CHAPTER IV

RESEARCH FINDINGS AND DISCUSSIONS

In this chapter, the writer presented the data which had been collected from the research in the field of study. The data were the result of pretest of experimental and control group, the result of posttest of experimental and control group, result of data analysis, and discussion.

A. Data Presentation

1. The Result of Pre Test Experimental Group and Control Group

The pre test score at the experimental and control group was conducted on April 30, 2015 in the class XI IPA 1 (Thursday, at time 6.30-08.00) and the class XI IPA 2 (Thursday, at time 08.00-09.30) of SMA Muhammadiyah Palangka Raya. Then, the number of students was 52 students.

a. Distribution of Pre Test Scores of the Experimental Group

The pretest scores of the experimental were presented in table:

Table 4.1 The Description of Pre Test Scores Achieved by the Students in Experimental Group

Students' Code	Total score
E1	70
E2	74
E3	72
E4	46

E5	67
E6	66
E7	48
E8	65
E9	50
E10	56
E11	54
E12	74
E13	60
E14	75
E15	56
E16	58
E17	55
E18	60
E19	68
E20	73
E21	52
E22	62
E23	61
E24	51
E25	71

E26	59
E27	72
Highest Score	**75**
Lower Score	**46**

Based on the data above, it can be seen that the students' highest score was 75 and the student's lowest score was 46. To determine the range of score, the class interval, and interval of temporary, the writer calculated using formula as follows:

The Highest Score (H) = 75

The Lower Score (L) = 46

The Range of Score (R) = H - L + 1

= 75 – 46 + 1

= 29 + 1

= 30

The Class Interval (K) = 1 + (3.3) x Log n

= 1 + (3.3) x Log 27

= 1 + (3.3) x 1.431363764159

= 1+ 4.7235004217247

= 6

Interval of Temporary $= \frac{R}{K} = \frac{30}{6} = 5$

So, the range of score was 30, the interval was 6, and interval of temporary was 5. It was presented using frequency distribution in the following table:

Table 4.2 Frequency Distribution of the Pre Test Scores of the Experimental Group

Class (k)	Interval (I)	Frequency (F)	Mid Point	The Limitation of Each Group	Frequency Relative (%)	Frequency Cumulative (%)
1	71 – 75	7	73	70.5 – 75.5	25.926	100
2	66– 70	4	68	65.5 – 70.5	14.815	74.074
3	61– 65	3	63	61.5 – 65.5	11.111	59.259
4	56– 60	6	58	55.5 – 60.5	22.222	48.148
5	51– 55	4	53	50.5 – 55.5	14.815	25.926
6	46 – 50	3	48	45.5 – 50.5	11.111	11.111
Total		∑F = 27			100	

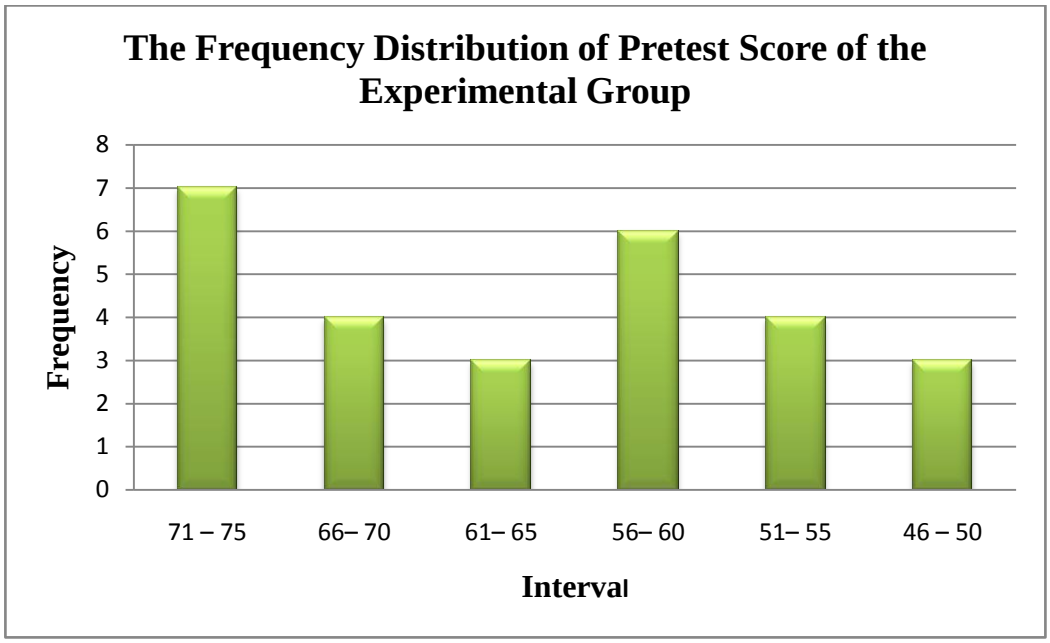

Figure 5.1. The Frequency Distribution of Pretest Score of the Experimental Group

It can be seen from the figure above, the students' pretest scores in experimental group. There are seven students who got score 71-75. There are four students who got score 66- 70. There were three students who got score 61-65. There are six students who got score 56-60. There are four students who got score 51-55. And there are three students who got score 46-50.

