CHAPTER IV
FINDINGS AND DISCUSSION

This chapter presents the data that was collected during the experimental research. First analysis focuses on the result of pre-test. Second analysis represents the result of post-test that was done both in experimental and control class.

A. First Analysis

The writer analyzed and tested hypothesis prerequisites which contained of normality, homogeneity and t-test (test of difference two variants) in pre-test.

1. Analysis of Pre-test

The experimental class (VII E) was given a pre-test on March 22, 2010 and control class (VII A) was given a pre-test on March 23, 2010. They were asked to answer the questionnaire and test from reading text.

a. Analysis of Questionnaire

1) Normality of Questionnaire

Test of normality was used to find out whether data of control and experimental class which had been collected from the research come from normal distribution normal or not. The result computation of Chi-quadrate (X^2_{score}) then was compared with table of Chi-quadrate (X^2_{table}) by using 5% alpha of significance. If $X^2_{score} < X^2_{table}$ meant that the data spread of research result distributed normally.

Based on the research result of VII A students in the control class, they reached the maximum score of questionnaire 65 and minimum score 48. The stretches of score were 17. So, there were 6 classes with length of classes 2. From the computation of frequency distribution, it was found (ΣX) = 2147, and ($\Sigma(X - \overline{X})^2$) = 676,97. So, the average score ($\overline{X}$) was 58,027 and

the standard deviation (S) was 4,336. After counting the average score and standard deviation, table of observation frequency was needed to measure Chi-quadrate (X^2_{score}).

Table IV. 1 Table of the Observation Frequency of Control Class

Class		Bk	Z_i	$P(Z_i)$	Ld	Oi	Ei	$\frac{(O_i - E_i)^2}{E_i}$
		47.5	-2.43	0.4925				
48	– 50				0.0334	3	0.9	4.8818
		50.5	-1.74	0.4591				
51	– 53				0.1083	3	2.9	0.0020
		53.5	-1.04	0.3508				
54	– 56				0.2140	6	5.8	0.0085
		56.5	-0.35	0.1368				
57	– 59				0.2699	12	7.3	3.0477
		59.5	0.34	0.1331				
60	– 62				0.2154	9	5.8	1.7434
		62.5	1.03	0.3485				
63	– 65				0.1088	4	2.9	0.3842
		65.5	1.72	0.4573				
						37	X² =	10.0676

Based on the Chi-quadrate table (X^2_{table}) for 5% alpha of significance with df 6 – 1 = 5, it was found X^2_{table} = 11,07. Because of $X^2_{score} < X^2_{table}$, so the initial data of control class distributed normally.

While from the result of VII E students in experimental class, was found that the maximum score of questionnaire was 65 and minimal score was 49. The stretches of score were 16. So, there were 6 classes with length of classes 2. From the computation

of frequency distribution, it was found (ΣX) = 2154, and $(\Sigma(X - \overline{X})^2)$ = 582,27. So, the average score ($\overline{X}$) was 58,22 and the standard deviation (S) was 4,02. After counting the average score and standard deviation, table of observation frequency was needed to measure Chi-quadrate (X^2_{score}).

Table IV. 2 Table of the Observation Frequency of Experimental Class

Class		Bk	Z_i	$P(Z_i)$	Ld	Oi	Ei	$\dfrac{(O_i - E_i)^2}{E_i}$
		48.5	-2.42	0.4922				
49	51				0.0397	3	1.0	3.7514
		51.5	-1.67	0.4525				
52	54				0.1313	4	3.4	0.1007
		54.5	-0.92	0.3212				
55	57				0.2498	6	6.5	0.0377
		57.5	-0.18	0.0714				
58	60				0.2837	12	7.4	2.8984
		60.5	0.57	0.2123				
61	63				0.1926	9	5.0	3.1830
		63.5	1.31	0.4049				
64	66				0.0759	3	2.0	0.5341
		66.5	2.06	0.4808				
						37	X² =	10.5053

Based on the Chi-quadrate table (X^2_{table}) for 5% alpha of significance with df 6 – 1 = 5, it was found X^2_{table} = 11,07. Because of $X^2_{score} < X^2_{table}$, so the initial data of experimental class distributed normally.

2) **Homogeneity of Questionnaire**

Test of homogeneity was done to know whether sample in the research come from population that had same variance or not.

In this study, the homogeneity of questionnaire was measured by comparing the obtained score (F_{score}) with F_{table}. Thus, if the obtained score (F_{score}) was lower than F_{table} or equal, it could be said that the Ho was accepted. It meant that the variance was homogeneous. The analysis of homogeneity of questionnaire could be seen in table IV. 3.

