CHAPTER IV

RESEARCH FINDING AND DISCUSSION

This chapter reveals about the finding of this research which also includes the data of the research, hypothesis testing, the result of normality and homogeneity testing, and discussion.

A. The Description of the Data

In chapter IV, the researcher reveals the data which was gained from conducting the research. The data which is in the form of numeric data is the result of post-test between students in experimental class and control class. The scores of students'vocabulary were classified into three. They are the score which focus on vocabulary form, on vocabulary meaning, and on vocabulary use. By analyzing the data, the researcher would be able to answer whether there is significant different score in vocabulary form, meaning, and use of students taught by using word search puzzle and those who been taught by using conventional method at the eight grade students of SMPN 1 Karangrejo.

The score of students in experimental class and control class is shown in the table 4.1 below. It is students' vocabulary score from 60 students. They are 30 students from VIII-C and 30 students from VIII-D. Totally, there are 6 students in those classes who didn't take participation during administering the post test. The data can be seen as follows:

Table 4.1
The Students' Post-Test Score of Experimental Class (VIII-C) Using Word Search Puzzle

No	Name of Students	Post-Test			
		Word Form	Word Meaning	Word use	Word Total
1	**C1**	100	71.43	50	75
2	**C2**	85.71	71.43	100	85
3	**C3**	100	57.14	66.67	75
4	**C4**	100	57.14	66.67	75
5	**C5**	71.43	71.43	50	65
6	**C6**	85.71	57.14	66.67	70
7	**C7**	85.71	85.71	66.67	80
8	**C8**	100	42.85	50	65
9	**C9**	100	71.43	83.33	85
10	**C10**	71.43	71.43	100	80
11	**C11**	71.43	42.85	66.67	60
12	**C12**	71.43	71.43	66.67	70
13	**C13**	85.71	85.71	66.67	80
14	**C14**	100	100	83.33	95
15	**C15**	100	42.85	50	65
16	**C16**	100	71.43	66.67	80
17	**C17**	57.14	57.14	83.33	65
18	**C18**	57.14	42.85	50	50
19	**C19**	71.43	57.14	66.67	65
20	**C20**	71.43	85.71	100	85
21	**C21**	85.71	57.14	66.67	70
22	**C22**	85.71	71.43	50	70
23	**C23**	71.43	71.43	83.33	75
24	**C24**	85.71	100	66.67	85
25	**C25**	85.71	71.43	100	85
26	**C26**	57.14	85.71	66.67	70
27	**C27**	71.43	57.14	50	60
28	**C28**	57.14	100	100	86
29	**C29**	71.43	42.85	66.67	60
30	**C30**	28.57	71.43	66.67	55

Table 4.2
The Students' Post-Test Score of Control Class (VIII-D) Without Word Search Puzzle

No	Name of Students	Post-Test			
		Word Form	Word Meaning	Word use	Word Total
1	**D1**	28.57	71.43	66.67	55
2	**D2**	57.14	71.43	50	60
3	**D3**	100	100	100	100
4	**D4**	57.14	42.85	50	50
5	**D5**	100	71.43	66.67	80
6	**D6**	42.85	42.85	50	45
7	**D7**	100	85.71	66.67	85
8	**D8**	57.14	57.14	50	55
9	**D9**	57.14	57.14	50	55
10	**D10**	85.71	42.85	100	75
11	**D11**	71.43	71.43	100	80
12	**D12**	85.71	42.85	66.67	65
13	**D13**	42.85	57.14	50	50
14	**D14**	85.71	100	66.67	85
15	**D15**	71.43	28.57	83.33	60
16	**D16**	57.14	42.85	50	50
17	**D17**	57.14	71.43	83.33	70
18	**D18**	28.57	71.43	83.33	60
19	**D19**	57.14	28.57	66.67	50
20	**D20**	85.71	42.85	83.33	70
21	**D21**	85.71	57.14	50	65
22	**D22**	71.43	85.71	83.33	80
23	**D23**	42.85	71.43	50	55
24	**D24**	85.71	71.43	33.33	65
25	**D25**	57.14	42.85	50	50
26	**D26**	85.71	57.14	50	65
27	**D27**	71.43	42.85	66.67	60
28	**D28**	28.57	71.43	50	50
29	**D29**	28.57	42.85	66.67	45
30	**D30**	42.85	71.43	33.33	50

To know the description of all the scores gained from the post-test, the researcher did analyzing on students' mean, standard deviation, minimum, and maximum score which can be seen through these tables:

Table 4.3
Descriptive Statistic of Post-test Experimental and Control Class which Concern in Word Form

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Experimental	30	28.57	100.00	79.5227	17.46954
Control	30	28.57	100.00	64.2830	22.43196
Valid N (listwise)	30				

From the table 4.3 above, it shows that in experimental class the studemts' maximum score which concern on word form or vocabulary form is 100 and the minimum score is 28.57. Besides that, the standard deviation of the score is 17.46 and means score is 79.52.

