

CHAPTER IV

Discussion

In this chapter, the writer discusses data analysis and data interpretation of problem statements about the effectiveness of Hangman Game to improve students' vocabulary at Eight grade students of SMPN 2 Bangsri. The data were from pretest and posttest. The writer took two classes, they are class VIII A and VIII F. Class VIII A has 30 Students and VIII F has 30 Students. All of them are given pretest and posttest.

4.1 Try out analysis

This analysis was meant to find out the validity and reability of the instrument before it was used as the pre-test and post-test. This test was conducted on August 29, 2018 . The tryout test was conducted for VIII C class. There were 28 as a respondent. The tryout test was available in appendix.

1. Validity.

The vocabulaty test was consist of 30 items numbers. From the try out test that was conducted, it was obtained that item number was valid. The test is said to be valid if the result R_{xy} are greater that r-table. The data was calculated by using product moment and the result showed that the index validity of item number 18 was 0,485. Then the writer consulted the table of r with $N=28$ and significant level 5% in which r tabel is 0,317.

The following is the example of counting the validity of item number 18.

The value of r_{xy} as below:

$$r_{xy} = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}}$$

$$r_{xy} = \frac{24,612}{\sqrt{(4,714)(546,429)}}$$

$$r_{xy} = \frac{24,612}{\sqrt{2576,0204}}$$

$$r_{xy} = \frac{24,612}{50,75}$$

$$r_{xy} = 0,485$$

Based on computation above, the writer conclude that the item number 18 was higher than r table. So, the item test was valid. The analysis of other items was presented in the following table.

Table 1.4
The analysis of try-out test

Criteria	Number of item	The total number
Valid	1,2,4,5,6,,9,11,12,14,17,18,19,22,23,2 4,25,28,27,28,29,30	20
Invalid	3,7,8,10,13,15,16,20,21	10

From the table above, it could be concluded that there were 20 numbers had valid and 10 numbers invalid items.

2. Reliability

An instrument is said good if the item numbers of instrument were valid and reliable. After the validity numbers had benn counted, the next step was to test the reability of instrument. The test was reable if the result of r_{11} is greather than r-table. In this computation, the writer used Arikunto formula and the result showed that the r_{11} was for $\alpha=5\%$, $N=28$ and the r-table was 0,317.

The formula as below :

$$r_{11} = \left(\frac{K}{K-1} \right) \left(1 - \frac{M(k-M)}{KV_t} \right)$$

$$r_{11} = \left(\frac{30}{30-1} \right) \left(1 - \frac{17,93(30-17,93)}{30 \cdot 11,29} \right)$$

$$r_{11} = 0,374$$

for $\alpha=5\%$, $N=28$, and r table = 0,317. From the calculation above, the result of r_{11} was higher than r -table. It mean that the try-out of instrument was reliable.

4.2 Pre-Test

The Pre-test was conducted on August 29, 2018 for control group and experimental group on September 1, 2018. It was done in the different day. The pretest for control group and experimental group was held in the first meeting and that aim to know the basic skill/ the real condition of students especially in vocabulary. The students had fifteen written test the test id multiple choice and it was about verb and adjectives. The instrument of the test can be seen at Appendix.

4.2.1 The data pre-test of students

Table 2.4
The pre-test Score of Experimental group and Control group

NO	EXP Group	CONT Group
1	55	85
2	35	80
3	45	80
4	80	85
5	65	90
6	70	85
7	85	90

NO	EXP Group	CONT Group
8	60	75
9	75	85
10	65	85
11	95	85
12	85	80
13	90	95
14	95	80
15	100	90
16	55	65
17	60	75
18	70	85
19	75	80
20	65	90
21	90	85
22	70	75
23	80	70
24	75	60
25	85	70
26	70	65
27	70	30
28	75	45

NO	EXP Group	CONT Group
29	85	80
30	30	80
31	75	90
Σ	2230	2415
Mean	71,94	77,90

Based on the table above, the mean scores of pre-test in experimental group was 71,94, while the mean scores of pre-test in control group was 77,90. It could be seen that the vocabulary mastery between experimental and control group was different, which meant that the experimental group was lower than control group. It could be concluded that the experimental group needed something effective in improving their vocabulary mastery, that is Hangman Game.

