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THE EFFECT OF USING *LETTER PUZLE GAME* TO IMPROVE STUDENTS' INTEREST IN LEARNING ENGLISH VOCABULARY

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Abstract

The purpose of this research is to find out whether there is Effect of Using *Letter Puzzle Game* to Improve Students' Interest in Learning English Vocabulary at Grade X Of SMA Swasta Tunas Harapan 2024/2025 Academic Year. This type of research is *quasi experiment* with two group pre-test and post-test research designs. The population in this study is the entire class X consisting of 2 classes totalling 50 students. There are 2 classes of research samples (class XA and XB) which are taken in *random clusters*. In class XA as an experimental class using the Letter Puzzle Game model and in class XB as a control class with a conventional learning model. After the learning was completed, the post-test was obtained with an average result of the experimental class of 87.6 and the control class of 58.58. The result of the t test obtained, so accepted, thus there is Effect of Using *Letter Puzzle Game* to Improve Students' Interest in Learning English Vocabulary at Grade X Of SMA Swasta Tunas Harapan

Key words: *Letter Puzzle Game*, Vocabulary, Students' interest

INTRODUCTION

Language is a tool of communication. Language can connected people with other people. People can understand each other with the language. It is used to express idea and share feeling. Without language, people will get difficulties in convey their ideas and massage. There are many languages, which are used and learned by people in many different places in many different ways. English is one of the languages used by people to interest each other. As one of the international languages, English is the first foreign language learned and taught in most school.(Nurbaya et al., 2023)

English as an international language that plays a very important role in all fields, must be introduced and taught in Indonesia. In the process of learning English, oral and written proficiency in the target language is a sign of successful mastery of English language skill. In general, in learning English (as well as other foreignlanguages) productive skills, namely speaking, writing, and receptive skills, namely listening, and reading. Therefore, language skills must be taught through communicativeinteractions which include the use of more than one language skill.

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One of the factors considered to be a challenge as well as an important factor in learning a foreign language, especially English, is mastering vocabulary. Nothing can be done without vocabulary (Dakhi & Fitria, 2019). It is the basis for communication. In teaching English as a foreignlanguage, vocabulary mastery is an important part so students must continuously learn words when studying grammar (structure) and also pronunciation. (Fitria, 2023)

Vocabulary learning strategy research highlights the focus that learners should be agents actively participating in the cognitive processes in learning vocabulary. Each learner exercises a degree of control over their vocabulary learning, from the selection of strategies to the evaluation of outcomes. Such understanding has led to an increasing application of the self-regulated learning framework to vocabulary learning. Such perspective has contributed to a deeper understanding of the diverse strategies and approaches employed by individuals to enhance their lexical knowledge Therefore, it is important for educators to increase students' interest in learning English vocabulary.(Teng et al., 2024)

Based on the results of observations and interviews conducted by the researcher with the relevant teachers before conducting the research, the researcher found several obstacles that could potentially attract the researcher to choose this research title. The following are some identified issues: the first is the lack of teacher creativity in using strategies and teaching models that capture students' attention; the second is that most students at SMA Swasta Tunas Harapan, especially in the grade, consider English to be a very difficult and boring subject; and the third is the low interest of students in learning English, particularly in enriching their vocabulary.

When it comes to increasing student interest, the role of the teacher cannot be overlooked. A teacher is not just an information provider, but also a facilitator and a potential discoverer of students. Therefore, the use of appropriate teaching models becomes crucial in increasing student interest, especially in the context of learning English vocabulary at the high school level. Teachers also play a key role as the main agents in the learning process. Where there is a great responsibility in creating a learning environment that supports the increase in student interest. Therefore, the role of teachers in applying effective learning models becomes very vital. One of the models that can be adopted by teachers is the use of letter puzzle games, which emphasize the guidance or direct practice of teachers to help students understand English vocabulary and increase their interest. The low desire and interest of students are reflected in their poor ability to ask questions, engage in discussions, and communicate new ideas, as well as in their extracurricular activities, which are indicative of their low interest in learning.