The next step, the writer tabulated the scores into the table for the calculation of mean, as follows:

Table 4.3. The Table for Calculating Mean of Pre test Score of the Experimental Group

Interval (I)	Frequency (F)	Mid Point (x)	FX	X'	Fx'	Fkb	Fka
71 – 75	7	73	511	3	21	27	7
66– 70	4	68	272	2	8	20	11
61– 65	3	63	189	1	3	17	14
56– 60	6	58	348	0	0	11	20
51– 55	4	53	212	-1	-4	7	24
46– 50	3	48	144	-2	-6	3	27
	∑F = 27		∑Fx =1676		∑Fx'=22		

a. Mean

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

$$= \frac{1676}{27}$$

$$= 62.07$$

The calculation above showed the mean value: 62.07.

The last step, the writer tabulated the scores of pre test of experimental group into the table for the calculation of standard deviation and the standard error. The tabulation of the scores of pre test of experimental group as follows:

Table 4.4. The Table for Calculating Standard Deviation and Standard Error of the Pretest Score.

Interval (I)	Frequency (F)	Mid Point (x)	Fx	x'	Fx'	x'²	Fx'²
71 – 75	7	73	511	3	21	9	63
66– 70	4	68	272	2	8	4	16
61– 65	3	63	189	1	3	1	3
51– 55	6	58	348	0	0	0	0
46– 50	4	53	212	-1	-4	1	4
51 – 55	3	48	144	-2	-6	4	12
	∑F = 27		∑Fx =1676		∑Fx'=22		∑Fx'²=701

b. Standard Deviation

$$SD_1 = i\sqrt{\frac{\sum fx'^2}{N} - (\frac{\sum fx'}{N})^2}$$

$$SD_1 = 5\sqrt{\frac{701}{27} - (\frac{22}{27})^2}$$

$$SD_1 = 5\sqrt{25.96 - (0.81)^2}$$

$$SD_1 = 5\sqrt{25.963 - 0.66}$$

$$SD_1 = 5\sqrt{25.3}$$

$$SD_1 = 5 \text{ x } 5.03$$

$$SD_1 = 25.15$$

c. Standard Error

$$\text{SEm}_1 = \frac{SD_1}{\sqrt{N_1 - 1}}$$

$$\text{SEm}_1 = \frac{25,.15}{\sqrt{27 - 1}}$$

$$\text{SEm}_1 = \frac{25.15}{\sqrt{26}}$$

$$\text{SEm}_1 = \frac{25.15}{5.099}$$

$$\text{SEm}_1 = 4.93$$

The result of calculation showed the standard deviation of pre test score of experimental group was 25.15 and the standard error of pre test score of experiment group was 4.93.

b. Distribution of Pre Test Scores of the Control Group

The pretest scores of the control group were presented in table:

Table 4.5.The Description of Pre Test Scores Achieved by the Students in Control Group

Students' Code	Control
C1	68
C2	68
C3	69
C4	70
C5	66
C6	64
C7	74
C8	61
C9	54
C10	72
C11	62
C12	48
C13	58
C14	60
C15	48
C16	47
C17	50
C18	42

C19	46
C20	52
C21	40
C22	44
C23	38
C24	36
C25	33
Highest Score	**74**
Lower Score	**33**

Based on the data above, it can be seen that the students' highest score was 74 and the student's lowest score was 33. To determine the range of score, the class interval, and interval of temporary, the writer calculated using formula as follows:

The Highest Score (H) = 74

The Lower Score (L) = 33

The Range of Score (R) = H - L + 1

= 74 – 33 + 1

= 41 + 1

= 42

The Class Interval (K) = 1 + (3.3) x Log n

= 1 + (3.3) x Log 25

= 1 + (3.3) x 1.397

= 1+ 4.61

= 6

Interval of Temporary $= \frac{R}{K} = \frac{42}{6} = 7$

So, the range of score was 42, the interval was 6, and interval of temporary was 7. It was presented using frequency distribution in the following table:

Table 4.6. Frequency Distribution of the Pre-Test Score of the Control Group

Class (k)	Interval (I)	Frequency (F)	Mid Point	The Limitation of Each Group	Frequency Relative (%)	Frequency Cumulative (%)
1	68-74	6	71	67.5-74.5	24	100
2	61-67	4	64	60.5-67.5	16	76
3	54-60	3	57	53.5-60.5	12	60
4	47-53	5	50	46.5-53.5	20	48
5	40-46	4	43	39.5-46.5	16	28
6	33-39	3	36	32.5-39.5	12	12