Meanwhile, students in control class gained maximum score 100 and the minimum one is 28.57. Standard Deviation of the score is 22.431 with mean of the score is 64.28. By looking at the mean score, experimental class has higher score than in control class. The gain of their mean score is 15.24.

Table 4.4
Descriptive Statistic of Post-test Experimental and Control Class which Concern in Word Meaning

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Experimental	30	42.85	100.00	68.0933	17.06369
Control	30	28.57	100.00	60.4737	19.01489
Valid N (listwise)	30				

Based on table 4.4 above, it can be revealed that the maximum score of students' vocabulary which concern on word meaning or vocabulary meaning in experimental class is 100 and the minimum is 42.85. The standard deviation of the score is 17.06 with mean score 68.09.

Meanwhile, students in control class gained 100 as their maximum score and the minimum one is 28.57. Standard Deviation of the score is 19.01 with mean of the score is 60.47. By looking at the mean score, experimental class has higher score than control class. The gain of their mean score is 7.62.

Table 4.5
Descriptive Statistic of Post-test Experimental and Control Class which Concern in Word Use

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Experimental	30	50.00	100.00	70.5567	16.77098
Control	30	33.33	100.00	63.8890	18.61238
Valid N (listwise)	30				

According to the table 4.5 above, it can be seen that the score of students' vocabulary which concern on word use or vocabulary use in experimental class has maximum score 100 and the minimum one is 50. The standard deviation of the score is 16.77 with the mean of the score is 70.55.

In another hand, students in control class gained 100 as maximum score and the minimum score is 33.33. Standard Deviation of the score is 18.61 with mean of the score is 63.88.

By looking at the average score, the control class has lower score than experimental class. The gain of their mean score is 6.67. It indicated that the average score of students in experimental class is higher than in the control class

Table 4.6
Descriptive Statistic of Post-test Experimental and Control Class in Word Total

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Experimental	30	50	95	72.87	10.683
Control	30	45	100	62.83	13.877
Valid N (listwise)	30				

Based on table 4.6 above, it shows that the students in experimental class has maximum score 95 and the minimum score 50. The standard deviation of the score is 10.68 with the mean of the score is 72.87,

Meanwhile, students in control class gained 100 as maximum score and the minimum score is 45. Standard Deviation of the score is 13.87 with mean of the score is 62.83. By looking at the mean score, experimental class has higher score than control class. The gain of their mean score is 10.04.

B. The Analysis of the Data

This study used inferential statistics or inductive statistics. It was due to the researcher did analyze on sample data and the result was prevailed to the population. This kind of statistics is also called probability statistics due to the conclusion from the data which would be prevailed to the population has level of significance (probability of correctness and error) in the form of percentage (Sugiyono, 2016: 148-149). Significance means the ability to be generated in certain level of error. In this study, the researcher used 5% error probability. It meant that the result of analysis could be generated to 95% of population.

The researcher had to fulfill some requirements if she wanted to taste hypothesis. The researcher had to make sure that the data been gained was distributed normally and variances was homogeneous.

a. The Result of Normality Testing

In this study, the researcher used Kolmogorov-Smirnov test in SPSS 24.0 to analyze the normality of the data. The result of normality testing was divided into normality result of students'

vocabulary test which concern in vocabulary form, vocabulary meaning, vocabulary use, and vocabulary total. There would be two possible conclusions on this analysis:

- If the sig/P-value > 0.05, the data is distributed normally.
- If the sig/P-value < 0.05, the data is NOT distributed normally.

The result of the normality testing can be seen in the tables below:

Table 4.7
Normality Result of Post-test Experimental and Control Class in Word Form

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	class	Statistic	df	Sig.	Statistic	df	Sig.
Word Form	1.00	.123	30	.200*	.938	30	.082
	2.00	.134	30	.175	.955	30	.234

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on the table above, it reveals that normality testing shows the sig/P-value of word form in experimental group is 0.2. It is higher than α (0.05). It meant the data from this group is distributed normally. In addition, the result of normality in control group is 0.175. The value is higher than α (0.05). Therefore, the data from this group is also assumed distributed normally. In conclusion; data of post-test which concern on word form or vocabulary form is distributed normally.

Table 4.8
Normality Result of Post-test Experimental and Control Class in Word Meaning

Tests of Normality

	class	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
Word Meaning	1	.113	30	.200*	.936	30	.072
	2	.149	30	.086	.944	30	.114

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

According to the output of SPSS above, it shows that the sig/P-value of normality from experimental group in word meaning is 0.2 or is higher than α (0.05). It meant the data from this group is distributed normally. Moreover, from the table above, the sig/P value from control group is 0.086. The value is higher than 0.05. Therefore, the data from this group is also assumed distributed normally. As the conclusion, data of post-test which concern on word meaning or vocabulary meaning is distributed normally.