Amid the dynamics of education, letter puzzle games have emerged as an interesting alternative. This game emphasizes direct guidance from the teacher, providing structured instructions to help students deeply understand English vocabulary concepts. Thus, this game model is considered to have the potential to stimulate the desire and interest of high school students, which is an important transitional period in building a solid foundation in English. Based on the results of

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the pre-survey observation conducted by the researcher at SMA Swasta Tunas Harapan, the researcher found several obstacles faced by the students.

METHOD

The type of research conducted is quasi-experimental research. The aim is to determine whether there is a relationship between two variables: the dependent variable and the independent variable. Because the population is less than 100, the researcher took as many samples as possible from the existing population. One class is the experimental class and the other class is the control class. Fifty tenth-grade students participated in this study. The included information refers to 25 students from class X A as the control class and 25 students from class X B as the experimental class. The sampling method was conducted using the cluster random sampling technique. The design of this study is

Table 1. Two Groups Pre-test Post-test

Group	Types	Experiment	Types
Control Class Group	Pre-test	X	Post-test
Experimental Class group	Pre-test	Y	Post-test

Note:
X : Using Conventional way
Y : Using Letter Puzzle Game

The data collection process in this study will be carried out through several systematic and planned stages. The first stage is to complete various formal administrative procedures which are the main requirements before carrying out data collection. One of these procedures is to obtain official permission from the principal as a form of approval to carry out research activities in the school environment. This permission is very important to ensure that the data collection process runs in accordance with applicable provisions and gets full support from the school. After the permission is successfully obtained, the next step is to conduct direct observation in the classroom. This observation is carried out to observe various aspects related to the implementation of learning and student activities, so that the data collected is truly relevant and supports the research objectives. Thus, this stage is a crucial part of obtaining accurate and comprehensive data.

1. Pre-test

Before special treatment or teaching methods were applied, students in both groups were given a pre-test. This test aims to determine the extent of students'

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ability to master vocabulary before certain learning methods are applied. In this test, students are asked to answer 20 multiple choice questions, each of which has four answer choices: A, B, C, and D. The results of this initial test become a reference for comparing students' development after being given treatment at a later date.

2. Treatment

The first stage is to divide students into two groups: experimental and control. The experimental group was taught using a letter puzzle game, while the control group used conventional methods without special treatment. The control group serves as a comparison to see differences in results between the two groups. During treatment, the letter puzzle game was applied to the experimental group to test its effectiveness to improve students' interest in learning english vocabulary. It is hoped that the final test will show an increase in understanding in the experimental group compared to the results of the pre-test and control group.

3. Post-test

The final exam is conducted to assess the success level of the letter puzzle game to improve students' interest in learning English vocabulary. In this process, the scores from the pre-test and post-test of the experimental group and the control group are compared with each other. Next, these score results are processed as primary data to determine the extent to which students' reading comprehension has improved through the application of this letter puzzle game.

4. Scoring Test

According to Sudjono (2003: 155), the formula for calculating the score is:

$$Value = \frac{total\ score\ obtained}{total\ score} \times 100$$

Table 2. Scoring Students' criteria and percentage

Score	Category
85 – 100	Excellent
75 – 85	Very Good
60 – 75	Good
55 – 60	Low

A questionnaire is a list of questions that must be answered by the person being evaluated. This survey is used to determine students' responses to the use of the *Letter Puzzle Game* in English language learning.

RESULTS AND DISCUSSION

The result of the students' test can be seen on the following table score.

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Table 4. The Sore of Pre-test and Post-test in Experiment and Control Group

NO	KELAS EKSPERIMEN		KELAS KONTROL	
	PRETES	POSTES	PRETES	POSTES
1	80	85	80	80
2	80	90	95	95
3	90	95	95	90
4	90	95	90	95
5	90	95	95	90
6	75	75	75	75
7	75	75	75	80
8	80	85	80	80
9	80	80	80	80
10	80	85	80	80
11	75	100	100	95
12	75	80	80	75
13	85	85	80	85
14	85	80	80	80
15	90	90	85	90
16	90	90	85	90
17	90	95	95	90
18	90	95	95	95
19	95	95	90	95
20	95	95	95	90
21	85	80	75	80
22	85	80	80	80
23	75	100	100	100
24	75	80	75	75
25	75	85	75	75

From the data above, it shown that the highest and the lowest score in the pre-test and post-test.

