

## CHAPTER IV

### RESEARCH FINDING AND DISCUSSION

#### A. Data Presentation

In this chapter, the writer presented the data obtained of the students' score in vocabulary mastery in experiment group who is taught using vocabulary card and the data obtained of the students' score in vocabulary mastery in control group who is taught without using vocabulary card.

##### 1. The Result of Pre Test Score

###### a. Distribution of Pre Test score of Experiment group

The students' score could be distributed by the following table in order to analyze the students' skill before conducting the treatment.

**Table 4.1.**  
**The Description Data of Experiment Group Students' Pre Test Score**

NO	CODE	SCORE
1	E1	67
2	E2	55
3	E3	76
4	E4	43
5	E5	45
6	E6	69
7	E7	62
8	E8	69
9	E9	69
10	E10	67
11	E11	74
12	E12	43

13	E13	50
14	E14	40
15	E15	24
16	E16	45
17	E17	45
18	E18	43
19	E19	55
20	E20	76
21	E21	64
22	E22	29
23	E23	21
24	E24	26
25	E25	36
26	E26	45
27	E27	74
28	E28	48
29	E29	36
30	E30	36
31	E31	31
32	E32	43
33	E33	45
34	E34	60
35	E35	40
36	E36	50

Based on the data above, it can be seen that the student's highest score was 76 and the student's lowest score was 21. To determine the range of score, the class interval, and the interval temporary the writer calculated using formula as follows :

The highest score (H) = 76

The lowest score (L) = 21

The range of score (R) =  $H-L+1$   
 $= 76-21+1$   
 $= 55+1$   
 $= 56$

The class interval (K) =  $1+(3,3) \times \text{Log } 36$   
 $= 1+(3,3) \times 1,556302501$   
 $= 5,135798$   
 $= 5$

Interval of temporary =  $R/K = 56/5$   
 $= 11,2$   
 $= 11$

So, the range of score was 56, the class interval was 5, it was presented using frequency distribution in the following table :

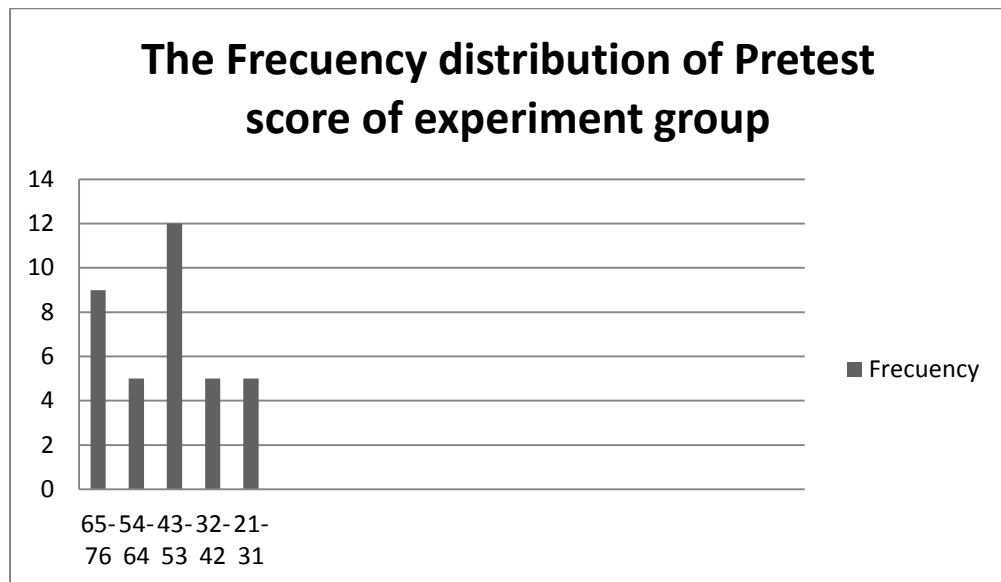
**Table 4.2**  
**The Frequency Distribution of Pre-Test score of the Experiment group**

Class interval (K)	Interval (I)	Frequency (F)	Mid point (X)	The limitation of each group	Frequency relative (%)	Frequency cumulative (%)
1	65-76	9	69,5	64,5-76,5	25	100
2	54-64	5	59	53,5-64,5	13,88889	75
3	43-53	12	48	42,5-53,5	33,33333	61,1
4	32-42	5	37	31,5-42,5	13,88889	27,8

5	21-31	5	26	20,5-31,5	13,88889	13,9
TOTAL		36			100	

The distribution of students' pretest score can also be seen in the following figure.

**Figure 4.1**  
**Histogram of Frequency Distribution of Pretest Score for Experiment Group**



The table and figure above showed the students' pre-test score of the experiment group. It could be seen that there were five students who got 20,5 – 31,5. There were five students who got 31,5 – 42,5. There were twelve students who got 42,5 – 53,5. There were five students who got 53,5 – 64,5. There were nine students who got 64,5 – 76,5.

The next step, the writer tabulated the score into the table for the calculation mean, median, and modus as follows : as follows:

**Table 4.3**

**The Calculation of Mean and median of Pre-test score for Experiment group**

Interval (I)	Frequency (F)	Mid point (X)	FX	X'	Fx'	Fkb	Fka
65-76	9	69,5	625,5	+2	18	36	9
54-64	5	59	295	+1	5	27	14
43-53	12	48	576	0	0	22	26
32-42	5	37	185	-1	-5	10	31
21-31	5	26	130	-2	-10	5	36
TOTAL	36		1811,5		8		

From the table above, the data could be inserted in the formula of mean.

