compose their writing from the basic aspect such as vocabulary". PWIM could also be a rewarding and enjoyable activity. Students enjoy discovering objects and activities within the image, seeing their words and sentences communicated in print and becoming a part of educational programs, classifying words and sentences, and discovering useful dialect concepts and generalizations. Students are persuaded by the PWIM because they have become effective learners. Learner's benefit from the show because it is based on research into how children learn and how to improve their learning, including language advancement, learning method, and reading and writing association (Calhoun, 1999; Jiang and Perkins, 2013).

According to Calhoun (1999), the advantages of the Picture Word Inductive Model are as follows:

1. Standard English phonics, grammar, mechanics, and usage are emphasized in the strategy.
2. Images serve as concrete referents for new words, phrases, and sentences when learning them.
3. Students feel a part of the classroom community and can participate in class activities because they are using images related to the content being studied.
4. The picture word chart serves as an immediate reference for students as they work to add these words to their sight vocabulary. The teacher can highlight almost any sound-to-symbol relationship (introduced or taken to mastery).
5. Students are assisted in recognizing patterns and relationships in the English language, allowing them to apply what they have learned to new words.
6. Students hear and see correctly spelled words, and they take part in proper spelling and writing.
7. With extensive practice, they can begin to learn how to create sentences and paragraphs related to the subject under study.

Related Studies

Studies have been conducted the use of PWIM in improving vocabulary. A study was conducted by Bermillo & Remollo (2022) entitled, "Picture Word Inductive Model (PWIM) on Students' Vocabulary Achievement and Attitude. The result of the study showed that PWIM is effective in improving the students' vocabulary achievement. Study was done by Kamarudin (2021) with a title, "The Effect of Picture Word Inductive Model (PWIM) on Students' Vocabulary Mastery." The result of the study showed that there was a positive effect to the students' vocabulary mastery. Research was conducted by Jannah (2020) entitled, "The Effectiveness of Using Picture Word Inductive Model (PWIM) in Improve the Students' Vocabulary Mastery." The students improve their vocabulary mastery when learning using PWIM.