Table 4.9
Normality Result of Post-test Experimental and Control Class in Word Use

Tests of Normality

	class	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
Word Use	1	.118	30	.200*	.942	30	.101
	2	.145	30	.108	.959	30	.285

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Acording to the table above, it presents that the sig/P-value of normality test from experimental group in word use is 0.2 and is higher than α (0.05). It meant the data from this group is distributed normally. In addition, based on table 4.9, the result of normality from control group is 0.108. The sig/P value is higher than α (0.05). Therefore, the data from this group is also revealed as normally distributed. For the conclusion, data of post-test which concern to the word use or vocabulary use is distributed normally.

Table 4.10
Normality Result of Post-test Experimental and Control Class in Word Total

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Class	Statistic	df	Sig.	Statistic	df	Sig.
Result of Word Total	Experimental Class	.141	30	.134	.965	30	.412
	Control Class	.159	30	.052	.922	30	.030

a. Lilliefors Significance Correction

According to the table of SPSS output above, it can be seen that the sig/P-value of post-test from experimental group in word total is 0.134 and is higher than α (0.05). It meant the data from this group is distributed normally. In addition, from the table above, the result of normality test from control group is 0.052 and is higher than α (0.05). Therefore, the data from this group is also assumed

distributed normally. In the conclusion, data of post-test is distributed normally.

b. The Result of Homogeneity Testing

Another requirement before testing hypothesis by using Independent Sample T-test was ensuring the homogeneity variance of the data. In this study, the researcher used One-Way ANOVA in SPSS 24.0 to consider score from post-test in experimental and control class is homogeous or not. The assumption to draw the decision is the value of significance. If the sig value is more than 0.05, the variance of data is homogeneous. Meanwhile, if the sig value is less than 0.05, the variance is not homogeneous. The result of homogeneity of students' total score, word form, word meaning, and word use are delivered in the tables below:

Table 4.11
Homogeneity Result of Post-test Experimental and Control Class in Word Form

Test of Homogeneity of Variances

Word Form

Levene Statistic	df1	df2	Sig.
3.124	1	58	.082

Table 4.12
Homogeneity Result of Post-test Experimental and Control Class in Word Meaning

Test of Homogeneity of Variances

Word Meaning

Levene Statistic	df1	df2	Sig.
.871	1	58	.355

Table 4.13
Homogeneity Result of Post-test Experimental and Control Class in Word Use

Test of Homogeneity of Variances

Word Use

Levene Statistic	df1	df2	Sig.
.556	1	58	.459

Table 4.14
Homogeneity Result of Post-test Experimental and Control Class in Word Total

Test of Homogeneity of Variances

Word Total

Levene Statistic	df1	df2	Sig.
1.730	1	58	.194

According to the tables above, there are some conclusions on homogeneity of the data. Firstly, based on table 4.11, the sig value of word form or vocabulary form is 0.82. It meant that sig > 0.05 or the variance of the data is homogeneous. Secondly, table 4.12 presents that the sig value of word meaning or vocabulary meaning is 0.355. It also can be said that sig > 0.05, meant the variance of the data is homogeneous. Thirdly, according to the result of table 4.13, the variance of the data is also homogeneous since the sig value of word use or vocabulary use is 0.459 or it is higher than 0.05. Lastly, table 4.14 presents the sig value of word total is 0.194. It meant that the data of vocabulary total is also homogeneous. It is due to 0.194 > 0.05. In conclusion, the data is homogeneous.

C. Hypothesis Testing

After ensuring that the data from post-test is distributed normally and homogenous, the researcher did statistical computation Independent Sample T-test by using SPSS 24.0. It is to test hypothesis of this study. To decide that the null hypothesis is rejected or not, the researcher used this indicator (Chojimah, 2020):

- If sig/P-value < α (0.05), H_0 is rejected
- If sig/P-value > α (0.05), H_0 is accepted

The researcher delivers four tables to present the result of Independent Sample T-test. There is the total score of students' vocabulary test which is elaborated more specifically concern on vocabulary form, vocabulary meaning, and vocabulary use. The results of t-test analysis on students' score from both experimental and control class are presented in the tables below:

Table 4.15
Independents Sample T-test Result of Post-test Experimental and Control Class in Word Form

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Word Form	Equal variances assumed	3.124	.082	2.936	58	.005	15.23967	5.19095	4.84886	25.63048
	Equal variances not assumed			2.936	54.717	.005	15.23967	5.19095	4.83557	25.64377

Based on the table above, the researcher could see that the result of post-test from experimental and control class which concern in vocabulary form has sig/P-value (2-tailed) 0.005. Due to the sig/P-value (0.005) < α (0.05), it can be concluded that the null hypothesis (H_0) is rejected, and the alternative hypothesis is accepted.