Total	∑F = 25			100	

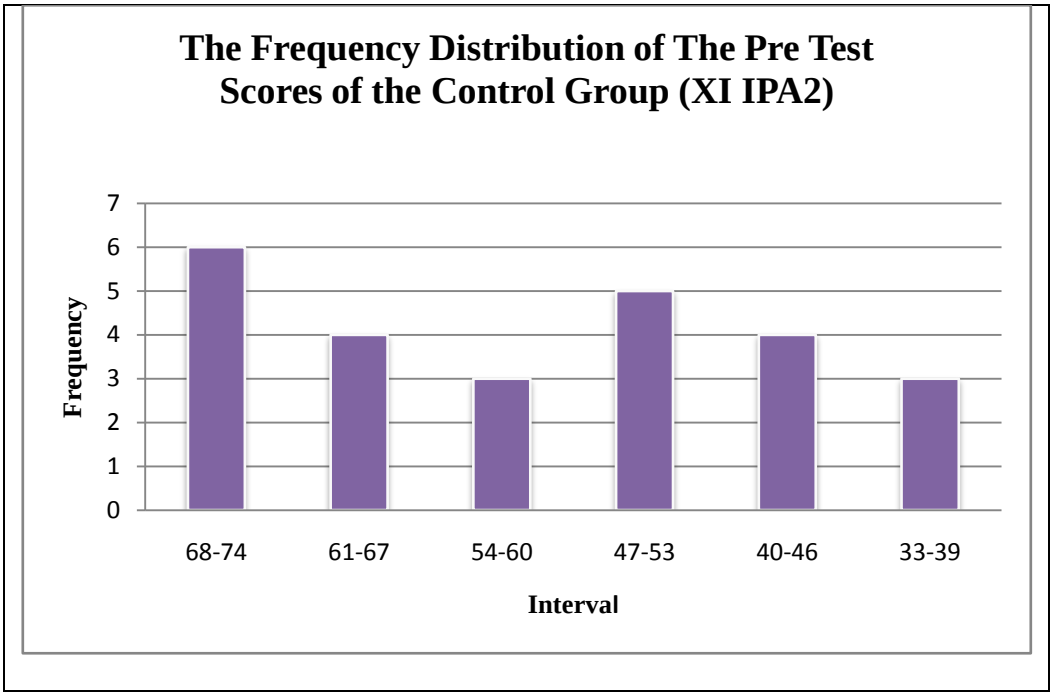

Figure 5.2. The Frequency Distribution of Pretest Score at Control Group

It can be seen from the figure above, the students' pretest scores in control group. There are six students who got score 68-74. There are four students who got score 61-67. There were three students who got score 54 -60. There are five students who got score 47-53. There are four students who got score 40-46. And there are three students who got score 33-39.

The next step, the writer tabulated the scores into the table for the calculation of mean, as follows:

Table 4.7. The Table for Calculating Mean of Pretest Score of the Control Group

Interval (I)	Frequency (F)	Mid Point (x)	FX	X'	Fx'	Fkb	Fka
68-74	6	71	426	3	18	25	6
61-67	4	64	256	2	8	19	10
54-60	3	57	171	1	3	15	13
47-53	5	50	250	0	0	12	18
40-46	4	43	172	-1	-4	7	22
33-39	3	36	108	-2	-6	3	25
	∑F=25		∑Fx=1383		∑Fx'=19		

a. Mean

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

$$= \frac{1383}{25}$$

$$= 55.32$$

The calculation above showed the mean value: 55.32.

The last step, the writer tabulated the scores of pre test of control group into the table for the calculation of standard deviation and the standard error. The tabulation of the scores of pre test of control group as follows:

Table 4.8.The Table for Calculating Standard Deviation and Standard Error of the Pretest control Score.

Interval (I)	Frequency (F)	Mid Point (x)	Fx	x'	Fx'	x'²	Fx'²
68-74	6	71	426	3	18	9	54
61-67	4	64	256	2	8	4	16
54-60	3	57	171	1	3	1	3
47-53	5	50	250	0	0	0	0
40-46	4	43	172	-1	-4	1	4
33-39	3	36	108	-2	-6	4	12
			∑Fx=1383		∑Fx' =19		∑Fx'²= 89

c. Standard Deviation

$$SD_1 = i\sqrt{\frac{\sum fx'^2}{N} - (\frac{\sum fx'}{N})^2}$$

$$SD_1 = 7\sqrt{\frac{89}{25} - (\frac{19}{25})^2}$$

$$SD_1 = 7\sqrt{3.56 - (0.76)^2}$$

SD_1 =7 $\sqrt{3.56 - 0.58}$

SD_1 = 7 $\sqrt{2.98}$

SD_1 = 7 x 1.73

SD_1 = 12.11

d. Standard Error

$$SEm_1 = \frac{SD_1}{\sqrt{N_1 - 1}}$$

$$SEm_1 = \frac{12.11}{\sqrt{25 - 1}}$$

$$SEm_1 = \frac{12.11}{\sqrt{24}}$$

$$SEm_1 = \frac{12.11}{4.899}$$

$$SEm_1 = 2.47$$

The result of calculation showed the standard deviation of pre test score of control group was 12.11 and the standard error of pre test score of control group was 2.47.

2. The Result of Posttest Score of Experimental and Control Group

The test of post test score of experimental and control group was conducted on Mei 16, 2015 at XI IPA 1 (Saturday, 06.30-08.00) and XI IPA 2 (Saturday,

08.00-09.30) classes of SMA Muhammadiyah Palangka Raya. The numbers of students were 52 students.

a. Distribution of Post Test Scores of the Experimental Group

The post test scores of the experimental were presented in table:

Table 4.9.The Description of Post Test Scores Achieved by the Students in Experimental Group

Students' Code	Total score
E1	70
E2	72
E3	84
E4	74
E5	70
E6	72
E7	87
E8	84
E9	60
E10	66
E11	62
E12	89
E13	82

E14	80
E15	88
E16	68
E17	79
E18	85
E19	76
E20	67
E21	87
E22	64
E23	77
E24	86
E25	78
E26	86
E27	88
Highest Score	**89**
Lowest Score	**60**

Based on the data above, it can be seen that the students' highest score was 89 and the student's lowest score was 60. To determine the range of score, the class interval, and interval of temporary, the writer calculated using formula as follows:

The Highest Score (H) = 89

The lowest Score (L) = 60

The Range of Score (R) = H-L+1

= 89 – 60 + 1

= 29 + 1 = 30

The Class Interval (K) =1+ (3.3) x Log 27

= 1+ 4.7235004217247

= 5.77235004217247

= 6

Interval of Temporary (I) = $\frac{R}{K} = \frac{30}{6}$ = 5

So, the range of score was 42, the interval was 6, and interval of temporary was 7. It was presented using frequency distribution in the following table:

Table 4.10.Frequency Distribution of the Post-Test Score of the Experimental Group

