

## Effectiveness of using pictures to improve vocabulary of eighth grade students at Smp Teladan Pematangsiantar

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### ABSTRAK

**Kosakata memiliki peranan yang sangat penting dalam pembelajaran bahasa Inggris karena secara langsung memengaruhi kemampuan siswa dalam memahami, berkomunikasi, dan mengekspresikan ide secara efektif. Namun, banyak siswa tingkat SMP mengalami kesulitan dalam mempertahankan dan menggunakan kosakata akibat metode pembelajaran tradisional yang masih menekankan hafalan dan penerjemahan. Penelitian ini berupaya mengisi kesenjangan tersebut dengan menguji efektivitas penggunaan media gambar dalam meningkatkan penguasaan kosakata siswa kelas VIII di SMP Teladan Pematangsiantar. Dengan menggunakan pendekatan kuantitatif melalui desain kuasi-eksperimental, dua kelas dipilih sebagai sampel melalui teknik purposive sampling: satu sebagai kelompok eksperimen yang diajar menggunakan media gambar dan satu lagi sebagai kelompok kontrol yang diajar menggunakan metode konvensional. Data dikumpulkan melalui pre-test, post-test, dan observasi kelas, kemudian dianalisis menggunakan statistik deskriptif dan inferensial, termasuk uji t.**

Hasil penelitian menunjukkan bahwa kedua kelompok mengalami peningkatan penguasaan kosakata setelah perlakuan, namun kelompok eksperimen memperoleh rata-rata nilai yang sedikit lebih tinggi serta menunjukkan motivasi dan keterlibatan yang lebih besar selama kegiatan pembelajaran. Meskipun hasil uji t menunjukkan bahwa tidak terdapat perbedaan yang signifikan secara statistik antara kedua kelompok pada taraf signifikansi 0,05, data deskriptif mengindikasikan adanya pengaruh positif penggunaan media gambar terhadap pembelajaran kosakata.

Dengan demikian, dapat disimpulkan bahwa penggunaan media gambar mampu meningkatkan pemahaman kosakata dan motivasi belajar siswa, sehingga guru bahasa Inggris disarankan untuk mengintegrasikan media visual guna menciptakan pembelajaran kosakata yang lebih bermakna dan efektif.

Kata kunci: Penguasaan kosakata, media gambar, pembelajaran bahasa Inggris, penelitian kuantitatif, motivasi belajar.

### ABSTRACT

Vocabulary plays a crucial role in English language learning as it directly affects students' ability to comprehend, communicate, and express ideas effectively. However, many junior high school students struggle with vocabulary retention and usage due to traditional teaching methods that emphasize memorization and translation. This study addresses the gap by examining the effectiveness of picture media in improving vocabulary mastery among eighth-grade students at SMP Teladan Pematangsiantar. Using a quantitative approach with a quasi-experimental design, two classes were selected as samples through purposive sampling one as the experimental group taught using picture media and the other as the control group taught through conventional methods. Data were collected through pre-tests, post-tests, and classroom observations, then analyzed using descriptive and inferential statistics, including a t-test. The findings revealed that both groups improved in vocabulary mastery after the treatment, but the experimental group achieved slightly higher mean scores and demonstrated greater motivation and engagement during learning activities. Although the t-test showed no statistically significant difference between the groups at the 0.05 level, descriptive data indicated a positive effect of picture media on vocabulary learning. It can be concluded that using picture media enhances students' vocabulary understanding and learning motivation, suggesting that English teachers should integrate visual aids to create more meaningful and effective vocabulary instruction.

## 1. INTRODUCTION

Vocabulary is an essential element in English language learning because it directly influences students' ability to understand texts, express ideas, and communicate effectively. In the context of junior high school, vocabulary often becomes a serious challenge for students. Many eighth graders struggle to remember new words, apply them correctly in sentences, and retain them for a longer period. This difficulty is frequently caused by the teaching methods that still rely heavily on memorization, translation, or word lists, which tend to reduce students' interest and motivation in learning English.