In simple explanation, **X** is score of students, **f** is total students who got the score, **fX** is multiplication both **X** and **f**, **fkb** is the cumulative students calculated from under to the top, in other side **fka** is the cumulative students calculated from the top to under. The process of calculation used formula below:

a. Mean

$$M = \frac{\sum fX}{N}$$

$$M = \frac{1811,5}{36}$$

$$M = 50,31944444$$

$$M = 50$$

The calculation above showed of mean value was 50

b. Median

$$\begin{aligned}
 \text{Mdn} &= \text{£} + \frac{(\frac{1}{2}N - f_{kb})}{f_i} \\
 &= 42,5 + \frac{18-10}{5} \times i \\
 &= 42,5 + \frac{8}{5} \times 11 \\
 &= 42,5 + 1,6 \times 11 \\
 &= 42,5 + 17,6 \\
 &= 60,1
 \end{aligned}$$

The calculation above showed of mean value was 50 and median value was 60,1 of the pre-test of experimental group. The last step, the writer tabulated the score of pre-test into the table for the calculation of standard deviation and the standard error as follows :

**Table 4.4**  
**The Calculation of the Standard Deviation and Standard Error of the Pre-test Score of Experiment group**

Interval (I)	Frequency (F)	Mid point (X)	X'	Fx'	Fx' <sup>2</sup>
65-76	9	69,5	+2	18	36
54-64	5	59	+1	5	5
43-53	12	48	0	0	0
32-42	5	37	-1	-5	5
21-31	5	26	-2	-10	20
<b>TOTAL</b>	<b>36</b>			<b>8</b>	<b>66</b>

The table above used for calculate standard deviation and standard error by calculate standard deviation first. The process of calculation used formula below:

**a. Standard Deviation**

$$SD = i \sqrt{\frac{\sum fx^2}{N} - \frac{(fx')^2}{N}}$$

$$SD = 11 \sqrt{\frac{66}{36} - \frac{(8)^2}{36}}$$

$$SD = 11 \sqrt{1,8333333333 - (0,2222222222)^2}$$

$$SD = 11 \sqrt{1,8333333333 - 0,049382715}$$

$$SD = 11 \sqrt{1,783950618}$$

$$SD = 11 \times 1,335646143$$

$$SD = 14,69210757$$

**b. Standard Error**

$$SEM_D = \frac{SD_D}{\sqrt{N-1}}$$

$$SEM_D = \frac{14,69210757}{\sqrt{36-1}}$$

$$SEM_D = \frac{14,69210757}{\sqrt{35}}$$

$$SEM_D = \frac{14,69210757}{5,916079783}$$

$$SEM_D = 2,483419445$$

$$SEM_D = 2,483419$$

The result calculation showed the standard deviation of pre-test score was 14,69210757 and the standard error of pre-test score was 2,483419. The next step, the writer calculated the scores of mean, median, standard deviation, and standard error of mean of pre-test in experiment group using SPSS as follows:

**Table 4.5**  
**The Table of Calculation of Mean, Median, Standard Deviation, and**  
**Standard Error of Mean of Pre-test Scores of Experiment Group Using**  
**SPSS 15.0 Program**

<b>Statistics</b>		
VAR00001		
N	Valid	36
	Missing	0
Mean		50,0278
Std. Error of Mean		2,62209
Median		45,0000
Std. Deviation		15,73256
Variance		247,513
Range		55,00
Minimum		21,00
Maximum		76,00
Sum		1801,00



**b. Distribution of Pre-test scores of Control Group**

The pre-test scores of the control group were presented in the following table.

**Table 4.6**  
**The Description of Pre-Test Scores of Data Achieved by the Students**  
**in Control Group**

NO	CODE	SCORE
1	C1	45
2	C2	50
3	C3	69
4	C4	67
5	C5	26
6	C6	60
7	C7	21
8	C8	17
9	C9	45
10	C10	33
11	C11	48
12	C12	48
13	C13	26
14	C14	60
15	C15	21
16	C16	17
17	C17	45
18	C18	33
19	C19	64
20	C20	45
21	C21	50
22	C22	69
23	C23	67
24	C24	26
25	C25	60
26	C26	55
27	C27	62
28	C28	55
29	C29	55

30	C30	45
31	C31	33
32	C32	48
33	C33	48
34	C34	36
35	C35	36
36	C36	50

Based on the data above, it can be seen that the student's highest score was 76 and the student's lowest score was 21. To determine the range of score, the class interval, and the interval temporary the writer calculated using formula as follows :

$$\text{The highest score (H)} = 69$$

$$\text{The lowest score (L)} = 17$$

$$\begin{aligned} \text{The range of score (R)} &= H-L+1 \\ &= 69-17+1 \\ &= 52+1 \\ &= 53 \end{aligned}$$

$$\begin{aligned} \text{The class interval (K)} &= 1+(3,3) \times \text{Log } 36 \\ &= 1+(3,3) \times 1,556302501 \\ &= 5,135798 \\ &= 5 \end{aligned}$$

$$\begin{aligned} \text{Interval of temporary} &= R/K = 53/5 \\ &= 10,6 \\ &= 10 \text{ or } 11 \end{aligned}$$

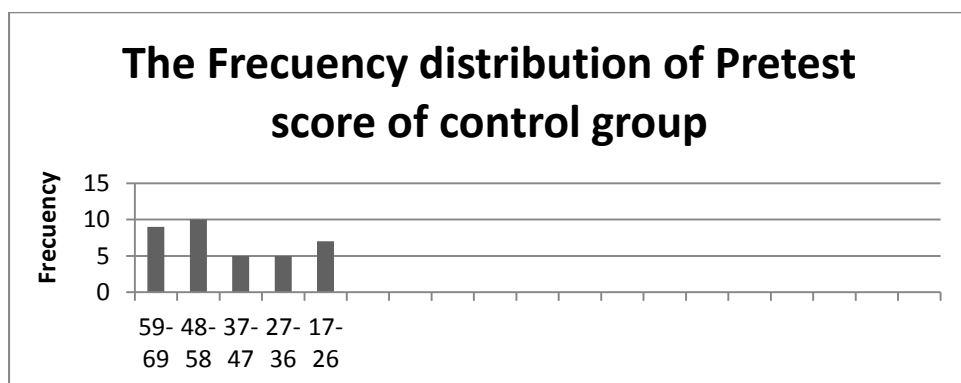
So, the range of score was 53, the class interval was 5, it was presented using frequency distribution in the following table :

**Table 4.7**  
**The Frequency Distribution of Pre-Test score of the Experiment group**

Class interval (K)	Interval (I)	Frequency (F)	Mid point (X)	The limitation of each group	Frequency relative (%)	Frequency cumulative (%)
1	59-69	9	62,5	58,5-69,5	25	100
2	48-58	10	53	47,5-58,5	27,77778	75
3	37-47	5	42	36,5-47,5	13,88889	47,22222
4	27-36	5	31,5	26,5-36,5	13,88889	33,33333
5	17-26	7	21,5	16,5-26,5	19,44444	13,88889
TOTAL		36			100	

The distribution of students' pretest score can also be seen in the following figure.