Conceptual Framework

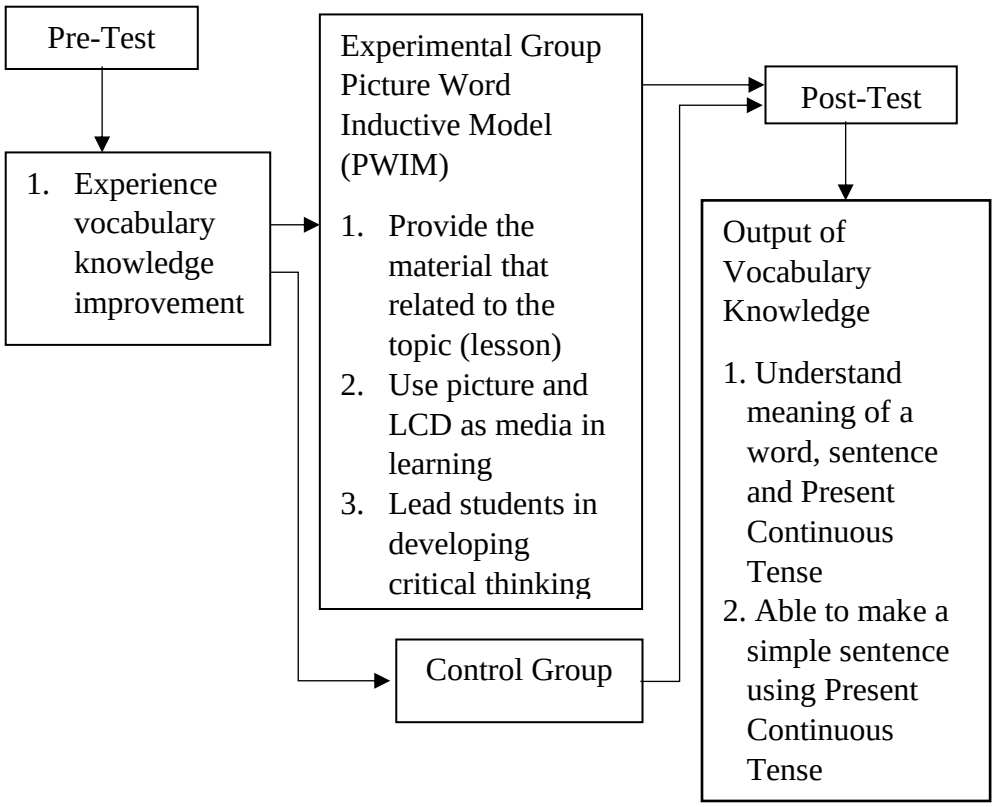

Figure 1. Conceptual Framework

METHODOLOGY

Research design

In this study, quantitative research was used. Quantitative research is based on the measurement of quantity or amount. Furthermore, quantitative research explains phenomena by collecting numerical data that is then analyzed using mathematically based methods (in particular statistics). To analyze the data, the researcher employed statistical methods. (Kothari, 2004; Aliaga & Gunderson, 2008). The researcher used experimental design in this study. They were the control class and the experimental class. This study is classified into two groups, class VIII C as the experimental group and class VIII D as the control group. The two groups took a pre-test and a post-test. Only the experiment group receives the treatment of the Picture Word Inductive Model (PWIM), while the control group was taught the method used the teacher's method in that school or traditional method.

Table 1. Research Procedures

Group	Pre-test	Treatment	Post-test
Experimental	A1	X	A2
Control	A1	O	A2

Where,
A1 : Pre-Test
A2 : Post-Test
X : Picture Word Inductive Model (PWIM)
O : control group

(Purnamasari, 2017)

Research Participants

The population in this study was grade students 8 in one of the public schools in Parongpong – Bandung Barat area. The total population was 60 students and it was divided into two classes. Grade VIII C was the experimental group while class VIII D was the control group. Both classes scheduled were held in the morning. For Junior high school, the English subject is held twice in a week

Research Instruments

Before administering the treatment to the study's population, the researchers conducted a pilot test to determine the validity of each question that would be used in the pre-test. After receiving validation for the pre-test, the researchers administered the pre-test to both groups of this study, the experimental group and the control group.

A pre-test was given to each group to determine the students' prior knowledge. The experimental group was then given a treatment in vocabulary learning using the Picture Word Inductive Model (PWIM), whereas the control group used the control method. After the treatment, both groups were given a post-treatment test to see if their vocabulary had improved.

Pilot Test

Pilot-test is conducted to know whether the test is valid or not, and also to know if the questions provided are suitable for the subjects. The test is adopted from the material that is taught for the junior high school level. The students had to choose the correct answers to the options given. The pilot test consisted of fifty questions with target vocabularies are nouns, verbs, and adjectives. There are several numbers for the noun there are questions number (1, 4, 6, 7, 10, 14, 19, 25, 26, 28, 32, 39, 41, 44, 46, 48) number for verbs there are questions number (2, 3, 9, 12, 16, 18, 20, 23, 27, 33, 36, 37, 43, 45, 47, 49, 50) and number for adjective there are questions number (5, 8, 11, 13, 15, 17, 21, 22, 24, 29, 30, 31, 34, 35, 38, 40, 42).

Pre-Test

There are thirty-five questions of the pre-test conducted to diagnose the students' vocabulary prior ability and it is conducted before the researchers gave the treatment. The pre-test instrument was designed in a vocabulary test consisting of multiple-choice questions.

Post-Test

Post-test was given after giving the treatment to the students to see the students' improvement after the treatment. Post-test was used to examine the effectiveness of the Picture Word Inductive Model strategy.

Research Procedures

A pre-test was given before treatment in a junior high school class of grade VIII students. This was done to determine the student's initial knowledge as well as to identify the problem they were facing. They took the test individually, and the pre-test consisted of 35 questions. The experimental class received Picture Word Inductive Model (PWIM) treatment, while the control class received the traditional method. The study included six meetings for each class. Following the completion of the treatment for both classes. The researchers administered a post-test to both classes. As a result, the data needed to answer the research question was gathered by administering pre-test and post-tests to the experiment and control classes.

Treatment Procedures

The treatment was given based on the materials provided in the lesson plan. The first class was taught using Picture Word Inductive Model (PWIM) through the use of LCD as the tool used to deliver the lesson while the other class was treated as the control class and there was no treatment used in teaching the control class. The researcher then assigned exercises or tasks based on the material, which the students were to complete individually. At the end of the class of each meeting, the researcher and the students discussed the task to see if the students' answers were correct. During the discussion, the researchers also assessed the students' vocabulary comprehension abilities.