Table. IV. 3 Homogeneity of Questionnaire (Pre-test)

Variant Sources	Experimental	Control
Sum	2154	2147
N	37	37
$\overline{X}$	58,22	58,03
Variance (s^2)	16,17	18,80
Standard deviation (s)	4,02	4,34

By knowing the mean and the variance, the writer was able to test the similarity of the two variants in the pre-test between experimental and control class. The computation of the test of homogeneity as follows:

$$F = \frac{Biggest\ Variance}{Smallest\ Variance}$$

$$= \frac{18,80}{16,17}$$

$$= 1,16$$

On a 5% with df numerator (nb - 1) = 37 – 1 = 36 and df denominator (nk – 1) = 37 – 1 = 36, it was found F_{table} = 1.94. Because of $F_{score} \leq F_{table}$, so it could be concluded that both experimental and control class had no differences. The result showed both classes had similar variants (homogenous).

3) **Test of similarity between two averages in the pre-test experimental and control class**

After counting standard deviation and variance, it could be concluded that both classes have no differences in the test of similarity between two variances in pre-test score. So, to differentiate whether the students' results of questionnaire in experimental and control class were significant or not, the writer used t-test to test the hypothesis. The writer used formula:

$$t = \frac{\overline{x}_1 - \overline{x}_2}{s\sqrt{\dfrac{1}{n_1} + \dfrac{1}{n_2}}}$$

Where:

$$S = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

Based on table IV.3, first the writer had to find out S by using the formula above:

$$S = \sqrt{\frac{(37-1)16{,}17 + (37-1)18{,}80}{37 + 37 - 2}}$$

$$= 4{,}18$$

After S was found, the next step was to measure t-test:

$$t = \frac{58{,}22 - 58{,}03}{4{,}18\sqrt{\dfrac{1}{37} + \dfrac{1}{37}}}$$

$$= 0{,}19$$

After getting t-test result, then it would be consulted to the critical score of t_{table} to check whether the difference is significant or not. For a = 5% with df 37 + 37 − 2 = 72, it was found $t_{table(0.975)(72)}$ = 1.99. Because of $t_{score} < t_{table}$, so it could be

concluded that there was no significance of difference between the experimental and control class. It meant that both experimental and control class had same condition before getting treatments.

b. Analysis of Test

The experimental class (VII E) was given pre-test on March 22, 2010 and control class (VII A) was given pre-test on March 8, 2010. They were asked to answer the questions based on reading text.

1) Normality of Test

Test of normality was used to find out whether data of control and experimental class, which had been collected from the research, come from normal distribution normal or not. The formula that was used was Chi-quadrate. The result computation of Chi-quadrate (X^2_{score}) then was compared with table of Chi-quadrate (X^2_{table}) by using 5% alpha of significance. If $X^2_{score} < X^2_{table}$ meant that the data spread of research result distributed normally.

Based on the research result of VII A students in the control class before they were taught reading text, they reached the maximum score 90 and minimum score 50. The stretches of score were 40. So, there were 6 classes with length of classes 6. From the computation of frequency distribution, it was found (ΣX) = 2615, and ($\Sigma(X - \overline{X})^2$) = 2958,11. So, the average score ($\overline{X}$) was 70,68 and the standard deviation (S) was 9,06. After counting the average score and standard deviation, table of observation frequency was needed to measure Chi-quadrate (X^2_{score}).

Table IV. 4 Table of the Observation Frequency of Control Class

Class	Bk	Z_i	$P(Z_i)$	Ld	Oi	Ei	$\dfrac{(O_i-E_i)^2}{E_i}$
	49.5	-2.34	0.4904				
50 — 56				0.0498	3	1.3	2.0380
	56.5	-1.56	0.4406				
57 — 63				0.1554	4	4.2	0.0091
	63.5	-0.79	0.2852				
64 — 70				0.2772	10	7.5	0.8455
	70.5	-0.02	0.0080				
71 — 77				0.2814	12	7.6	2.5507
	77.5	0.75	0.2734				
78 — 84				0.1636	7	4.4	1.5102
	84.5	1.53	0.4370				
85 — 91				0.0523	1	1.4	0.1203
	91.5	2.30	0.4893				
					37	$X^2 =$	7.0738

Based on the Chi-quadrate table (X^2_{table}) for 5% alpha of significance with dk $6 - 1 = 5$, it was found $X^2_{table} = 11,07$. Because of $X^2_{score} < X^2_{table}$, so the initial data of control class distributed normally.

While from the result of VII E students in experimental class, before they were taught by using reading courseware, was found the maximum score was 90 and minimal score was 50. The stretches of score were 40. So, there were 6 classes with length of classes 6. From the computation of frequency distribution, it was found $(\Sigma X) = 2630$, and $(\Sigma(X - \overline{X})^2) = 2756,76$. So, the average score ($\overline{X}$) was 71,08 and the standard deviation (S) was 8.75. After counting the average score and standard deviation,

table of observation frequency was needed to measure Chi-quadrate (X^2_{score}).