**Figure 4.2**  
**Histogram of Frequency Distribution of Pretest Score for control group**



The table and figure above showed the students' pre-test score of the control group. It could be seen that there were seven students who got 17-26. There were five students who got 27-36. There were twelve students who got 37-47. There were five students who got 48-58. There were nine students who got 59-69. The next step, the writer tabulated the score into the table for the calculation mean and median as follows :

**Table 4.8**

**The Calculation of Mean and median of Pre-test score for control group**

Interval (I)	Frequency (F)	Mid point (X)	FX	X'	Fx'	Fkb	Fka
59-69	9	62,5	562,5	+2	18	36	9
48-58	10	53	530	+1	10	27	19
37-47	5	42	210	0	0	17	24
27-36	5	31,5	157,5	-1	-5	12	29
17-26	7	21,5	150,5	-2	-14	5	36
TOTAL	36		1610,5		9		

From the table above, the data could be inserted in the formula of mean. In simple explanation,  $\bar{X}$  is score of students,  $f$  is total students who got the score,  $fX$  is multiplication both  $X$  and  $f$ ,  $fkb$  is the cumulative students calculated from under to the top, in other side  $fka$  is the cumulative students calculated from the top to under. The process of calculation used formula below:

a. Mean

$$M = \frac{\sum fX}{N}$$

$$M = \frac{1610,5}{36}$$

$$M = 44,736111$$

$$M = 44,7$$

The calculation above showed of mean value was 44,7

b. Median

$$\begin{aligned} \text{Mdn} &= \text{£} + \frac{(\frac{1}{2}N - fkb)}{fi} X i \\ &= 36,5 + \frac{18-12}{10} X 10 \\ &= 42,5 + \frac{8}{10} X 10 \\ &= 42,5 + 0,8 x 11 \\ &= 42,5 + 8,8 \\ &= 51,3 \end{aligned}$$

The calculation above showed of mean value was 44,7 and median value was 51,3 of the pre-test of control group. The last step, the writer tabulated the score of pre-test into the table for the calculation of standard deviation and the standard error as follows :

**Table 4.9**

**The Calculation of the Standard Deviation and Standard Error of the Pre-test Score of control group**

Interval (I)	Frequency (F)	Mid point (X)	X'	Fx'	Fx'2
59-69	9	62,5	+2	18	36
48-58	10	53	+1	10	10
37-47	5	42	0	0	0
27-36	5	31,5	-1	-5	5
17-26	7	21,5	-2	-14	28
TOTAL	36			9	79

The table above used for calculate standard deviation and standard error by calculate standard deviation first. The process of calculation used formula below :

**a. Standard Deviation**

$$SD= i\sqrt{\frac{\sum fx^2}{N} - \frac{(fx')^2}{N}}$$

$$SD= 10\sqrt{\frac{79}{36} - \frac{(9)^2}{36}}$$

$$SD= 10\sqrt{2,194444444 - (0,25)^2}$$

$$SD= 10\sqrt{2,194444444 - 0,0625}$$

$$SD = 10 \sqrt{2,131944444}$$

$$SD = 11 \times 1,460117956$$

$$SD = 16,06129751$$

**b. Standard Error**

$$SEM_D = \frac{SD_D}{\sqrt{N-1}}$$

$$SEM_D = \frac{16,06129751}{\sqrt{36-1}}$$

$$SEM_D = \frac{16,06129751}{\sqrt{35}}$$

$$SEM_D = \frac{16,06129751}{5,916079783}$$

$$SEM_D = 2,714854785$$

$$SEM_D = 2,71485$$

The result calculation showed the standard deviation of pre-test score was 16,06129751 and the standard error of pre-test score was 2,71485. The next step, the writer calculated the scores of mean, median, standard deviation, and standard error of mean of pre-test in experiment group using SPSS as follows:

**Table 4.10**

**The Table of Calculation of Mean, Median, Standard Deviation,  
and Standard Error of Mean of Pre-test Scores of control Group Using SPSS**

**15.0 Program**

**Statistics**

VAR00002

N	Valid	36
	Missing	0
Mean		45,4167
Std. Error of Mean		2,55833
Median		48,0000
Std. Deviation		15,34997
Variance		235,621
Range		52,00
Minimum		17,00
Maximum		69,00
Sum		1635,00

**2. The Result of Post Test Score**

**a. Distribution of Post-test Score of experiment group**

The post-test of the experiment group were presented in the following table:

**Table 4.11**

**The Description of Post-test Scores of the Data Achieved by the  
students in Experiment Group**

NO	CODE	SCORE
1	E1	83
2	E2	100
3	E3	98
4	E4	76



5	E5	93
6	E6	69
7	E7	88
8	E8	88
9	E9	69
10	E10	88
11	E11	100
12	E12	93
13	E13	69
14	E14	88
15	E15	83
16	E16	100
17	E17	69
18	E18	100
19	E19	93
20	E20	95
21	E21	83
22	E22	76
23	E23	93
24	E24	88
25	E25	100
26	E26	100
27	E27	83
28	E28	76
29	E29	93
30	E30	71
31	E31	100
32	E32	100
33	E33	95
34	E34	76
35	E35	93
36	E36	100

Based on the data above, it can be seen that the student's highest score was 69 and the student's lowest score was 100. To determine the range of score,

the class interval, and the interval temporary the writer calculated using formula as follows :

$$\text{The highest score (H)} = 100$$

$$\text{The lowest score (L)} = 69$$

$$\begin{aligned} \text{The range of score (R)} &= H-L+1 \\ &= 100-69+1 \\ &= 31+1 \\ &= 32 \end{aligned}$$

$$\begin{aligned} \text{The class interval (K)} &= 1+(3,3) \times \text{Log } 36 \\ &= 1+(3,3) \times 1,556302501 \\ &= 5,135798 \\ &= 5 \end{aligned}$$

$$\begin{aligned} \text{Interval of temporary} &= R/K = 32/5 \\ &= 6,4 \\ &= 6 \text{ or } 7 \end{aligned}$$