Class (k)	Interval (I)	Frequency (F)	Mid Point	The Limitation of Each Group	Frequency Relative (%)	Frequency Cumulative (%)
1	85-89	8	87	84.5-89.5	29.629	100
2	80-84	4	22	79.5-84.5	14.815	70.371

3	75-79	4	77	74.5-79.5	14.815	55.556
4	70-74	5	72	69.5-74.5	18.518	22.223
5	65-69	3	67	64.5-69.5	11.111	11.111
6	60-64	3	62	59.5-64.5	11.111	11.111
Total		∑F = 27			100	

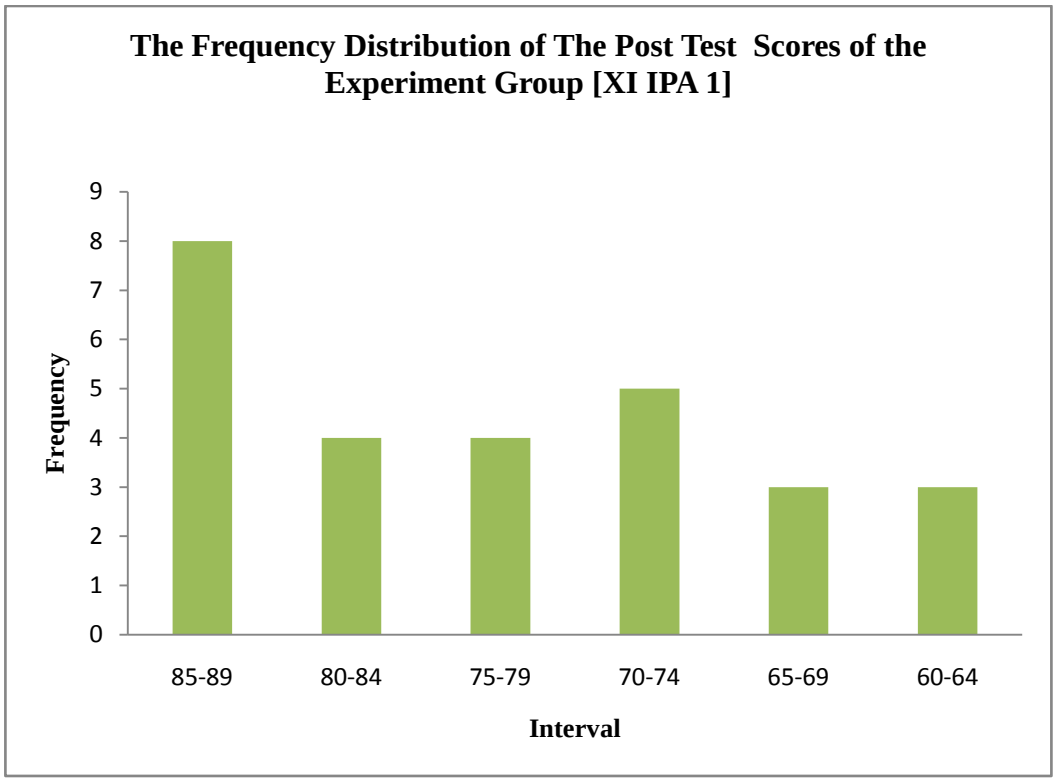

Figure 5.3.The Distribution of Posttest Score at Control Group

It can be seen from the figure above, the students' post test scores in experimental group. There are eight students who got score 84-89. There are four students who got score 80- 84. There were four students who got score 75-79.

There are five students who got score 70-74. There are three students who got score 65-69. And there are three students who got score 60-64.

The next step, the writer tabulated the scores into the table for the calculation of mean, as follows:

Table 4.11. The Table for Calculating Mean of Post test Score of the Experimental Group

Interval (I)	Frequency (F)	Mid Point (X)	FX	Fkb	Fka
85-89	8	87	696	27	8
80-84	4	82	328	19	12
75-79	4	77	308	15	16
70-74	5	72	360	11	21
65-69	3	67	201	6	24
60-64	3	62	186	3	27
	∑F = 27		∑FX=2079		

a. Mean

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

$$= \frac{2079}{27}$$

= 77

The calculation above showed the mean value: 77

The last step, the writer tabulated the scores of posttest of experiment group into the table for the calculation of standard deviation and the standard error. The tabulation of the scores of post test test of experiment group as follows:

Table 4.12.The Calculation of the Standard Deviation and the Standard Error of the Post Test Scores of Experiment Group

Interval (I)	Frequency (F)	Midpoint (X)	x'	Fx'	x'^2	Fx'^2
85-89	8	87	3	24	9	72
80-84	4	82	2	8	4	16
75-79	4	77	1	4	1	4
70-74	5	72	0	0	0	0
65-69	3	67	-1	-3	1	3
60-64	3	62	-2	-6	4	12
Total	∑F = 27			∑Fx'=27		∑Fx'²=107

b. Standard Deviation

$$SD1 = i\sqrt{\frac{\sum Fx'^2}{N} - \frac{(Fx')^2}{N}}$$

$$= 5\sqrt{\frac{107}{27} - \left(\frac{27}{27}\right)^2}$$

$$= 5\sqrt{3.96 - (1)^2}$$

$$= 5\sqrt{3.96 - 1}$$

$$= 5\sqrt{2.96}$$

= 5 x 1.72

= 8.6

c. Standard Error

$$SEM_1 = \frac{SD_1}{\sqrt{N_1 - 1}}$$

$$= \frac{8.6}{\sqrt{27 - 1}}$$

$$= \frac{8.6}{\sqrt{26}}$$

$$= \frac{8.6}{5}$$

= 1.72

b. Distribution of Post Test Scores of the Control Group

The post test scores of the experimental were presented in table:

Table 4.13.The Description of Post Test Scores Achieved by the Students in Control Group

Students' Code	Control
C1	75
C2	78
C3	70
C4	77
C5	65
C6	64
C7	58
C8	50
C9	52
C10	72
C11	76
C12	64
C13	54
C14	59
C15	58
C16	62
C17	60

C18	66
C19	74
C20	70
C21	78
C22	76
C23	68
C24	62
C25	56
Highest Score	**79**
Lowest Score	**50**

Based on the data above, it can be seen that the students' highest score was 79 and the student's lowest score was 50. To determine the range of score, the class interval, and interval of temporary, the writer calculated using formula as follows:

The Highest Score (H) = 79

The lowest Score (L) = 50

The Range of Score (R) = H-L+1

= 79 – 50 + 1

= 29 + 1 = 30

The Class Interval (K) =1+ (3.3) x Log 25

$= 1 + 4.6132020286176$

$= 5.6 = 6$

Interval of Temporary (I) = $\frac{R}{K} = \frac{30}{6} = 5$

So, the range of score was 30, the interval was 6, and interval of temporary was 5. It was presented using frequency distribution in the following table:

Table 4.14. Frequency Distribution of the Post-Test Score of the Control Group

Class (k)	Interval (I)	Frequency (F)	Mid Point	The Limitation of Each Group	Frequency Relative (%)	Frequency Cumulative (%)
1	75-79	6	77	74.5 – 79.5	24	100
2	70-74	4	72	69.5 – 74.5	16	76
3	65-69	3	67	64.5 – 69.5	12	60
4	60-64	5	62	59.5 – 64.5	20	48
5	55-59	4	57	54.5 – 59.5	16	28
6	50-54	3	52	49.5 – 54.5	12	12
Total		∑F = 25			100	

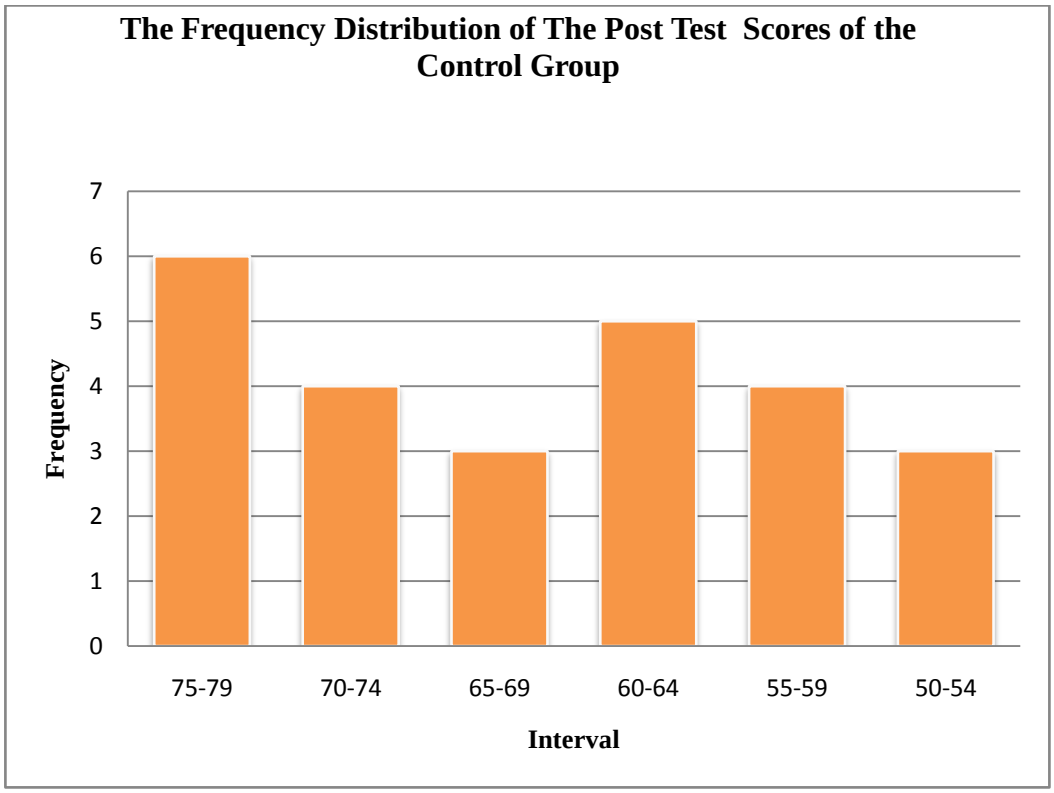

Figure 5.4. the distribution frequency of post test score at control group

It can be seen from the figure above, the students' post test scores in experimental group. There are six students who got score 75-79. There are four students who got score 70- 74. There were three students who got score 65-69. There are five students who got score 60-64. There are four students who got score 55-59. And there are three students who got score 50-54.

The next step, the writer tabulated the scores into the table for the calculation of mean, as follows:

Table 4.15. The Table for Calculating Mean of Posttest Score of the Control Group

Interval (I)	Frequency (F)	Mid Point (X)	FX	Fkb	Fka
75-79	6	77	462	25	6
70-74	4	72	288	19	10
65-69	3	67	201	15	13
60-64	5	62	310	12	18
55-59	4	57	228	7	22
50-54	3	52	156	3	25
	∑F = 25		∑FX= 1645		

a. Mean

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

$$= \frac{1645}{25}$$

$$= 65.8$$

The calculation above showed the mean value: 65.8.