Table 5. Results of he Normality Test Pre-Test Experimental Class

Based on the table above, the results of the normality value calculation using the Liliefors Test are obtained. $L_{hitung} = 0{,}169$ with n = 25 and real standards $\alpha = 0{,}05$ then the value obtained from $r_{table} = 0{,}173$.

Conclusion $L_{hitung} < L_{table}\ yaitu\ 0{,}169 < 0{,}173$ then it is proven that the population is normally distributed.

Table 6. Results of the Normality Test Pre-Test Control Class

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NO	KONTROL	Z	FZ	SZ	FZ-SZ
1	75	-1,03	0,15	0,32	0,17
2	75	-1,03	0,15	0,32	0,17
3	75	-1,03	0,15	0,32	0,17
4	75	-1,03	0,15	0,32	0,17
5	75	-1,03	0,15	0,32	0,17
6	75	-1,03	0,15	0,32	0,17
7	75	-1,03	0,15	0,32	0,17
8	75	-1,03	0,15	0,32	0,17
9	80	-0,39	0,35	0,52	0,17
10	80	-0,39	0,35	0,52	0,17
11	80	-0,39	0,35	0,52	0,17
12	80	-0,39	0,35	0,52	0,17
13	80	-0,39	0,35	0,52	0,17
14	85	0,26	0,60	0,76	0,16
15	85	0,26	0,60	0,76	0,16
16	85	0,26	0,60	0,76	0,16
17	85	0,26	0,60	0,76	0,16
18	85	0,26	0,60	0,76	0,16
19	85	0,26	0,60	0,76	0,16
20	90	0,90	0,82	0,88	0,06
21	90	0,90	0,82	0,88	0,06
22	90	0,90	0,82	0,88	0,06
23	95	1,54	0,94	0,92	0,02
24	100	2,19	0,99	1,00	0,01
25	100	2,19	0,99	1,00	0,01
Rata-rata	83				
Standart Deviasi	7,77				
L hitung	0,170				
L table	0,173				
Kesimpulan	L hitung < L table maka data Berdistribusi Normal				

Based on the table above, the results of the normality value calculation using the Liliefors Test are obtained $L_{hitung} = 0{,}170$ with n = 25 and real standards $\alpha = 0{,}05$ then the value obtained from $r_{table} = 0{,}173$.

Conclusion $L_{hitung} < L_{table}\ yaitu\ 0{,}170 < 0{,}173$ then it is proven that the population is normally distributed.

Table 7. Results of the Pre-Test Homogeneity Test

NO	EXPERIMENT	CONTROL
1	80	80

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2	80	95
3	90	95
4	90	90
5	90	95
6	75	75
7	75	75
8	80	80
9	80	80
10	80	80
11	75	100
12	75	80
13	85	80
14	85	80
15	90	85
16	90	85
17	90	95
18	90	95
19	95	90
20	95	95
21	85	75
22	85	80
23	75	100
24	75	75
25	75	75
Varians 1	**47,33**	
Varians 2		**74,83**
F hitung	**1,58**	
F table	**1,98**	

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To calculate the homogeneity of variances, the formula for the equality of two variances is used;

$$F_{hitung} = \frac{Varians\ terbesar}{Varians\ terkecil}$$

Based on the statistical calculations that have been used, the pretest results are as shown in the table of the homogeneity test results above.

$$F_{hitung} = \frac{Varians\ terbesar}{Varians\ terkecil} = \frac{74{,}83}{47{,}33} = 1{,}58$$

The price F_{table}obtained from the F distribution test table with a significance level $\alpha = 0{,}05$ is = 1,98. So, $F_{hitung} < F_{table}\ is\ 1{,}58 < 1{,}98$. So both samples of student learning interest data are homogeneous.