So, the range of score was 32, the class interval was 5, it was presented using frequency distribution in the following table :

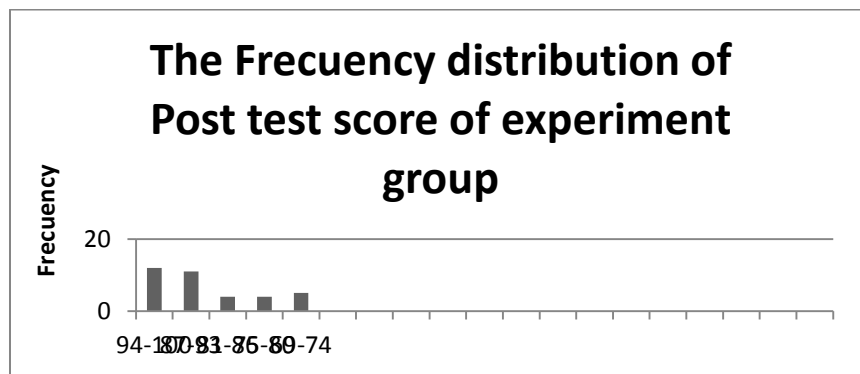
**Table 4.12**  
**The Frequency Distribution of Post -Test score of the Experiment group**

Class interval (K)	Interval (I)	Frequency (F)	Mid point (X)	The limitation of each	Frequency relative (%)	Frequency cumulative (%)
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				group		
1	94-100	12	97	93,5-100,5	33,33333	100
2	87-93	11	90	86,5-93,5	30,55556	66,66667
3	81-86	4	83,5	80,5-86,5	11,11111	55,55556
4	75-80	4	77,5	74,5-80,5	11,11111	44,44444
5	69-74	5	72	68,5-74,5	13,88889	33,33333
TOTAL		36			100	

The distribution of students' pretest score can also be seen in the following figure.

**Figure 4.3**  
**Histogram of Frequency Distribution of Post test Score for experiment group**



The table and figure above showed the students' post-test score of the experiment group. It could be seen that there were five students who got 69-74. There were four students who got 75 - 80. There were five students who got 81 - 86. There were eleven students who got 87 - 93. There were twelve students who got 94 - 100.

The next step, the writer tabulated the score into the table for the calculation mean, and median as follows : as follows:

**Table 4.13**

**The Calculation of Mean and median of Post-test score for Experiment group**

Interval (I)	Frequency (F)	Mid point (X)	FX	X'	Fx'	Fkb	Fka
94-100	12	97	1164	+2	24	36	12
87-93	11	90	990	+1	11	24	23
81-86	4	83,5	334	0	0	13	27
75-80	4	77,5	310	-1	-4	9	31
69-74	5	72	360	-2	-10	5	36
TOTAL	36		3158		21		

From the table above, the data could be inserted in the formula of mean. In simple explanation, **X** is score of students, **f** is total students who got the score, **fX** is multiplication both **X** and **f**, **fkb** is the cumulative students calculated from under to the top, in other side **fka** is the cumulative students calculated from the top to under. The process of calculation used formula below:

a. Mean

$$M = \frac{\sum fX}{N}$$

$$M = \frac{3158}{36}$$

$$M = 87,722222$$

$$M = 87,7$$

The calculation above showed of mean value was 87,7

b. Median

$$\begin{aligned} \text{Mdn} &= \text{£} + \frac{(\frac{1}{2}N - f_{kb})}{f_i} \\ &= 80,5 + \frac{18-9}{5} \times 6 \\ &= 80,5 + \frac{9}{5} \times 6 \\ &= 80,5 + 1,8 \times 6 \\ &= 80,5 + 10,8 \\ &= 91,3 \end{aligned}$$

The calculation above showed of mean value was 87,7 and median value was 91,3 of the pre-test of experimental group. The last step, the writer tabulated the score of pre-test into the table for the calculation of standard deviation and the standard error as follows :

**Table 4.14**

**The Calculation of the Standard Deviation and Standard Error of the Post-test Score of Experiment group**

Interval (I)	Frequency (F)	Mid point (X)	X'	Fx'	Fx' <sup>2</sup>
94-100	12	97	+2	24	48
87-93	11	90	+1	11	11
81-86	4	83,5	0	0	0
75-80	4	77,5	-1	-4	4

69-74	5	72	-2	-10	20
TOTAL	36			21	83

The table above used for calculate standard deviation and standard error by calculate standard deviation first. The process of calculation used formula below:

**a. Standard Deviation**

$$SD = i \sqrt{\frac{\sum fx^2}{N} - \frac{(fx')^2}{N}}$$

$$SD = 6 \sqrt{\frac{83}{36} - \frac{(21)^2}{36}}$$

$$SD = 6 \sqrt{2,305555556 - (0,583333333)^2}$$

$$SD = 6 \sqrt{2,305555556 - 0,342077777}$$

$$SD = 6 \sqrt{1,963477779}$$

$$SD = 6 \times 1,401241513$$

$$SD = 8,407449078$$

$$SD = 8,40745$$

**b. Standard Error**

$$SEM_D = \frac{SD_D}{\sqrt{N-1}}$$

$$SEM_D = \frac{8,407449078}{\sqrt{36-1}}$$

$$SEM_D = \frac{8,407449078}{\sqrt{35}}$$

$$SEM_D = \frac{8,407449078}{5,916079783}$$

$$SEM_D = 1,42118272$$

$$SEM_D = 1,42118$$

The result calculation showed the standard deviation of pre-test score was 8,40745 and the standard error of post-test score was 1,42118. The next step, the writer calculated the scores of mean, median, standard deviation, and standard error of mean of pre-test in experiment group using SPSS as follows:

**Table 4.15**  
**The Table of Calculation of Mean, Median, Standard Deviation, and Standard Error of Mean of Pre-test Scores of ExperimentGroup Using SPSS 16.0 Program**

Statistics		
VAR00001		
N	Valid	36
	Missing	0
Mean		88,0278

Std. Error of Mean	1,79350
Median	90,5000
Std. Deviation	10,76100
Variance	115,799
Range	31,00
Minimum	69,00
Maximum	100,00
Sum	3169,00