Table 3.4

Table of level achievement

Mark	Score	Level Achievement
A	90-100	Excellent
B	80-89	Very good
C	70-79	Adequate
D	61-69	Inadequate
E	Below 60	Fail

4.3 Treatment Activities

The treatment activity was conducted twice after pre-test was given to the students (Experimental and Control group). For the experimental group was treated by using Hangman Game in teaching vocabulary and control group was treated by using other method. Each group was treated with the same duration but in the different day.

Table 4.4

The Schedule of the Research

Date	Experimental Group (VIII A)	Date	Control Group (VIII F)
Saturday, September 1, 2018	Pre-test	Wednesday, August 29, 2018	Pre-test
Monday, September 3, 2018	First treatment, by using hangman Game	Thursday, September 30, 2018	First treatment, by using Guessing Picture
Saturday, September 8, 2018	Second treatment, by using hangman Game	Wednesday, September 5, 2018	Second treatment, by using Guessing Picture
Monday, September 10, 2018	Post-Test	Wednesday, September 12, 2018	Post-Test

During two meeting every group was given the same topic. In this activities the writer's function as a teacher. The first meeting, the topic

was Simple Present Tense of Verbal Part. The second meeting still with the same material it was Simple Present of nominal part.

Here is the activity of the research.

Table 5.4
The activity of the research

Time	Activity	
	Experimental Group	Control Group
Pretest	Teacher gave the written test	Teacher gave the written test
First meeting (first treatment, simple present tense of verbal)	The teacher explained about the method	The teacher explained about the method
	The teacher explained the material	The teacher explained the material
	The teacher asked students to make a list of some verb	The teacher asked students to guess the picture that is showed by teacher
	The teacher showed how the method work	
	The teacher asked the students practice the game with their	

	friends in pair	
	The teacher asked the students did the game for many times.	
Second meeting (second treatment, simple present tense of nominal)	The teacher explained about the method	Teacher gave the written test
	The teacher explained the material	The teacher explain about the method
	The teacher asked students to make a list of some adjectives and noun	The teacher explained the material
	The teacher showed how the method work	The teacher asked students to guess the picture that is showed by teacher
	The teacher asked the students practice the game with their friends in pair	
	The teacher asked the	

	students did the game for many times.	
Post test	The teacher gave written test	Teacher gave written test

4.4 Post-Test Activity

Post-test was given after treatment by the teacher (writer). Both of them were given in the different day. It was held on September 10, 2018 for Experimental group and was held on September 12, for Control group. The writer use the same instrument like the pre-test item. The instrument can be seen in Appendix.

The following table shows the score of post-test in the experimental and also the control group.

Table 6.4

The post-test Score of Experimental group and Control group

No	EXP Group	CONT Group
1	85	85
2	65	80
3	60	80
4	95	85
5	85	90
6	75	90
7	85	95

No	EXP Group	CONT Group
8	75	80
9	85	90
10	80	85
11	100	90
12	100	75
13	90	100
14	100	85
15	100	95
16	90	65
17	100	80
18	85	90
19	90	85
20	75	95
21	95	80
22	95	85
23	90	75
24	85	65
25	85	75
26	95	70
27	85	25
28	90	45

No	EXP Group	CONT Group
29	90	75
30	90	80
31	90	90
Σ	2710	2485
Mean	87,42	80,16

Based on the table above, the mean score of pre-test in the experimental group was 87,42, and the mean score of control group was 80,16 in the post-test, the mean score of experimental group was higher than the control group. It proved that there was the effect of Hangman Game in improving students' vocabulary mastery.