Table 2. Treatment Procedure

Class A (PWIM)	**Class B (Control Class)**
• The teacher starts the class with the learning program file, which is related to the rule competence and basic competences from the grade eight of junior high school guide book. • The teacher gives tasks to be done individually. • The tasks consist of several steps to be monitored, as follows: 1. Select a picture: • The teacher will select the picture based on the topic today, is about "What are you doing?" • Shows the picture to the students about someone's activity at the time. 2. Identifying the picture:	• The teacher starts the class with the learning program file, which is related to the rule competence and basic competences from the grade eight of junior high school guide book. • The teacher gives tasks to be done individually. • The tasks consist of several steps to be monitored, as follow: 1. The teacher explained what is the topic of the lesson. - Gave Present Continuous Tense formulas - Gave the simple sentence using Present Continuous Tense 2. The teacher asks the students to do the task from book page 103-104.

• The students will identify the picture based on what they have seen. 3. Label the picture: • The students will draw a line to label the picture that they have seen. write their own word based on the picture and read aloud one by one. 4. Read and review: • Each student read the vocabulary they found in front of the class to make sure does the students understand and remember well the word of the picture. 5. Classify the words: • Classify words to the common concepts (e.g., verb, adjective, noun). 6. Add words, to the picture word chart and to the word banks. 7. Read and review the word chart (say the word, spell it, and say it again). • Teacher explains about present continuous tense. • Make a simple sentence using present continuous tense. • Teacher asks questions to students to help them reflect on their learning activity. • Teacher summarizes today's lesson. • Closing and good bye. *Adapted from Rohmah (2016)*	3. Asks the students to write down the new vocabulary that they get from the book. 4. Learners work on make a sentence that related to the situation/ to their friends' activities at the time. 5. The teacher checks and gives score to their task. Teacher asks questions to students to help them reflect on their learning activity. • Teacher summarizes today's lesson. • Closing and good bye.

RESULTS & DISCUSSION

Validity test

The validity test was designed to determine whether or not the instrument test should be used in this study. The following criteria were used to assess the instrument's validity.

Table 3. Validity Question

Number of Question	Interpretation	Rxy
5,10,24,27,31,42,46	Not Valid	≤0.00
2,3,4,7,29,30,41,47,48,49	Very Low	00 – 0.20
8,9,17,20,32,44	Low	0.21 – 0.40
12,16,21,26,34,38,43,50	Moderate	0.41 – 0.60
1,6,11,13,14,15,18,19,22, 23,25,28,33,36,37,39,40,45	High	0.61 – 0.80
-	Very High	0.81 – 1.00

Reliability Test

Reliability is to see the consistency of a test when the test was given in the same subject to students. The reliability level of the pilot test is 0.90 which means it has a high level.

Table 4. Classification Reliability

Interpretation	Amount of r_{11}
Very Low	$r_{11} \leq 0{,}20$
Low	$0{,}21 \leq r_{11} < 0{,}40$
Moderate	$0{,}41 \leq r_{11} < 0{,}70$
High	$0{,}71 \leq r_{11} < 0{,}90$
Very High	$0{,}91 \leq r_{11} \leq 1{,}00$

(Arikunto, 2013)

Discrimination Index

The instrumenation index of item is the ability to distinguish between good students (high ability) and the students who are less in intelligent (low ability). There were 9 items were very bad category, 18 items in poor category, 14 items in satisfactory category, 4 items in good category, and 5 items in excellent category.

Table 5. Discrimination Index

Number of Question	Interpretation	Rxy
5,10,17,24,27,30,31,42,46	Very bad	≤0.00
1,3,4,7,8,13,15,16,22,28, 29,32**,** 36,41,43,45,47,48	Poor	00 – 0.20
2,11,12,14,18,19,20, 21,23,25,26,33,39,49	Satisfactory	0.21 – 0.40
9,34,38,44	Good	0.41 – 0.60

6,35,37,40,50	Excellent	0.61 – 0.80

Level of Difficulty

Good question is a question that is used to determine difficulty level of that question. Test items of a wide range of difficulty levels are needed to test the entire range of candidates achievement levels. Tests that contain too many easy or too many difficult test items would result in shewed mark distributions. According to the table below, most of the items are in the level *p=1.00,* which is 30 items. Thus, the difficulty level of the test is very easy. Based on the recapitulation test, this researcher used 35 questions for pre-test and post-test. There were questions numbers: 1, 4, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 28, 32, 33, 34, 35, 36, 37, 38, 39, 40, 43, 44, 45, 50. Those are based on the result of questions analysis; that the 35 questions were able to measure the students' ability in enriching students' vocabulary knowledge and fulfil the indicator of vocabulary knowledge.