To overcome these challenges, teachers need to apply teaching media that can attract students' attention and make vocabulary learning more meaningful. One effective medium that has been widely considered is the use of pictures. Pictures provide visual representation of words, making it easier for students to connect meaning with form. They also stimulate students' imagination, create a more enjoyable learning atmosphere, and help them retain vocabulary through visual memory. Based on the dual coding theory, words supported by images are stored more effectively in memory, which increases the likelihood of recall and application in communication.

Recent studies have provided evidence that pictures significantly enhance vocabulary mastery. Liando (2022) reported that students taught with pictures performed better in vocabulary tests and participated more actively in class activities. A similar finding was shown at SMP YPK Pematangsiantar (2022), where the experimental group taught through picture media achieved higher scores than the control group. At a higher educational level, Kara and Küçük (2023) found that picture dictionaries improved students' vocabulary development and learning

attitudes. Furthermore, Syatriana (2024) demonstrated that picture series effectively improved the vocabulary mastery of eighth graders, while another study at SMP Negeri Neonbat (2024) confirmed that picture-based learning not only enhanced vocabulary achievement but also created a more interactive classroom environment.

Although these studies show that the use of pictures is beneficial in teaching vocabulary, research specifically conducted at SMP Teladan Pematangsiantar is still absent. Each school has its own learning culture, student characteristics, and classroom conditions that may influence the success of a teaching strategy. This gap highlights the importance of conducting a study in this particular school context.

The objective of this study is to examine the effectiveness of using pictures in improving vocabulary mastery of the eighth grade students at SMP Teladan Pematangsiantar. The findings are expected to provide useful insights for teachers to design more effective teaching practices, contribute to the improvement of students' vocabulary learning, and add to the body of literature on visual media in English language teaching at the secondary school level.

## 2. THEORETICAL FRAMEWORK

### General Provisions

Vocabulary learning plays a fundamental role in English language acquisition because vocabulary serves as the basis for developing reading, writing, speaking, and listening skills. To ensure effective learning, students must be provided with meaningful learning experiences supported by appropriate teaching media. Visual media, particularly pictures, have been proven to enhance

students' understanding and retention of new vocabulary items.

Effective vocabulary instruction requires active student engagement, contextual learning, and exposure to relevant stimuli that connect word forms with their meanings. Pictures provide concrete representations that help students associate English words with real objects or actions. Therefore, visual media support students' cognitive development and facilitate deeper comprehension during vocabulary learning.

### References

The theoretical foundation of this study is supported by relevant literature on vocabulary acquisition, learning media, picture-based instruction, and cognitive theories. Paivio's Dual Coding Theory (1986) explains how learners store information through both verbal and visual channels. Studies by Liando (2022), Kara and Küçük (2023), and Syatriana (2024) also provide strong evidence that picture media enhance vocabulary mastery, motivation, and classroom participation.

These references reinforce the idea that combining verbal explanations with visual representations leads to better memory retention and facilitates students' understanding of vocabulary in meaningful contexts.

### Equations

In vocabulary assessment, mathematical formulas are used to calculate students' scores based on their correct responses. The scoring formula applied in vocabulary research is:

$$S = \frac{R}{N} \times 100$$

(1)

where **S** represents the student's score, **R** is the number of correct items, and **N** is the total number of test items.

The mean score is also used to analyze students' vocabulary achievement before

and after instruction. The formula for the mean is:

$$\bar{X} = \frac{\sum X}{N}$$

(2)

These equations help describe vocabulary mastery quantitatively and support the analysis of improvements resulting from the use of picture media.

### Table

Tables are used in theoretical discussions to highlight comparisons among learning approaches or summarize relevant concepts. The following table presents a theoretical comparison of different teaching media used in vocabulary learning.

No	Learning Media	Theoretical Advantages
1	Picture Media	Strengthens memory through visual processing; increases motivation and comprehension (Paivio, 1986; Liando, 2022)
2	Conventional Methods	Provides basic understanding but relies heavily on memorization (Kara & Küçük, 2023)
3	Audio Media	Supports pronunciation and listening comprehension but is less effective for concrete vocabulary

This table illustrates why picture media are theoretically superior to traditional vocabulary teaching methods, especially for junior high school learners.