Table 8. Results of Normality Test Post-Test Experimental Class

NO	EKSPERIMEN	Z	FZ	SZ	FZ-SZ
1	75	-1,65	0,05	0,08	0,03
2	75	-1,65	0,05	0,08	0,03
3	80	-0,99	0,16	0,32	0,16
4	80	-0,99	0,16	0,32	0,16
5	80	-0,99	0,16	0,32	0,16
6	80	-0,99	0,16	0,32	0,16
7	80	-0,99	0,16	0,32	0,16
8	80	-0,99	0,16	0,32	0,16
9	85	-0,34	0,37	0,52	0,15
10	85	-0,34	0,37	0,52	0,15
11	85	-0,34	0,37	0,52	0,15
12	85	-0,34	0,37	0,52	0,15
13	85	-0,34	0,37	0,52	0,15
14	90	0,31	0,62	0,64	0,02
15	90	0,31	0,62	0,64	0,02
16	90	0,31	0,62	0,64	0,02
17	95	0,97	0,83	0,92	0,09

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18	95	0,97	0,83	0,92	0,09
19	95	0,97	0,83	0,92	0,09
20	95	0,97	0,83	0,92	0,09
21	95	0,97	0,83	0,92	0,09
22	95	0,97	0,83	0,92	0,09
23	95	0,97	0,83	0,92	0,09
24	100	1,62	0,95	1,00	0,05
25	100	1,62	0,95	1,00	0,05
Rata-rata	87,60				
Standart Deviasi	7,65				
L hitung	0,160				
L table	0,173				

Based on the table above, the results of the normality value calculation using the Liliefors Test are obtained $L_{hitung} = 0{,}160$ with n = 25 and real standards $\alpha = 0{,}05$ then the value obtained from $r_{table} = 0{,}173$.

Conclusion $L_{hitung} < L_{table}\ yaitu\ 0{,}160 < 0{,}173$ then it is proven that the population is normally distributed.

Table 9. Results of Normality Test Post-Test Control Class

NO	KONTROL	**Z**	**FZ**	**SZ**	**FZ-SZ**
1	70	-1,57	0,06	0,04	0,02
2	75	-1,00	0,16	0,32	0,16
3	75	-1,00	0,16	0,32	0,16
4	75	-1,00	0,16	0,32	0,16
5	75	-1,00	0,16	0,32	0,16
6	75	-1,00	0,16	0,32	0,16
7	75	-1,00	0,16	0,32	0,16
8	75	-1,00	0,16	0,32	0,16

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9	80	-0,43	0,33	0,48	0,15
10	80	-0,43	0,33	0,48	0,15
11	80	-0,43	0,33	0,48	0,15
12	80	-0,43	0,33	0,48	0,15
13	85	0,14	0,55	0,72	0,17
14	85	0,14	0,55	0,72	0,17
15	85	0,14	0,55	0,72	0,17
16	85	0,14	0,55	0,72	0,17
17	85	0,14	0,55	0,72	0,17
18	85	0,14	0,55	0,72	0,17
19	90	0,70	0,76	0,76	0,00
20	95	1,27	0,90	0,92	0,02
21	95	1,27	0,90	0,92	0,02
22	95	1,27	0,90	0,92	0,02
23	95	1,27	0,90	0,92	0,02
24	100	1,84	0,97	1,00	0,03
25	100	1,84	0,97	1,00	0,03
Rata-rata	83,8				
Standart Deviasi	8,81				
L hitung	0,166				
L table	0,173				

Based on the table above, the results of the normality value calculation using the Liliefors Test are obtained $L_{hitung} = 0{,}166$ dengan n = 25 and real standards $\alpha = 0{,}05$ then the value obtained from $r_{table} = 0{,}173$.

Conclusion $L_{hitung} < L_{table}\ yaitu\ 0{,}166 < 0{,}173$ then it is proven that the population is normally distributed.