**b. Distribution of Post-test Score of control group**

The post-test of the control group were presented in the following table:

**Table 4.16**  
**The Description of Post-test Scores of the Data Achieved by the**  
**students in Control Group**

NO	CODE	SCORE
1	C1	60
2	C2	71
3	C3	69
4	C4	71
5	C5	50
6	C6	64
7	C7	57
8	C8	62
9	C9	50
10	C10	57
11	C11	55
12	C12	57
13	C13	45
14	C14	60
15	C15	40
16	C16	40
17	C17	64
18	C18	43
19	C19	74



20	C20	62
21	C21	50
22	C22	55
23	C23	67
24	C24	48
25	C25	64
26	C26	67
27	C27	69
28	C28	55
29	C29	62
30	C30	50
31	C31	40
32	C32	52
33	C33	50
34	C34	43
35	C35	43
36	C36	62

Based on the data above, it can be seen that the student's highest score was 74 and the student's lowest score was 40. To determine the range of score, the class interval, and the interval temporary the writer calculated using formula as follows :

The highest score (H) = 74

The lowest score (L) = 40

The range of score (R) =  $H-L+1$   
 $= 74-40+1$   
 $= 34+1$   
 $= 35$

The class interval (K) =  $1+(3,3) \times \text{Log } 36$   
 $= 1+(3,3) \times 1,556302501$

$$= 5,135798$$

$$= 5$$

$$\text{Interval of temporary} = R/K = 35/5$$

$$= 7$$

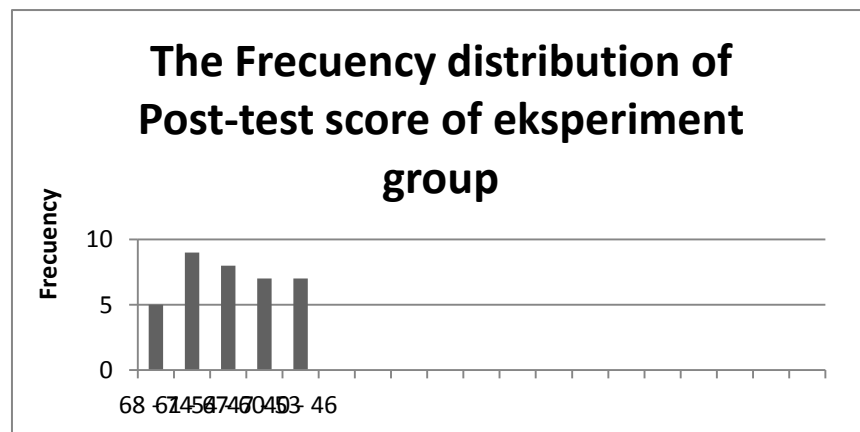
So, the range of score was 35, the class interval was 5, it was presented using frequency distribution in the following table :

**Table 4.17**  
**The Frequency Distribution of Pre-Test score of the Experiment group**

Class interval (K)	Interval (I)	Frequency (F)	Mid point (X)	The limitation of each group	Frequency relative (%)	Frequency cumulative (%)
1	68 – 74	5	71	67,5–74,5	13,88888889	100
2	61 – 67	9	64	60,5-67,5	25	86,11111111
3	54 – 60	8	57	53,5-60,5	22,22222222	61,11111111
4	47 – 53	7	50	46,5-53,5	19,44444444	38,88888888
5	40 – 46	7	43	39,5-46,5	19,44444444	19,44444444
TOTAL		36			100	

The distribution of students' pretest score can also be seen in the following figure :

**Figure 4.4**  
**Histogram of Frequency Distribution of Post - test Score for Experiment Group**



The table and figure above showed the students' pre-test score of the experiment group. It could be seen that there were seven students who got 40-46. There were seven students who got 47 - 53. There were eight students who got 54 - 60. There were nine students who got 61 - 67. There were five students who got 68-74.

The next step, the writer tabulated the score into the table for the calculation mean and median as follows :

**Table 4.18**  
**The Calculation of Mean and median of post-test score for control group**

Interval (I)	Frequency (F)	Mid point (X)	FX	X'	Fx'	Fkb	Fka

68 – 74	5	71	355	+3	15	36	5
61 – 67	9	64	576	+2	18	31	14
54 – 60	8	57	456	+1	8	22	22
47 – 53	7	50	350	0	0	14	29
40 – 46	7	43	301	-1	-7	7	36
TOTAL	36		2038		34		

From the table above, the data could be inserted in the formula of mean. In simple explanation,  $X$  is score of students,  $f$  is total students who got the score,  $fX$  is multiplication both  $X$  and  $f$ ,  $fkb$  is the cumulative students calculated from under to the top, in other side  $fka$  is the cumulative students calculated from the top to under. The process of calculation used formula below:

a. Mean

$$M = \frac{\sum fX}{N}$$

$$M = \frac{2038}{36}$$

$$M = 56,61111111$$

$$M = 56,6$$

The calculation above showed of mean value was 56,6

b. Median

$$\begin{aligned}
\text{Mdn} &= \text{£} + \frac{(\frac{1}{2}N - f_{kb})}{f_i} X_i \\
&= 46,5 + \frac{18-7}{8} \times 7 \\
&= 46,5 + \frac{11}{8} \times 7 \\
&= 46,5 + 1,375 \times 7 \\
&= 46,5 + 9,499 \\
&= 55,999
\end{aligned}$$

The calculation above showed of mean value was 56,6 and median value was 55,9 of the pre-test of experimental group. The last step, the writer tabulated the score of pre-test into the table for the calculation of standard deviation and the standard error as follows :

**Table 4.19**  
**The Calculation of the Standard Deviation and Standard Error of the Post-test Score of Experiment group**

Interval (I)	Frequency (F)	Mid point (X)	X'	Fx'	Fx'2
68 – 74	5	71	+3	15	45
61 – 67	9	64	+2	18	36
54 – 60	8	57	+1	8	8
47 – 53	7	50	0	0	0
40 – 46	7	43	-1	-7	7
<b>TOTAL</b>	<b>36</b>			<b>34</b>	<b>96</b>