Table 6. Difficulty Level

Number of Question	**Interpretation**	**Rxy**
4,5,7,10,31,32,46	Very Difficulty	≤0.00
42	Difficulty	00 – 0.30
2,6,8,17,20,27,30,	Moderate	0.31 – 0.70
37,38,40,48,50		
3,9,34,35,44,49	Easy	0.71 – 1.00
1,11,12,13,14,15,16,18,19,21,22,23,	Very easy	>1.00
24,25,26,28,29,33,36,39,41,43,45,47		

Data Analysis

To answer research question number one, the result can be seen on table 6. In analysing the data, researcher calculated the data of pre-test, post-test and the data of normalized gain. Researcher calculated those data of Picture Word Inductive Model (PWIM) and the control group by using SPSS. The data was summarised on table 6.

Table 7. Result of Pre-Test, Post-Test, Standard Deviation and Normalized Gain

	Experimental Group		**Control Group**	
	Mean	Standard Deviation	Mean	Standard Deviation
Pre-Test	51.73	8.554	51.63	8.066
Post-Test	78.63	7.609	60.83	5.772
Normalized Gain	0.43855	0.27714	0.15256	0.13877

Table 6 shows that the initial knowledge of both groups is equal. The pre-test score of the experimental group was 51.73 as the mean score and the standard deviation was 8.554. Meanwhile, the pre-test score of the control group was 51.63 as the mean score and the standard deviation was 8.066. It can be concluded that both groups initial score was at the same level. However, after the treatment was given to the experimental group, it showed

differences. The experimental group's mean score of post-test was 78.63 with standard deviation was 7.609 while the control group's mean score of post-test was 60.83 with standard deviation was 5.772. It indicated that there was an improvement on the post-test of both groups after the treatment was given. Therefore, it can be concluded that Picture Word Inductive Model (PWIM) are effective to improve students' vocabulary knowledge. It is proved from the gain of the experimental group was 0.43855 higher than the control group was 0.15256.

Normality Test of the Pre-Test

Normality test was conducted to see whether the data obtained was normally distributed or not. H_0 is accepted if the p-value is greater than α (0.05). However, H_0 is rejected if the p-value is lesser than or equals α (0.05). Table 2. showed the result of the pre-test score for both groups.

Table 8. Normality Test of the Pre-test

Group	Shapiro-Wilk		
	Statistic	Df	Sig.
Pre-test Experimental	0.940	30	0.089
Pre-test Control	0.941	30	0.095

Table 7 shows that the score of the pre-test for both the experimental and the control group were normally distributed where the experimental group was 0.089 which was > 0.05 and the control was 0.095 which was > 0.05. It meant both experimental group and the control group were normally distributed because the result of the data is >0.05.

Homogeneity Test of the Pre-test

Homogeneity test is a test to find whether the data obtained is homogeneous or not. The result of the homogeneity test can be seen on the table 3.

Table 9. Homogeneity Test of Pre-Test's Score

	Levene Statistic	df1	df2	Sig.
Pre-test	.206	1	58	.651

Based on the table 8, it can be seen that the data was homogenous because the variance of the Pre-test was 0.651 > 0.05. Since normality test was normally distributed and the result of homogeneity test was homogeneous, the Independent Sample t-test was conducted

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Hypothesis Testing

Since the pre-test population is normally distributed, then independent sample t-test was done. The result calculation can be seen on the table 9.

Table 10. Independent Sample T-test for Pre-Test

	Levene's Test		T-test for Equality of Means		
	F	Sig.	T	df	Sig. (2-tailed)
Equal variances Assumed	.206	.651	.047	58	.963

The result on table 9 shows that the independent sample t-test above, the researcher considers only the row for equal variances assumed because the population variance is homogeny. Since the value of the pre-test score is 0.651 which is > 0.05, it means that H_0 is not

rejected which means there is no significant difference on the vocabulary knowledge pre-test among two groups.