The last step, the writer tabulated the scores of posttest of experiment group into the table for the calculation of standard deviation and the standard error. The tabulation of the scores of post test of control group as follows:

Table 4.16 The Calculation of the Standard Deviation and the Standard Error of the Post Test Scores of Control Group

Interval (I)	Frequency (F)	Midpoint (X)	x'	Fx'	x'^2	Fx'^2
75-79	6	77	3	18	9	54
70-74	4	72	2	8	4	16
65-69	3	67	1	3	1	3
60-64	5	62	0	0	0	0
55-59	4	57	-1	-4	1	4
50-54	3	52	-2	-6	4	12
Total	∑F = 25			∑Fx' =19		∑Fx'²= 89

a. Standard Deviation

$$SD1 = i\sqrt{\frac{\sum Fx'^2}{N} - \frac{(Fx')^2}{N}}$$

$$= 5\sqrt{\frac{89}{25} - \left(\frac{19}{25}\right)^2}$$

$$= 5\sqrt{3.56 - (0.76)^2}$$

$$= 5\sqrt{3.56 - 0.58}$$

$$= 5\sqrt{2.98}$$

= 5 x 1.73

= 8.65

b. Standard Error

$$SEM_1 = \frac{SD_1}{\sqrt{N_1 - 1}}$$

$$= \frac{8.65}{\sqrt{25 - 1}}$$

$$= \frac{8.65}{\sqrt{24}}$$

$$= \frac{8.65}{4.899} = 1.77$$

3. The Comparison of Pre-test and Posttest Score of Experimental and Control Group

The writer concluded the comparison of posttest score of experimental and control group. Here, the calculation of the resul in Table 4.3:

Table 4.17 The Comparison of Pre-test and Post-test Score of Experimental and Control Group.

EXPERIMENTAL CLASS					CONTROL CLASS				
		SCORE					SCORE		
NO	CODE	PRE-TEST	POST-TEST	DIFFERENCE	NO	CODE	PRE-TEST	POST-TEST	DIFFERENCE
1	E1	70	70	0	1	C1	68	75	7
2	E2	74	72	2	2	C2	68	78	10
3	E3	72	84	12	3	C3	69	70	1
4	E4	46	74	28	4	C4	70	77	7
5	E5	67	70	3	5	C5	66	65	-1
6	E6	66	72	6	6	C6	64	64	0
7	E7	48	87	39	7	C7	74	58	-16
8	E8	65	84	19	8	C8	61	50	-11
9	E9	50	60	10	9	C9	54	52	-2
10	E10	56	66	10	10	C10	72	72	0
11	E11	54	62	8	11	C11	62	76	14
12	E12	74	89	15	12	C12	48	64	16
13	E13	60	82	22	13	C13	58	54	-4
14	E14	75	80	5	14	C14	60	59	-1

15	E15	56	88	32	15	C15	48	58	10
16	E16	58	68	10	16	C16	47	62	15
17	E17	55	79	24	17	C17	50	60	10
18	E18	60	85	25	18	C18	42	66	24
19	E19	68	76	8	19	C19	46	74	28
20	E20	73	67	-6	20	C20	52	70	18
21	E21	52	87	35	21	C21	40	78	38
22	E22	62	64	2	22	C22	44	76	32
23	E23	61	77	16	23	C23	38	68	30
24	E24	51	86	35	24	C24	36	62	26
25	E25	71	78	7	25	C25	33	68	35
26	E26	59	86	27	**TOTAL**		1370	1656	286
27	E27	72	88	16	**MEAN**		54.8	66.24	11.44
TOTAL		1675	2081	410	**LOWEST**		33	50	
MEAN		62.04	77.07	15.19	**HIGHEST**		74	78	
LOWEST		46	60						
HIGHEST		75	89						

4. Testing the Normality and the Homogenity

The writer was calculated the result of pre-test and post-test score of experiment and control group by using SPSS 16.0 program. The criteria of the normality test of score is the value of r (probability value/ critical value) is the higher than or equal to the level of significance alpha defined (r ≥ə), it means that the distribution is normal.[78] Then, the homogeneity is used to know the data were homogen or not.

1. The Normality of Pre Test and Post Test Score in Experiment and Control Group

Table 4.18.The Test of Normality of Pretest Score

Group	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Experiment	.101	27	.200*	.948	27	.228
Control	.109	25	.200*	.951	25	.261

a. Lilliefors Significance Correction

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

Based on table of the Kolmogorov-Swirnov, the significance value of control group was 0.200 and the significance value of experiment group was 0.200. The result of pretest score on Shapiro-Wilk table, it showed the significance value of

[78] Budi Susetyo, M.Pd. , *Statiska untuk Analisis Data Penelitian Dilengkapi Cara Perhitungan dengan SPSS dan MS Word Exell,* Bandung: PT. Refika Aditama, page: 145

control group was 0.228 and the significance of experiment group was 0.261. Because of control group score higher than t*table* at 5% significance level (0.200 > 0.05) and the experiment group was 0.200 > 0.05. Thus, the distribution of the data was said to be in normal distribution.

Table 4.19 the Normality of Posttest Score

Tests of Normality

Group	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
experiment	.129	27	.200*	.948	27	.222
Control	.103	25	.200*	.954	25	.314

a. Lilliefors Significance Correction

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

From the table of Kolmogorov-Swirnov, the writer concluded that the significance of experiment group was 0.200 and the significance of control group was 0.200. Here, the writer used the table of Shapiro- Wilk because the sample or responden of the research < 50 responden. In the table of Shapiro-Wilk showed that the significance of experiment score was 0.222 and the control was 0,314. It was higher than the signifcance 0,05. Thus, the distribution of the data was said to be in normal distribution.