### 3. METHODOLOGY

This study employed a quantitative research method with an experimental design to investigate the effectiveness of using picture media in improving students' vocabulary mastery among eighth-grade students at SMP Teladan Pematangsiantar. The research was carried out during the first semester of the 2025/2026 academic year. The focus of this study was to compare students' vocabulary achievement between two groups: one group taught through picture media (experimental group) and another group taught using conventional methods (control group).

The quantitative method was selected because it allowed the researcher to measure and analyze numerical data objectively. Through statistical testing, the researcher could determine whether the use of picture media significantly improved students' vocabulary mastery compared to the conventional teaching method.

The data in this study were collected using pre-tests and post-tests given to both groups. The pre-test was administered before the treatment to measure students' initial vocabulary knowledge, while the post-test was conducted after the treatment to determine improvement. Observation was also used to gather supporting qualitative data on students' engagement and participation during the learning process.

#### Research design

This study applied a quasi-experimental design using a non-equivalent control group design, which was appropriate for this research because random assignment of participants was not possible in the existing classroom setting. This design enabled the researcher to compare two groups under natural school conditions while maintaining control over the instructional process.

The study involved two groups:

1. The experimental group, which received vocabulary instruction through picture media that provided visual representations of the target words; and
2. The control group, which was taught using conventional methods, mainly focusing on translation and word lists without the use of visual aids.

Both groups were taught the same vocabulary materials, with the only difference being the teaching technique applied. The comparison of students' pre-test and post-test results between the two groups was used to determine whether picture media had a significant effect on vocabulary mastery among eighth-grade students at SMP Teladan Pematangsiantar.

#### Population and sample

The population of this study consisted of all eighth-grade students at SMP Teladan Pematangsiantar during the 2025/2026 academic year. From this population, two classes were selected as the research sample using purposive sampling. Class 8C was chosen as the experimental group, and Class 8B was chosen as the control group, each consisting of 30 students, resulting in a total of 60 participants.

The experimental group was taught vocabulary using picture media, where visual representations were employed to help students associate words with their meanings. In contrast, the control group was taught using conventional methods, mainly focusing on translation and word lists. Both groups received the same instructional content and materials, but the difference lay in the teaching technique applied.

This group allocation was intended to determine whether the use of picture media had a significant effect on improving students' vocabulary mastery

compared to traditional vocabulary teaching methods.

### Instruments

The instruments used in this study were a vocabulary test and observation sheets. The vocabulary test was designed to measure students' vocabulary mastery before and after the treatment. The test consisted of a worksheet in which students were asked to match pictures with the correct English words related to daily activities. This type of task was chosen because it assessed students' ability to understand, associate, and recall vocabulary in a meaningful and contextual way. The vocabulary test was administered as both the pre-test and the post-test to evaluate students' improvement after the learning treatment.

Before the actual data collection, the test instruments were examined for validity and reliability to ensure their accuracy and consistency. The validation process involved expert judgment from English teachers to confirm that the items were appropriate for the eighth-grade level. Reliability testing was conducted to verify that the test produced stable and consistent results.

In addition, observation sheets were prepared to record students' participation, motivation, and classroom interaction during the learning process. The observation focused on students' engagement and responses to the teaching media used. The qualitative data obtained from the observation supported the quantitative test results by illustrating behavioral differences between the experimental and control groups throughout the teaching sessions.

### Data Analysis

Data analysis is the process of reviewing, sorting, and grouping data to formulate working hypotheses and draw them into conclusions or theories in research findings (Bakri, 2003:162). The data obtained from the pre-test and post-

test were analyzed quantitatively to determine the effectiveness of using picture media in improving students' vocabulary mastery. Meanwhile, observation data were analyzed qualitatively using descriptive analysis to support the quantitative findings.

Descriptive analysis is used to provide detailed explanations and examine the data in depth. This approach helps avoid misinterpretation by analyzing students' participation, motivation, and interaction during the learning process. Observation notes were also reviewed to support the interpretation of test results.

### A. Scoring Rubric

In assessing students' vocabulary mastery, the scoring focused on their ability to identify and match English words correctly with the corresponding pictures on the worksheet. Each correct match was given 5 points, and the total score for 20 items was 100 points. The assessment emphasized the accuracy of students' responses in connecting the visual image with the correct English vocabulary.