The table above used for calculate standard deviation and standard error by calculate standard deviation first. The process of calculation used formula below:

**a. Standard Deviation**

$$SD = i \sqrt{\frac{\sum fx^2}{N} - \frac{(fx')^2}{N}}$$

$$SD = 7 \sqrt{\frac{96}{36} - \frac{(34)^2}{36}}$$

$$SD = 7 \sqrt{2,666666667 - (0,944444444)^2}$$

$$SD = 7 \sqrt{2,666666667} - 0,891975307$$

$$SD = 7 \sqrt{1,77469136}$$

$$SD = 7 \times 1,332175424$$

$$SD = 9,325227968$$

$$SD = 9,32523$$

**b. Standard Error**

$$SEM_D = \frac{SD_D}{\sqrt{N-1}}$$

$$SEM_D = \frac{9,325227968}{\sqrt{36-1}}$$

$$SEM_D = \frac{9,325227968}{\sqrt{35}}$$

$$SEM_D = \frac{9,325227968}{5,916079783}$$

$$SEM_D = 1,576251219$$

$$SEM_D = 1,57625$$

The result calculation showed the standard deviation of post-test score was 9,32523 and the standard error of pre-test score was 1,57625 The next step, the writer calculated the scores of mean, median, standard deviation, and standard error of mean of post-test in control group using SPSS as follows:

**Table 4.20**  
**The Table of Calculation of Mean, Median, Standard Deviation, and**  
**Standard Error of Mean of Post-test Scores of control Group Using SPSS**  
**15.0 Program**

**Statistics**  
VAR00001

N	Valid	36
	Missing	0
	Mean	56,3333
	Std. Error of Mean	1,63785
	Median	57,0000
	Std. Deviation	9,82708
	Variance	96,571
	Range	34,00
	Minimum	40,00
	Maximum	74,00

Sum	2028,00
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## 2. The result of data normality and homogeneity

### 1. Testing of Data Normality

One of the requirements in experimental design was the test of normality assumption. Related to data normality, Irianto states:

“The data of population will be normal if the mean same with the modus and median. It means that some of scores gather in the middle position, meanwhile the frequency of average and low score show the descent that more balance. Because of the descent of the low score frequency and the high score is balance, so that the down of curve line to right and left will be balance.<sup>1</sup>”

Because of that, the writer used SPSS 15.0 to measure the normality of the data. Test Normality of Pre Test and Post Test Scores can be seen in the following table:

**Table 4.21**  
**Test of Normality distribution test on the pre-test score of the experiment and control group**  
**One-Sample Kolmogorov-Smirnov Test**

		VAR00001
N		72
Normal Parameters(a,b)	Mean	47,7222
	Std. Deviation	15,60627
Most Extreme Differences	Absolute	,081
	Positive	,081

<sup>1</sup>Agus Irianto, *Statistik: KonsepDasardanAplikasinya*, Jakarta: Prenada Media, 2004, p.62



	Negative	-,076
Kolmogorov-Smirnov Z		,686
Asymp. Sig. (2-tailed)		,734

Based on the table above, it can be seen that the P value (Sig.)of pre-test scores of the experimental and the control class are 0,734 which are higher than the level of significance (0.05). Thus, it can be concluded that the null hypothesis is accepted and the data were normally distributed.

**Table 4.22**

**Test of Normality distribution test on the post-test score of the experiment and control group**

**One-Sample Kolmogorov-Smirnov Test**

		VAR00001
N		72
Normal Parameters(a,b)	Mean	72,1806
	Std. Deviation	18,95683
Most Extreme Differences	Absolute	,117
	Positive	,081
	Negative	-,117
Kolmogorov-Smirnov Z		,997
Asymp. Sig. (2-tailed)		,274

Based on the table above, it can be seen that the P value (Sig.)of pre-test scores of the experimental and the control class are 0,274 which are higher than the level of significance (0.05). Thus, it can be concluded that the null hypothesis is accepted and the data were normally distributed.

**b. Testing of data homogeneity**

In testing the homogeneity of the scores test on SPSS15.0 for windows was employed. Firstly, the hypothesis was stated as follows:

H0: the variances of experimental and control group are homogeneous.

After that, the homogeneity variance was computed. The next steps compared the result of homogeneity test with the level of significance at 0.05. Table 4.31 below shows the result of homogeneity test.

**Table 4. 23**

**Test of Homogeneity of Variance Result on the pre-test Scores**

**Test of Homogeneity of Variances**

vocabulary mastery

Levene Statistic	df1	df2	Sig.
,158	1	70	,693

The significance value of test shown in the table is 0.693. Since the significance value is higher than the level of significance (0.05). Therefore, the null hypothesis of the pre-test score can be accepted in which the variances of pre-test scores in both classes are homogeneous.

**Table 4. 24**

**Test of Homogeneity of Variance Result on the post-test Scores**

**Test of Homogeneity of Variances**

vocabulary mastery

Levene Statistic	df1	df2	Sig.
,308	1	70	,581

The significance value of test shown in the table is 0.581. Since the significance value is higher than the level of significance (0.05). Therefore, the null hypothesis of the post-test score can be accepted in which the variances of

pre-test scores in both classes are homogeneous.

**a. Result of Data Analysis**

**a. Testing Hypothesis Using  $t_{test}$**

The writer chose the level of significance in 5%, it mean that the level of significance of the refusal null hypothesis in 5%. The writer decided the level of significance at 5% due to the hypothesis type stated on non-directional (two-tailed test). It meant that the hypothesis cannot directly the prediction of alternative hypothesis. To test the hypothesis of the study, the writer used t-test statistical calculation. First, the writer calculated the standard deviation and the standard error of  $X_1$  and  $X_2$ . It was found the standard deviation and the standard error of post test of  $X_1$  and  $X_2$  at the previous data presentation. It could be seen in this following table:

**Table 4.25**

**The Standard Deviation and Standard Error of  $X_1$  and  $X_2$**

<b>Variable</b>	<b>The Standard Deviation</b>	<b>The Standard Error</b>
$X_1$	8,40745	1,42118
$X_2$	9,32523	1,57625

Where :

$X_1$  = Experimental Group

X<sub>2</sub> = Control Group

The table showed the result of the standard deviation calculation of X<sub>1</sub> was 8,40745 and the result of the standard error mean calculation was 1,42118. The result of the standard deviation calculation of X<sub>2</sub> was 9,32523 and the result of the standard error calculation was 1,57625.