Table 7.4

Table of level achievement

Mark	Score	Level Achievement
A	90-100	Excellent
B	80-89	Very good
C	70-79	Adequate
D	61-69	Inadequate
E	Below 60	Fail

Based on the table above, it can be seen that the mean of post-test in experimental group is 77,40 in the range (70-79) with the mark C and the mean of post-test in control group was 57,83 in the range (61-69) with the mark D. it can be conclude that there are any significant improvement teaching vocabulary by using Hangman Game at the eight grade. Meanwhile there is student's improving by the other method but it is lower than experimental group.

4.5 Data Analysis

For analyzing the data, the writer compares both experimental group and control group. It aim to prove whether any significant improvement between two variables, students who thought by Using Hangman Game and who thought by the other method. To know the result, the writer uses t-test . Below is the table to analyze the t-test formula . The writer calculated the t test as the step below :

Table 8.4

The Comparison of Students' Result in Post-test of Experimental and Control Class

Students X	Students Y	X	Y	X	Y	X.X	Y.Y
1	1	85	85	-2,42	4,84	-205,70	411,4
2	2	65	80	-22,42	-0,16	-1457,30	-12,8
3	3	60	80	-27,42	-0,16	-1645,20	-12,8
4	4	95	85	7,58	4,84	720,10	411,4

Students X	Students Y	X	Y	X	Y	X.X	Y.Y
5	5	85	90	-2,42	9,84	-205,70	885,6
6	6	75	90	-12,42	9,84	-931,50	885,6
7	7	85	95	-2,42	14,84	-205,70	1409,8
8	8	75	80	-12,42	-0,16	-931,50	-12,8
9	9	85	90	-2,42	9,84	-205,70	885,6
10	10	80	85	-7,42	4,84	-593,60	411,4
11	11	100	90	12,58	9,84	1258,00	885,6
12	12	100	75	12,58	-5,16	1258,00	-387
13	13	90	100	2,58	19,84	232,20	1984
14	14	100	85	12,58	4,84	1258,00	411,4
15	15	100	95	12,58	14,84	1258,00	1409,8
16	16	90	65	2,58	-15,16	232,20	-985,4
17	17	100	80	12,58	-0,16	1258,00	-12,8
18	18	85	90	-2,42	9,84	-205,70	885,6
19	19	90	85	2,58	4,84	232,20	411,4
20	20	75	95	-12,42	14,84	-931,50	1409,8
21	21	95	80	7,58	-0,16	720,10	-12,8
22	22	95	85	7,58	4,84	720,10	411,4
23	23	90	75	2,58	-5,16	232,20	-387
24	24	85	65	-2,42	-15,16	-205,70	-985,4

Students X	Students Y	X	Y	X	Y	X.X	Y.Y
25	25	85	75	-2,42	-5,16	-205,70	-387
26	26	95	70	7,58	-10,16	720,10	-711,2
27	27	85	25	-2,42	-55,16	-205,70	-1379
28	28	90	45	2,58	-35,16	232,20	-1582,2
29	29	90	75	2,58	-5,16	232,20	-387
30	30	90	80	2,58	-0,16	232,20	-12,8
31	31	90	90	2,58	9,84	232,20	885,6
N1=31	N2=31	2710	2485	-0,02	0,04	2891,80	6727,4
Mean		87,42	80,16	0,00	0,00	93,28	217,01

From the table above, it was known the difference result between pre-test and post-test of each group. After that, the writer calculated the result of t-test. The steps to calculate the test are:

- a. Determining the average score of experimental class.

$$\begin{aligned}
 X_1 &= \frac{\sum X_1}{n_1} \\
 &= \frac{2710}{31} \\
 &= 87,42
 \end{aligned}$$

- b. Determining the average score of control class.

$$\begin{aligned}
 X_2 &= \frac{\sum y_2}{n_2} \\
 &= \frac{2485}{31} \\
 &= 80,16
 \end{aligned}$$

- c. Determining the standard deviation of experimental class.

$$\begin{aligned}
 SS_1 &= \sum X_1^2 - \frac{(\sum X_1)^2}{n_1} \\
 &= \sum 2891,90 - \frac{(2710)^2}{31} \\
 &= -234014,5
 \end{aligned}$$