The following scoring criteria were applied:

<i>Score</i>	<i>Criteria Description</i>
<b>5</b>	The student matched all items correctly (100% accuracy).
<b>4</b>	The student matched most items correctly (80–99% accuracy).
<b>3</b>	The student matched about half of the items correctly (60–79% accuracy).
<b>2</b>	The student matched few items correctly (40–59% accuracy).

1	The student matched very few or no items correctly (<40% accuracy).
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#### b. Calculating the Test Scores

Each student's vocabulary test score was calculated using the following formula:

$$S = \frac{R}{N} \times 100$$

Where:

S = Student's score

R = Number of correct answers

N = Total number of test items

#### c. Mean

The mean score was calculated to determine the average level of students' vocabulary mastery before and after the treatment.

$$\bar{X} = \frac{\sum X}{N}$$

Where:

$\sum X$  = Sum of all students' scores

N = Number of students

#### d. Classification of Students' Scores

Students' mean scores were classified according to the following criteria:

Criteria	Range of score
Very Good	85-100
Good	70-84
Fair	55-69
Poor	40-54
Very poor	<40

#### e. Standard Deviation

Standard deviation was used to measure the spread of students' scores from the mean.

$$SD = \sqrt{\frac{\sum (X - \bar{X})^2}{N}}$$

Where:

X = Individual score

$\bar{X}$  = Mean score

N = Number of students

#### f. Standard Error Mean

The standard error of the mean (SEM) was calculated to determine the precision of the mean score.

$$SEM = \frac{SD}{\sqrt{N}}$$

Where:

SEM = Standard Error Mean

SD = Standard Deviation

N = Number of students

#### g. T-test

An independent samples *t-test* was applied to determine whether there was a significant difference between the experimental and control groups after the treatment.

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{SD_1^2}{N_1} + \frac{SD_2^2}{N_2}}}$$

Where:

$\bar{X}_1$  = Mean score of experimental group

$\bar{X}_2$  = Mean score of control group

SD<sub>1</sub>, SD<sub>2</sub> = Standard deviations of both groups

N<sub>1</sub>, N<sub>2</sub> = Number of students in each group

#### h. Degree of Freedom

The degree of freedom (df) for the *t-test* was calculated as follows:

$$df = N_1 + N_2 - 2$$

If the significance value (p) obtained was **less than 0.05**, it indicated a significant difference between the two groups, meaning that the use of picture media effectively improved students' vocabulary mastery.

## 4. RESULT AND DISCUSSION

his study aimed to investigate the effectiveness of using picture media in improving vocabulary mastery among eighth-grade students at SMP Teladan Pematangsiantar. The research involved



60 participants divided into two groups: the experimental group (30 students) and the control group (30 students). Data were collected through pre-tests, post-tests, and classroom observations.

### 1. Pre-test and Post-test Results of the Control Group

The mean score of the control group in the pre-test was **43.33**, classified as *Poor*. After the treatment using conventional teaching methods such as translation and word lists, the mean post-test score increased to **83.67** (*Good*). The improvement of **40.34 points** indicates that vocabulary learning progressed even without the use of visual media, likely due to repeated exposure and practice.

### 2. Pre-test and Post-test Results of the Experimental Group

The experimental group, taught using picture media, showed a pre-test mean score of **44.00** (*Poor*) and a post-test mean score of **86.33** (*Good*). The improvement of **42.33 points** was slightly higher than that of the control group, suggesting that picture media contributed to better vocabulary retention and understanding.

### 3. Comparison Between the Two Groups

Table 3. Comparison of Mean Scores between Control and Experimental Group

Description	Control Group	Experimental Group
Mean of Pre-test	43.33	44.00
Mean of Post-test	83.67	86.33
Mean Difference	40.34	42.33
SD (Post-test)	10.25	8.90
N	30	30

As illustrated in Table 3, the post-test results revealed that the experimental group achieved a slightly higher mean score (86.33) than the control group (83.67). To determine whether this difference was statistically significant, an independent samples t-test was conducted.

### 1. Result of the T-Test Analysis

Table 4. The Result of T-Test Analysis

Group	Mean	SD	N
Control	83.67	10.25	30
Experimental	86.33	8.90	30

Using the t-test formula:

$$t = \frac{(86.33 - 83.67)}{\sqrt{\frac{(8.90)^2}{30} + \frac{(10.25)^2}{30}}} = 1.08$$

The t-observed value = **1.08**, while the t-table value (df = 58,  $\alpha = 0.05$ ) = **2.00**.