2. Testing of Homogeneity of Pretest and Posttest Score of Experiment and Control Group.

Table 4.20. The Homogeneity of Pretest Score

Levene Statistic	df1	df2	Sig.
1.737	14	20	.126

Based on the calculating used SPSS 16.0 program, it showed that the levene statistic was 1.737, the df1 was 14 and the df2 was 20. Then, the level significance (**F** *value*) higher that level significance 5% (0.126 > 0.05). it concluded that data were homogen.

Table 4.21 The Homogeneity of Posttest Score

Levene Statistic	df1	df2	Sig.
.364	1	50	.549

Based on the table above, the result of the analysis using SPSS program showed that the Levene Statistic was 0.364, the df1 was 1 and df2 was 50 and the value of significance (sig.) was 0.549. The writer concluded that the homogeneity

of posttest score of experimental and control group was accepted because the value of significance (sig) was 0.549 higher than the significance level 5% was 0,05. Thus, it was said that the data were homogen.

B. The Result of Data Analysis

1. Testing Hypothesis Using Manual Calculation

The writer chose the significance level on 5%, it means the significance level of refusal of null hypothesis on 5 %. The writer decided the significance level at 5% due to the Hypothesis type stated on non-directional (two-tailed test). It meant that the Hypothesis cannot direct the prediction of alternative Hyphotesis.

To test the hypothesis of the study used t-test statistical calculation. Firstly, 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 on this following table 4.8:

Table 4.22 The Standard Deviation and the Standard Error of X_1 and X_2

Variable	The Standard Deviation	The Standard Error
X_1	8,6	1,72
X_2	8,65	1,77

Where:

X_1 = Experimental Group

X_2 = Control Group

The table showed the result of the standard deviation calculation of X_1 was 8,6 and the result of the standard error mean calculation was 1.72. The result of the standard deviation calculation of X_2 was 8,65 and the result of the standard error mean calculation was 1.77.

The next step, the writer calculated the standard error of the differences mean between X_1 and X_2 as follows:

Standard Error of Mean of Score Difference between Variable I and Variable II:

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

$$SE_{M1} - SE_{M2} = \sqrt{1.72^2 + 1.77^2}$$

$$SE_{M1} - SE_{M2} = \sqrt{2.96 + 3.13}$$

$$SE_{M1} - SE_{M2} = \sqrt{6.09}$$

$$SE_{M1} - SE_{M2} = 2.47.$$

Then, it was inserted to the t_o formula to get the value of t observe as follows:

$$t_o = \frac{M_1 - M_2}{SE_{M1} - SE_{M2}}$$

$$t_o = \frac{77 - 65.8}{2.47}$$

$$t_o = \frac{11.2}{2.47}$$

$$t_o = 4.53$$

With the criteria:

If t-test (t-observed) ≥ t_{table},it means Ha is accepted and Ho is rejected.

If t-test (t-observed) < t_{table},it means Ha is rejected and Ho is accepted.

Then, the writer interpreted the result of t- test. Previously, the writer accounted the degree of freedom (df) with the formula:

$$df = (N_1 + N_2 - 2)$$

$$= (27 + 25 - 2)$$

$$= 50$$

t_{table} at df 50 at 5% significant level = 2.01

The calculation above showed the result of t-test calculation as in the table follows:

Table 4.23 the Result of T-test

Variable	**t observe**	**t table**		**Df/db**
		5%	**1%**	
X_1- X_2	4.53	2.01	2.68	50

Where:

X_1 = Experimental Group

X_2	= Control Group
t observe	= 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 higher than the value of t_{able} at 1% and 5% significance level or 2.01 <4.53> 2.68. it could be interpreted that alternative hyp (H_a) was accepted. It meant there is significant difference between students' ability using youtube video and without youtube video in writing report text at eleventh grade of SMA Muhammadiyah Palangka Raya. On the other hand, there is no significant difference between students' ability using youtube video and without youtube video in writing report text at eleventh grade of SMA Muhammadiyah Palangka Raya was rejected. Simply, it could be interpreted that null hyphothesis was rejected.

Teaching writing using youtube video gave significant effect on the students' writing ability at the eleventh grade of SMA Muhammadiyah Palangka Raya. It meant students who are taught by using Youtube video have better writing achievement than those taught by non youtube video.

2. Testing Hypothesis Using SPPS Program

The writer also applied SPSS 16.0 program to calculate t test in testing hypothesis of the study. The result of t test using SPSS 16.0 was used to support the manual calculation of the t test. The result of the t test using SPSS 16.0 program could be seen as follows:

Table 4.24 the Standard Deviation and the Standard Error of X_1 and X_2

Group		N	Mean	Std. Deviation	Std. Error Mean
Score	Experiment	27	77.07	8.970	1.726
	Control	25	66.24	8.363	1.673

The table showed the result of the standard deviation calculation of X_1 was 8.363 and the result of the standard error mean calculation was 1.673. The result of the standard deviation calculation of X_2 was 8.970 and the standard error mean calculation was 1.726.

Table 4.25 the Calculation T-test Using SPPS 16.0 program

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
Group	Equal variances assumed	.364	.549	4.495	50	.000	10.834	2.410	5.993	15.675
	Equal variances not assumed			4.507	49.996	.000	10.834	2.404	6.006	15.662

Based on the result of t-value using SPSS 16.0 program. Since the result of post test between experimental and control group had difference score of variance, it found that the result of t observed was 4.495, the result of mean difference between experimental and control group was 10.834.