- d. Determining the standard deviation of control class.

$$\begin{aligned}
 SS_2 &= \sum X_2^2 - \frac{(\sum X_2)^2}{n_2} \\
 &= \sum 6727,4 - \frac{(2485)^2}{31} \\
 &= -192473,406
 \end{aligned}$$

- e. Finding the t-value using t-test

$$\begin{aligned}
 t &= \frac{X_1 - X_2}{\sqrt{\left(\frac{SS_1 + SS_2}{n_1 + n_2 - 2}\right) \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}} \\
 &= \frac{87,42 - 80,16}{\sqrt{\left(\frac{-234014,5 + (-192473,406)}{31 + 31 - 2}\right) \left(\frac{1}{31} + \frac{1}{31}\right)}}
 \end{aligned}$$

$$\begin{aligned}
 &= \frac{7,26}{\sqrt{\left(\frac{-42648,906}{60}\right) (0.06)}} \\
 &= \frac{7,26}{\sqrt{-12,48}} \\
 &= \frac{7,26}{3,5}
 \end{aligned}$$

$$=2,074$$

The researcher also analyzed the data using T-test formula in SPSS statistic. The technique was useful to prove statistically whether there was any significant difference between Students' vocabulary mastery in experimental group.

Table 9. 1
The T-Test Result of Pre-Test Score Both Experimental and Control Group

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Score	Experimental	31	71,9355	16,56691	2,97550
	Control	31	77,9032	13,70974	2,46234

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Score	Equal variances assumed	1,275	,263	-1,545	60	,128	-5,96774	3,86222	-13,69333	1,75785
	Equal variances not assumed			-1,545	57,971	,128	-5,96774	3,86222	-13,69890	1,76342

Table above described the t-test analysis of pre-test in experimental and control group. There were two tables, first table was named “Group Statistic” presented the statistical results of pre-test in the experimental and control group. The Group Statistics showed that the average between experimental and control group was different. The mean score of experimental group was 71,93 and the mean score of control group was 77,90 which meant the mean score of experimental group was lower than control group. It could be concluded that the experimental group needed to be given a treatment that was Hangman Game.

In the independent sample test table also described about the t-value of this research. The result of t-value in this research was 1,545. furthermore, the t-value was compared to know weather through Hangman Game for students can improve their vocabulary mastery or not. The t-table was taken from the requirement of t-table’s to analyze the data. The t-table of 0,05 as the significant level was 2,000 with 60 the degree of freedom (df). Then, it could be stated that the t-value (1,545) of pre-test < t-table (2,000). It could be concluded that there was no significant difference between experimental and control group.

Table 10. 4
The T-Test Result of Post-Test Score Both Experimental and Control Group

Group Statistics

Group	N	Mean	Std. Deviation	Std. Error Mean
Score Experimental	31	87,4194	9,82098	1,76390
Control	31	80,1613	14,97130	2,68892

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Score	Equal variances assumed	1,163	,285	2,257	60	,028	7,25806	3,21584	,82542	13,69071
	Equal variances not assumed			2,257	51,785	,028	7,25806	3,21584	,80436	13,71177

Table above described the t-test analysis of pre-test in experimental and control group. There were two tables, the first table was named as “Group Statistic” presented the results of pre-test in experimental and also control group. The Group Statistic showed that the average between experimental and control group was almost same, the mean score of experimental group was 87,42 and the mean score of control group was 80,16. The mean score of experimental group was higher than the mean score of control group. It could be meant that the new treatment (Hangman game) was effective in improving students’ vocabulary mastery.

In the independent sample test table also described about the t-value of this research. The result of t-value in this research was 2,257. Furthermore, the t-value was compared to the t-table to know whether through Hangman Game for the students can improve their vocabulary

mastery or not. The t-table was taken from the requirement of t-table to analyze the data. The t-table of 0,05 as the significant level was 2,000 with 60 degree of freedom (df). Then, it could be stated that the t-value (2,257) > t-table (2,000). It could be concluded that Hangman Game could improve students' vocabulary mastery.