The next step, the writer calculated the standard error of the differences mean between X<sub>1</sub> and X<sub>2</sub> as follows:

Standard Error of the Difference Mean scores between Variable I and Variable II:

$$SE_{M1} - SE_{M2} = \sqrt{SEm1^2 + SEm2^2}$$

$$SE_{M1} - SE_{M2} = \sqrt{1,42118^2 + 1,57625^2}$$

$$SE_{M1} - SE_{M2} = \sqrt{2,019753 + 2,484564}$$

$$SE_{M1} - SE_{M2} = \sqrt{4,504317}$$

$$SE_{M1} - SE_{M2} = 2,122338 = 2,1223$$

The calculation above showed the standard error of the differences mean between X<sub>1</sub> and X<sub>2</sub> was 2,1223. Then, it was inserted the t<sub>o</sub> formula to get the value of t<sub>observed</sub> as follows:

$$t_o = \frac{M1 - M2}{SEm1 - SEm2}$$

$$t_o = \frac{87,7-56,6}{2,1223}$$

$$t_o = \frac{31,1}{2,1223}$$

$$t_o = 14,65391$$

$$t_o = 14,654$$

With the criteria:

If  $t_{\text{test}} (t_{\text{observed}}) \geq t_{\text{table}}$ ,  $H_a$  is accepted and  $H_o$  is rejected.

If  $t_{\text{test}} (t_{\text{observed}}) < t_{\text{table}}$ ,  $H_a$  is rejected and  $H_o$  is accepted.

Then, the writer interpreted the result of  $t_{\text{test}}$ . Previously, the writer accounted the degree of freedom (df) with the formula:

$$\begin{aligned} \text{Df} &= (N_1 + N_2) - 2 \\ &= (36 + 36) - 2 = 70 \end{aligned}$$

$t_{\text{table}}$  at df 70/60 at 5% the level of significant = 2.00

The writer chose the level of significance in 5%; it means that the level of significance of the refusal null hypothesis in 5%. The writer decided the level of significance at 5% due to the hypothesis typed stated on non-directional (two-tailed test). It meant that the hypothesis cannot direct the prediction of alternative hypothesis. The calculation above showed the result of  $t_{\text{test}}$  calculation as in the table follows:

**Table 4.26**

**The Result of  $t_{test}$**

Variable	$t_{observed}$	$t_{table}$		Df/db
		5%	1%	
$X_1-X_2$	14,654	2.00	2.66	70/60

Where:

$X_1$  = Experimental Group

$X_2$  = Control Group

$t_{observed}$  = The Calculated Value

$t_{table}$  = The Distribution of t value

Df/db = Degree of Freedom

Based on the result of hypothesis test calculation, it was found that the value of  $t_{observed}$  was greater than the value of  $t_{table}$  at the level of significance in 5% or 1% that was  $2.00 < 14,654 > 2.66$ . It meant  $H_a$  was accepted and  $H_o$  was rejected.

It could be interpreted based on the result of calculation that  $H_a$  stating that using of vocabulary card media increases the eight-grade students' vocabulary mastery at MTs MUSLIMAT NU Palangka Raya was accepted and  $H_o$  stating that using vocabulary card media does not increases the eight-grade

students' vocabulary mastery at MTs MUSLIMAT NU Palangka Raya was rejected. It meant that teaching vocabulary by using vocabulary card media increases the eight-grade students' vocabulary mastery scores at MTs MUSLIMAT NU Palangka Raya.

**b. Testing Hypothesis Using SPSS Program**

The writer also applied SPSS 15.0 program to calculate t test in testing hypothesis of the study. The result of the t test using SPSS 15.0 was used to support the manual calculation of the t test. The result of the test using SPSS 15.0 program could be seen as follows:

**Table 4.27**  
**The Standard Deviation and the Standard Error of X<sub>1</sub> and X<sub>2</sub> using SPSS 15.0**  
**Group Statistics**

class		N	Mean	Std. Deviation	Std. Error Mean
score	experiment	36	88,03	10,761	1,794
	control	36	56,33	9,827	1,638

The table showed the result of the standard deviation calculation of X<sub>1</sub> was 10,761 and the result of the standard error mean calculation was 1,794. The result of the standard deviation calculation of X<sub>2</sub> was 9,827 and the standard error mean calculation was 1,638

**Table 4.28**

## The Calculation of T-test Using SPSS 16.0

### 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	Lower	Upper	Lower	Upper	Lower	Upper	Lower
score	Equal variances assumed	,308	,581	13,049	70	,000	31,694	2,429	26,850	36,539
	variances not assumed			13,049	69,431	,000	31,694	2,429	26,850	36,539

The table showed the result of t-test calculation using SPSS 15.0 program. Since the result of post-test between experiment and control group had difference score of variance, it meant the t-test calculation used at the equal variances not assumed. It found that the result of  $t_{\text{observed}}$  was 13,049, the result of mean difference between experimental and control group was 31,694 and the standard error difference between experimental and control group was 2,429.

### c. Interpretation

To examine the truth or the false of null hypothesis stating that the students taught vocabulary by vocabulary card media, the result of t-test was interpreted on the result of degree of freedom to get the  $t_{\text{table}}$ . The result of degree



of freedom (df) was 70/60, it found from total number of the students in both group minus 2. The following table was the result of  $t_{observed}$  and  $t_{table}$  from 32df at 5% and 1% significance level.

**Table 4.29**

**The Result of T-test Using SPSS 15.0**

Variable	T observed	T table		Df/db
		5%	1%	
X <sub>1</sub> -X <sub>2</sub>	13,049	2.00	2.66	70

Interpretation of the result of t-test using SPSS 15.0 program, it was found the t observe was greater than the t table at 1% and 5% significance level or  $2.00 < 13,049 > 2.66$ . It means that  $H_a$  was accepted and  $H_o$  was rejected.