Normality Test

Normality test was conducted to see whether the data obtained was normally distributed or not. H_0 is not rejected if the p-value is > 0.05 but H_0 is rejected if the p-value is < 0.05. The table 10 shows the result of the normality test.

Table 11. Normality Test of Gain Score

Group	Shapiro-Wilk		
	Statistic	Df	Sig.
Gain Experimental	.851	30	.001
Gain Control	.788	30	.000

Based on the result on table 5, it is shown that normalized gain for experimental group and control group are not normally distributed, it proved from the significant of experimental group was 0.001 < than 0.05 and the significant of control group was 0.000 < than 0.05. Since the gain population was not normally distributed, then, Mann-Whitney (Nonparametric Test) was conducted.

Homogeneity Test

To determine the variance of the two groups, whether both experimental were homogeneous or not, researcher used homogeneity test.

Table 12. Homogeneity Test of Gain Score

Levene Statistic	Df1	Df2	Sig.
13.622	1	58	.000

Since both experimental group and conventional group data were not normally distributed, then homogeneity test was conducted, the significant of homogeneity test was 0.000 < than 0.05 which means the population variances were not homogeneity.

Nonparametric Test of the Normalized Gain

Based on the table 12. the result of nonparametric test showed that the sig (2-tailed) was 0.001 < than 0.05. It meant Ho was rejected and Ha was accepted. There was a significance difference between students who were taught using Picture Word Inductive Model (PWIM) and who were taught using conventional method.

Table 13. The result of Nonparametric Test of Normalized Gain

Test Statistics	
	Gain
Mann-Whitney U	231.000
Wilcoxon W	696.000
Z	-3.241
Asymp. Sig. (2-tailed)	.001

DISCUSSION

The result of the result there was significant difference on the students' vocabulary knowledge using Picture Word Inductive Model (PWIM). From the result of the normalized gain, we can see that the experimental group got 0.001 and the control group got 0.000. Therefore, it can be said that students who were taught using Picture Word Inductive Model

(PWIM) achieved higher score compare to the students that were not taught using Picture Word Inductive Model (PWIM).

According to researchers' experience in the field, the students' that were taught using Picture Word Inductive Model (PWIM) found more attractive learning English using PWIM and students was given more attention to learn English. The researchers used LCD to shown the picture to make them enthusiastic in learning vocabulary and this is a new learning strategy for them, they have shown interest to learn English because Picture Word Inductive Model (PWIM) help them to understand the English lesson easier.

The students of VIII C as the experimental group got a higher score than students of VIII D as the control group. It can be seen from the significant value was $0.001 < 0.05$, so that meant H_0 is rejected, then the answer of the research statement, Is there a significant difference between students who were taught using the Picture Word Inductive Model (PWIM) to improve vocabulary knowledge and students who were taught using the traditional method? From the results and the explanation above, it proved that Picture Word Inductive Model (PWIM) could help the students to improve their vocabulary knowledge.

The researchers concluded that Ha, or the alternative hypothesis, is accepted after interpreting the data. The answer the second question, "Is there a significant difference on the students who were taught using Picture Word Inductive Model (PWIM) in enhancing vocabulary knowledge and students who were taught using Control method," was that there was a significant difference between students who were taught using Picture Word Inductive Model (PWIM) in enhancing vocabulary knowledge and students who were taught using Conventional method.

This study also supported by other researchers that studied the use of Picture-word Inductive model in teaching English. A study was conducted by Gu & Lornklang in 2021 entitled, "The use of Picture-word Inductive Model and Readers' Theater to Improve Chinese EFL Learners' Vocabulary Learning Achievement. Another study was conducted in 2020 by Triwahyuni, Degeng, Kuswandi & Setyosari entitled, "The effects of picture word inductive model (PWIM) toward student's early reading skills of first-grade in the primary school." In 2019 a study conducted by Lee, Pandian, Rethinasamy & Tan entitled, "Effects of PWIM in the ESL Classroom: Vocabulary Knowledge Development Among Primary Malaysian Learners."

CONCLUSION

Based on the result of this study between students who were taught using the Picture Word Inductive Model (PWIM) and students who were taught using the Control method, it was discovered that the Picture Word Inductive Model (PWIM) was more effective in helping students improve their vocabulary knowledge score. It was proven by the normalized gain.

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