To examine the truth or the null hypothesis stating that there is no significant difference between students' ability using youtube video and without youtube video in writing report text at the eleventh grade of SMA Muhammadiyah Palangka Raya was rejected, the result of post test was interpreted on the result of degree freedom to get t_{table},. The result of degree freedom (df) was 50. The following table was the result of $t_{observed}$ and t_{able} from 50 df at 5% and 1 % significance level.

Table 4.26 the Result of T-test

Variable	$t_{observed}$	t_{table}		**Df/db**
		5%	**1%**	
X_1- X_2	4.495	2.01	2.68	50

3. Interpretation

The interpretation of the result of t-test using SPSS 16.0 program, it was found that $t_{observe}$ was greater than t_{table}, at 1% and 5% significance level 2.01< 4.495 > 2.68. It could be intepreted based on the result of calculation that Ha stating there is significant difference between students' ability using youtube video

and using handout in writing report text at eleventh grade of SMA Muhammadiyah Palangka Raya was accepted and Ho stating that there is no significant difference between students' ability using Youtube video and using handout in writing report text at eleventh grade of SMA Muhammadiyah Palangka Raya was rejected. Teaching writing using Youtube gives significant effect on the students' writing ability at the eleventh grade students of SMA Muhammadiyah Palangka Raya. It meant students who are taught by Youtube video have better writing achievement than those taught by using picture.

C. Discussion

The result of analysis showes that there is significant effect of using youtube video on the ability in teaching writing report text for the eleventh grade students at SMA Muhammadiyah Palangka Raya. The students who are taught used youtube video reached higher score than those who are taught used handout.

Meanwhile, after the data were calculated using manual calculation of $t_{test.}$It was found the $t_{observed}$ was higher than the t_{table} at 5% and 1% significance level or 4.53 > 2.01, 4.53> 2.68. It meant H_a was accepted and H_o was rejected. And the data calculated using SPSS 16.0 program, it was found the $t_{observed}$ was higher than the t_{table} at 5% and 1% significance level or 4.49> 2.01, 4.49 > 2.68. It meant H_a was accepted and H_o was rejected. This finding indicated that the alternative hypothesis (Ha) stating that there is any significant effect of using youtube video on the ability in teaching writing report text for the eleventh grade students at SMA Muhammadiyah Palangka Raya was accepted. On the contrary, the Null

hypothesis (Ho) stating that there is no any significant effect of using youtube video on the ability in teaching writing report text for the eleventh grade students at SMA Muhammadiyah Palangka Raya was rejected. Based on the result the data analysis showes that using youtube video give significance effect for the students' teaching writing report scores of eleventh grade students at SMA Muhammadiyah Palangka Raya.

The research findings show there was any significant effect on the ability in teaching writing report text above improved by implementing YouTube video. In this section, those findings are discussed by justifying them with the other theories. In more detail, each of the findings is described as follows, In this section, those findings are discussed by justifying them with the other theories. In more detail, each of the findings is described as follows.

a. YouTube video improves students' ability in answering teacher's question. The research findings show that the students were able to answer the teacher's question correctly. The students' ability to answer teacher's question increased steadily. The students' mistake in answering teacher's question decreased every meeting, and in the end of the research most of the students could answer teacher's questions correctly. It is proved with the increasing of students' score of the test.
b. YouTube video improves students' comprehension in determining the general idea of the text. The research findings show that the students made fewer mistakes in determining general idea of the text. By watching the video, the

students could understand what the speaker mainly talked about. The visualization given by YouTube video helps the students concentrate because they provide a focus of attention while listen. As stated by Allan :

"and video's moving pictures also help learner concentrate because they provide a focus of attention while they listen".[79]

c. YouTube video improves students' attention. The research findings show that the students became more interested to pay attention to the lesson. They reduced their noise and listened to the lesson. This result is supported by Ur, who says:

"learners look at visual materials while simultaneously following a spoken description on it. The latter may be limited strictly to details that can be verified visually".[80]

d. YouTube video improves students' activeness. The research findings show that the students became more active joining the class. They did not ashamed to ask to the teacher when they faced difficulties. As stated by Allan:

"the right video material can do this in a range of ways: its vivid presentation of settings and characters can be used to set the scene for role play; it can present a case with such impact that it sparks of fierce debate; we all make our own interpretations of what we see and so video can be stimulus to genuine

[79]Allan, M. Teaching English with video.1991. http://kmjournal.bada.cc/wp-content. (accessed , 2013/05/7.)

[80]Ur, in Apriliana Sri Rahayuningsih." *Improving students' listening comprehension on narrative text Through youtube video*," 2011, p. 84.

communication in the classroom by bringing out different opinions within the group."[81]

e. Youtube video improves students' behaviour during the teaching and learning process. The research findings show that the students did not just silent when they are asked about the lesson. They could answer if asked by the teacher. This is similar with Alan, who states that :

"the combination of variety, interest and entertainment we can derive from video makes it an aid which can help develop motivation in learners".[82]

Those are the result of pre-test compared with post-test for experimental group and control group of students at SMA Muhammadiyah Palangka Raya. Based on the theories and the writer's result, youtube video gave significance effect for the students' writing report text scores of eleventh grade students at SMA Muhammadiyah Palangka Raya.

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[81] Alan, in Apriliana Sri Rahayuningsih." *Improving students' listening comprehension on narrative text Through youtube video*," 2011, p. 81.

[82] *Ibid, 81*