Table 10. Results of the Post-Test Homogeneity Test

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NO	EKSPERIMEN	KONTROL
1	85	80
2	90	95
3	95	90
4	95	95
5	95	90
6	75	75
7	75	80
8	85	80
9	80	80
10	85	80
11	100	95
12	80	75
13	85	85
14	80	80
15	90	90
16	90	90
17	95	90
18	95	95
19	95	95
20	95	90
21	80	80
22	80	80
23	100	100
24	80	75
25	85	75
Varians 1	**58,58**	
Varians 2		**61,08**

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F hitung	**0,96**
F tabel	**1,98**

To calculate the homogeneity of variances, the formula for the equality of two variances is used;

$$F_{hitung} = \frac{Varians\ terbesar}{Varians\ terkecil}$$

Based on the statistical calculations that have been used, the post-test results are as shown in the table of the homogeneity test results above.

$$F_{hitung} = \frac{Varians\ terbesar}{Varians\ terkecil} = \frac{61{,}08}{58{,}58} = 0{,}96$$

Price F_{table} obtained from the F distribution test table with a significance level $\alpha = 0{,}05$ is = 1,98. then $F_{hitung} < F_{table}\ yaitu\ 0{,}96 < 1{,}98$. So, both samples of student learning interest data are homogeneous.

Research Hypothesis Testing Calculation

The hypothesis pair that will be tested in this study is:

$H_0: \mu_1 = \mu 2$

$H_a: \mu_1 > \mu_2$

Therefore, to conduct a test of the equality of two means, the t-test statistic is used with the following formula:

$$t' = \frac{x_1 - x_2}{\sqrt{\left(\frac{s_1^2}{n_1}\right) + \left(\frac{s_2^2}{n_2}\right)}}$$

The testing criteria are: accept H_0 if $< t_{1-\alpha}$ and reject H_0 if t has another price. The degrees of freedom for the t distribution are $(n1 + n2 - 2)$ with the opportunity (1-α) and the level of trust $\alpha = 5\%$ (0,05).

Then;

$$t' = \frac{87{,}6 - 81{,}6}{\sqrt{\left(\frac{58{,}58}{25}\right) + \left(\frac{61{,}08}{25}\right)}}$$

$$t' = \frac{6}{(2{,}3432) + (2{,}4432)}$$

$$t' = \frac{6}{\sqrt{4{,}7864}}$$

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$$t' = \frac{6}{2{,}187784}$$

$$t' = 2{,}742$$

With;$n1 + n2 - 2 = 25 + 25 = 50 - 2 = 48$ and was obtained $t_{table} = 2{,}010$

Based on the calculation results with a confidence level $\alpha = 0{,}05$ then ,$t_{hitung} = 2{,}742$ and $t_{table} = 2{,}010$. Then $t_{hitung} > t_{table}$ so H_0 rejected dan $H_a$accepted.

Conclusion: There is Effect of Using *Letter Puzzle Game* To Improve Students' Interest in Learning English Vocabulary of SMA Swasta Tunas Harapan.

CONCLUSION

Based on the results of the research conducted in class X SMA Swasta Tunas Harapanwith Adjective and adverb materials for 4 weeks on February 10 to March 10, 2025 can be concluded as follows:

The results of the normality test on the post-test data of the experimental class are obtained L_count =0,160 = with n=25 and α=0,05 obtained L_table=0,173. Because L_count=0,160 < L_table=0,173 means the sample comes from the population normally distributed.

The results of the normality test on the post-test data of the control class were obtained. L_count=0,166 with n=25 dan α=0,05 obtained L_tabel=0,173. Because L_count=0,166 < L_tabel=0,173 It means the sample comes from a normally distributed population.

The results of the homogeneity test on the pre-test and post-test data obtained the value L_count=1,58 for the pre-test questions and 0,96 for the post-test questions, both < from F_table=1,98 it can be concluded that the variance of the post-test and pre-test data of both sample groups, namely the experimental and control classes, comes from a homogeneous population.

The results of the hypothesis test obtained a value t_count = 2,742 > t_table=2,010. So that t_count>t_table so that H_0 rejected and H_a accepted. Then it can be concluded that there is an effect of using the Letter Puzzle Game to improve students' interest in learning English vocabulary at SMA Swasta Tunas Harapan.

Based on the post-test data, the experimental class and the control class are normally distributed and both variances are homogeneous. Next, a hypothesis test was conducted, the results of which t_count>t_table (2,472>2,010). Thus, H_0 rejected and H_a accepted so it can be concluded that there is an effect of using the Letter Puzzle Game to improve students' interest in learning English vocabulary at SMA Swasta Tunas Harapan.

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