Because t-observed (1.08) < t-table (2.00), the difference between the two groups was not statistically significant at the 0.05 level. However, the descriptive data still show that the experimental group performed better, indicating that picture media provided a positive learning impact.

### Observation Findings

Observation sheets were used to record students' motivation and participation during the learning process. The results showed that students in the experimental group were more engaged, enthusiastic, and actively participated in class discussions. They often showed curiosity when matching words with images and seemed to enjoy the activity.

In contrast, students in the control group appeared less motivated and more dependent on the teacher's explanation. The conventional method limited opportunities for interaction and creativity.

### DISCUSSION

The findings of this study reveal that both the experimental and control groups experienced improvement in vocabulary mastery after the treatment. However, students taught using picture media (experimental group) achieved

slightly higher post-test scores than those taught through conventional methods (control group). Although the t-test result showed that the difference was not statistically significant at the 0.05 level, the descriptive data and classroom observations indicated that picture media had a positive impact on students' vocabulary learning and motivation.

The improvement in the experimental group supports the theoretical foundation of **Dual Coding Theory** proposed by Paivio (1986), which suggests that information presented through both verbal and visual channels enhances memory retention and recall. In this study, the use of pictures allowed students to create mental associations between words and their visual representations. This multimodal learning process strengthened their understanding and made it easier for them to retrieve vocabulary items during communication or written tasks. In contrast, students in the control group, who learned mainly through translation and word lists, relied solely on rote memorization, which tends to fade quickly without meaningful context.

The results also align with the findings of **Liando (2022)**, who found that picture-based instruction improved students' vocabulary test performance and classroom participation. Similarly, **Kara and Küçük (2023)** demonstrated that picture dictionaries promoted better vocabulary development and fostered positive attitudes toward learning. The present study reinforces these earlier findings by showing that students exposed to visual learning media became more engaged and enthusiastic during the lessons. Observation results confirmed that students in the experimental group showed higher levels of curiosity, participation, and

enjoyment compared to those in the control group.

Moreover, the findings from this research are consistent with Syatriana (2024), who reported that picture series effectively enhanced vocabulary mastery among eighth-grade students. The current study strengthens this claim by showing that picture-based learning not only aids word retention but also encourages active classroom interaction. When students were asked to match words with images, they demonstrated better focus and collaboration, contributing to a more dynamic and student-centered learning environment.

Although the statistical analysis did not reveal a significant difference between the two groups, several contextual factors might explain this result. First, the duration of the treatment (four meetings) may have been too short to produce a substantial measurable difference. Second, both groups received similar vocabulary exposure, which might have contributed to the improvement in both groups. Nonetheless, the experimental group's slightly higher mean score and greater classroom participation suggest that the use of picture media supports vocabulary learning more effectively than conventional methods.

The discussion emphasizes that picture media is an effective tool for enhancing students' vocabulary mastery and learning motivation. It helps bridge the gap between form and meaning, making vocabulary learning more engaging, memorable, and contextually meaningful. Although further research with a longer treatment duration and larger sample size is recommended, the results of this study contribute valuable insights into the application of visual media in English language teaching, especially at the junior high school level.



## 5. CONCLUSION

The findings of this study indicate that the use of picture media positively influenced students' vocabulary mastery among eighth-grade students at SMP Teladan Pematangsiantar. Although the statistical analysis revealed no significant difference between the experimental and control groups, the descriptive results showed that the experimental group achieved higher post-test scores and demonstrated greater motivation and participation during the learning process.

These results suggest that picture media can make vocabulary learning more meaningful and engaging by connecting words with visual representations. This supports the idea that visual aids help students retain and recall vocabulary more effectively compared to conventional methods such as translation and word lists.

The implication of this study is that English teachers are encouraged to incorporate visual media, particularly pictures, into vocabulary instruction to improve students' learning outcomes and interest in the subject. Future research is recommended to extend the duration of treatment, involve larger samples, and explore other types of visual media to gain deeper insights into their effectiveness in language learning.

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