It could be interpreted based on the result of calculation that  $H_a$  stating that the students taught vocabulary by vocabulary card media have better vocabulary mastery was accepted and  $H_o$  stating that the students taught vocabulary by flash card media do not have better vocabulary mastery was rejected. It means that the students taught by vocabulary card media have better vocabulary mastery than those taught by non-vocabulary card at the eight grade students of MTs MUSLIMAT NU Palangka Raya.

## B. Discussion

The result of data analysis showed that the students taught by vocabulary card media have better vocabulary mastery than those taught by non-vocabulary card media at the eight grade students of MTs MUSLIMAT NU Palangka Raya. It can be seen first from the means score between Pre-test and Post-test. The mean score of Post-test reached higher score than the mean score of Pre-test  $2.00 < 13,049 > 2.66$ . It indicated that the students' score increased after conducting treatment. In other words, the students taught by vocabulary card media have better vocabulary mastery than those taught by non-vocabulary card media at the eighth grade students of MTs MUSLIMAT NU Palangka Raya.

Meanwhile, after the data were calculated using the  $t_{test}$  formula using manual calculation showed that the  $t_{observed}$  was 14,654. By comparing the  $t_{observed}$  with the  $t_{table}$ , it was found that the  $t_{observed}$  was higher than the value of  $t_{table}$  at 1% and 5% significance level or  $2.00 < 14,654 > 2.66$ .

In teaching learning process, taught vocabulary by using vocabulary card media were a tool used by the writer to teach the students. Vocabulary card media could make a good interaction between teacher and students. In the first meeting of treatment, the students got explanation about teaching learning activity. The teacher wrote some sentences related the material. After that, teacher asked the students to look for the difficult words. Then, the teacher wrote some word based on the material and showed the pictures and students guessing the vocabulary that showed by the picture. In the second meeting of treatment, the teacher added some vocabulary that the students got last week and checked it. Teacher gave the

students some questions or quiz related the material to check their mastery. In the third meeting of treatment, the teacher gave some vocabularies of noun, verb and adjective based on the material. The students learned make a sentences by the word that given by the teacher. In the fourth meeting of treatment, teacher reviewing vocabulary has been learned. Teacher gave a game for them using flash cards. Teacher also invited the students to read descriptive text based on the material in their textbook. Then, the teacher ask the students to look for the difficult words and prepare to show of each word on flash cards. Teacher gave some vocabulary related the material and gave opportunity to the students to memorise the vocabulary on cards. Last meeting, teacher gave them test evaluation. In the fifth meeting, again, the teacher reviewing vocabulary has been learned and also ask the students to write some vocabulary that their memorized. The students look enjoyed and attracted during the lesson. Last meeting, the teacher always gave them test for evaluation their vocabulary mastery. In the sixth meeting, teacher gave a game for the students, the teacher order students one by one to match the vocabulary and the meaning. Students also study ahow to make sentences using vocabulary and material has been learned. From the result of analysis, it could be seen from the score of students how the used of media gave positive effects for students vocabulary mastery. It meant media has important role in teaching learning process. It was answered the Problem of the study which “Does Flash Card give effect on vocabulary mastery of the eight grade students at MTs Muslimat-Nu Palangka Raya?”

The results supported by theory about the reasons why teaching media could increase students' learning process. There are some reason how the vocabulary card can improve students' vocabulary mastery, that are about the advantage of media in learning process, such as: teaching process will be more interesting; the materials clearly in meaning; the teaching method will be more variety, not only verbal communication by the teacher; students will do more learning activity, because not only listen the teacher's explanation but also other activity like observe, make something, demonstration, etc. From the data above, it can be known that taught by vocabulary card media have better vocabulary mastery. The students more interested to receive vocabulary using vocabulary card media. So, the writer taught vocabulary by using vocabulary card media was balanced with the theory in chapter II that the media in learning process and suitable with the condition of the eight grade students.

The second reason was in teaching learning process, media was tool to help the teacher and the students to increase their learning activities was supported by theory according to Gerlach that show how can the vocabulary media improve the students' vocabulary mastery of the eighth grade students at MTs MUSLIMAT NU Palangka Raya because teaching English by using vocabulary card is more interesting because it provides many kind of picture with colour full, makes easy the lesson. So that, the students interest in learning first, so that it can encourage pupil participation in learning. After that, the students might be motivated to be active in the class. The students can be to think fast and automatically. After the students enjoy their lesson, they can remember the

vocabulary that given by the teacher better. When they can remember well, it makes increase the students score on vocabulary mastery. Petty stated as follows :

“The increase in interest and motivation produced by a short session of game-playing can prodece possitives feeling towards the subject (and the teacher) which last for week”<sup>2</sup>

Based on the theory above can be stated that games is one of effective way to warm up students’ interest and increase their motivation. It is evident that young learners learn throught play much easier and they enjoy it more.

Beside, vocabulary card has the strengt, such as:

#### 1. Motivating

The most opinion about picture as an educational tool is its ability to motivate students. Through picture as a media, the teacher can motivate the students to learn English in more enjoyable and interesting ways.

#### 2. Visual

Picture which are being composed of set images are fundamentally a visual media. The interest of students in vocabulary picture card emphasizes the potential of visual media. So, the used of vocabulary card as a media of teaching was more effective. The writer helped the students to find a good and enjoyable the lesson which is appropriate to the way the students think and the students’ age.

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<sup>2</sup>Geoffrey Petty, *A Practical Guide “Teaching of English Today”, Third Edition*, United Kingdom : Nelson Thornes Ltd, 2004, p.24 available at [http://gendocs.ru/docs/9/8418/conv\\_1/file1.pdf](http://gendocs.ru/docs/9/8418/conv_1/file1.pdf), accessed on may 12, 2014.

In this case, the writer did not find the problems when conducting the study in implementation of the method by using vocabulary card media because the students still like to study and play together. Motivation is a central concept in any theory of education. Therefore, it is essential to demonstrate different points of view on definitions of motivation in order to achieve a better understanding of the role of motivation in language learning. Motivated students refer to those who wish to do things that teachers expect, while unmotivated students are the ones who are unwilling to do things based on teachers' expectation. And by the technique such as some games that used by the writer when teaching vocabulary by using vocabulary card, it can be motivated the students be more active. So that, they are really enthusiasm with the media.