Table 4.16
Independents Sample T-test Result of Post-test Experimental and Control Class in Word Meaning

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Word Meaning	Equal variances assumed	.871	.355	1.634	58	.108	7.61967	4.66453	-1.71741	16.95674
	Equal variances not assumed			1.634	57.333	.108	7.61967	4.66453	-1.71972	16.95905

According to table 4.16 it presents that the result of post-test from experimental and control class which concern in vocabulary meaning has sig/P-value (2-tailed) 0.108. It meant that the sig/P-value (0.108) is more than α (0.05). Therefore, the researcher can conclude that the null hypothesis (H_0) is accepted, and the alternative hypothesis is rejected.

Table 4.17
Independents Sample T-test Result of Post-test Experimental and Control Class in Word Use

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Word Use	Equal variances assumed	.556	.459	1.458	58	.150	6.66767	4.57415	-2.48850	15.82383
	Equal variances not assumed			1.458	57.382	.150	6.66767	4.57415	-2.49060	15.82593

By looking to table 4.17 above, the researcher finds that the result of post-test from experimental and control class which concern in vocabulary use has sig/P-value (2-tailed) 0.150. It means that the sig/P-value > α (0.05). Therefore, the researcher can conclude that the null hypothesis (H_0) is accepted, and the alternative hypothesis is rejected.

Table 4.18
Independents Sample T-test Result of Post-test Experimental and Control Class in Word Total

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Word Total	Equal variances assumed	1.730	.194	3.138	58	.003	10.033	3.197	3.633	16.433
	Equal variances not assumed			3.138	54.439	.003	10.033	3.197	3.624	16.442

Based on table 4.18 above, the researcher finds that the result of students' score of vocabulary total from post-test in experimental and control class has sig/P-value (2-tailed) 0.003. Because the sig/P-value

(0.003) is less than α (0.05), the researcher can conclude that the null hypothesis (H_0) is rejected, and the alternative hypothesis is accepted.

D. Discussion

According to the result of statistical computation, there are some important points which can be revealed from this research. The researcher focused on students' vocabulary score which was further divided into some aspects of vocabulary knowledges. They are word form, word meaning, and word use (Nation, 2001:27). The data from post-test in the form of students' score was analyzed to know the significant difference score between experimental and control class.

Before being divided further into aspect of vocabulary knowledges: vocabulary form, meaning, and use, the students' vocabulary scores in vocabulary total had been computed. The result showed that the average score of experimental class is higher than in control class. Experimental class has average score 72.87 while control class gained 62.83. Moreover, the result of T-test reveals that the sig/P-value (2-tailed) is 0.003. Because sig/P value < (α = 0.05), it can be said that there is significance different score in vocabulary total between students of experimental class (who been taught by using word search puzzle) and control class (who been taught by conventional method).

After being divided into aspects of vocabulary knowledges: vocabulary form, meaning, and use, the result of statistical computation revealed some points. The effectiveness of word search puzzle toward

students' vocabulary mastery is also in line with the result of vocabulary form. For students' score which focus on it, the average score of experimental class is 79.52 and in control class is 64.28. It reveals that the mean score from experimental class is higher than in the control class. In addition, the result of T-test shows that the sig/P-value (2-tailed) is 0.005 or less than the level of significance ($\alpha = 0.05$). It meant that there is significant different score in word form of the students taught by using word search puzzle and those who been taught by using conventional method of the eight grade of SMPN 1 Karangrejo. In other words, word search puzzle is effective towards student's vocabulary form. This finding is in line with Goumas et al., (2020) that explained if word search puzzle helped students in memorizing words and their spelling. The player needed to find the words in a grid by paying attention to the letters make up the words during the game. It recalled their memory on words spelling.

Meanwhile, the significant different score is not shown in vocabulary meaning and use. Although the average scores of experimental class is higher than in control class, their different score isn't significant. It can be seen from the sig (2-tailed) value on vocabulary meaning is 0.108 and in vocabulary use is 0.150. Because the sig/P value $> \alpha$ (0.05), it means that the null hypothesis is accepted while the alternative hypothesis is rejected. It also could be said that there is no significant different score in vocabulary meaning and use between students who been taught by using word search puzzle and those who been taught by conventional

method of the eighth grade students in SMPN 1 Karangrejo. In the other words, word search puzzle is not effective towards students' vocabulary mraningand use. This result is supported by Ambiyatul (2018). The average score of students' word meaning and word use in experimental class is higher than in control class, but the difference cannot be said significant. In word search puzzle, unluckily, students did not have an experience to explore or learn in what pattern they must use the words, in what pattern the words occur, and the word meaning. Thus it cannot much help them improve their understanding in apects of vocabulary knowledge: vocabulary meaning and use.