Table IV. 5 Table of the Observation Frequency of Experimental Class

Class		Bk	Z_i	$P(Z_i)$	Ld	Oi	Ei	$\dfrac{(O_i - E_i)^2}{E_i}$
		49.5	-2.47	0.4932				
50	56				0.0407	2	1.1	0.8382
		56.5	-1.67	0.4525				
57	63				0.1447	6	3.8	1.3311
		63.5	-0.87	0.3078				
64	70				0.3357	10	8.7	0.1853
		70.5	-0.07	0.0279				
71	77				0.2394	11	6.2	3.6640
		77.5	0.73	0.2673				
78	84				0.1697	6	4.4	0.5714
		84.5	1.53	0.4370				
85	91				0.0531	2	1.4	0.2779
		91.5	2.33	0.4901				
						37	X² =	6.8679

Based on the Chi-quadrate table (X^2_{table}) for 5% alpha of significance with df 6 – 1 = 5, it was found X^2_{table} = 11,07. Because of $X^2_{score} < X^2_{table}$, so the initial data of experimental class distributed normally.

2) **Homogeneity of Test**

The writer determined the mean and variance of the students' score either in experimental or control class. By knowing the mean and variance, the writer was able to test the similarity of the two variances in the pre-test between experimental and control class.

Table. IV. 6 Homogeneity of Test (Pre-test)

Variance Sources	Experimental	Control
Sum	2630	2615
N	37	37
$\overline{X}$	71,08	70,68
Variance (s^2)	76,58	82,17
Standard deviation (s)	8,75	9,06

The computation of the test of homogeneity as follows:

$$F = \frac{Biggest\ Variance}{Smallest\ Variance}$$

$$= \frac{82,17}{76,58}$$

$$= 1,07$$

On a 5% with df numerator (nb - 1) = 37 – 1 = 36 and df denominator (nk – 1) = 37 – 1 = 36, it was found $F_{table\,(0.025)(36:36)} = 1,94$. Because of $F_{score} \leq F_{table}$, so it could be concluded that both experimental and control group had no differences. The result showed both classes had similar variance (homogenous).

3) **Test of similarity between two averages in the pre-test of experimental and control class**

After counting standard deviation and variance, it could be concluded that both classes have no differences in the test of similarity between two variances in pre-test score. So, to differentiate if the students' results of test in experimental and control class before getting treatments were significant or not, the writer used t-test to test the hypothesis. To see the similarity between the experimental and control group, the writer used formula:

$$t = \frac{\overline{x}_1 - \overline{x}_2}{s\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where:

$$S = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

Based on table IV. 6, first the writer had to find out S by using the formula above:

$$S = \sqrt{\frac{(37-1)76{,}58 + (37-1)82{,}17}{37+37-2}}$$

$$= 8{,}91$$

After S was found, the next step was to measure t-test:

$$t = \frac{71{,}08 - 70{,}68}{8{,}91\sqrt{\frac{1}{37} + \frac{1}{37}}}$$

$$= 0{,}20$$

After getting t-test result, then it would be consulted to the critical score of t_{table} to check whether the difference is significant or not. For a = 5% with df 37 + 37 − 2 = 72, it was found $t_{table(0.95)(72)} = 1{,}99$. Because of $t_{score} > t_{table}$, so it could be concluded that there was significance of similarity between the experimental and control class. It meant that both experimental and control class had same condition before getting treatments.

B. Second Analysis

The writer analyzed and tested hypothesis prerequisites which contained of normality, homogeneity and t-test (test of difference two variants) in post-test.

1. Analysis of Post-Test

The experimental class (VII E) was given a post-test on April 8, 2010 and control class (VII A) was given a pre-test on April 10, 2010. Post-test was conducted after all treatments were done. Reading courseware was used as media in teaching reading to students in experimental class. While for students in control group, they were given

treatments by using reading text. Post-test was aimed to measure students' ability and their motivation after they got treatments. They were asked to answer the questionnaire and did the test. For students in control group, they did the test by using reading text and for students in experimental group they did the test while they watched reading courseware.

a. **Analysis of Questionnaire**

   1) **Normality of Questionnaire**

Test of normality was used to find out whether data of control and experimental class which had been collected from the research come from normal distribution normal or not. The result computation of Chi-quadrate (X^2_{score}) then was compared with table of Chi-quadrate (X^2_{table}) by using 5% alpha of significance. If $X^2_{score} < X^2_{table}$ meant that the data spread of research result distributed normally.

Based on the research result of VII A students in the control class after they were taught without reading courseware, they reached the maximum score of questionnaire 72 and minimum score of questionnaire 51. The stretches of score were 21. So, there were 6 classes with length of classes 3. From the computation of frequency distribution, it was found (ΣX) = 2258, and ($\Sigma (X - \overline{X})^2$) = 986,97. So, the average score ($\overline{X}$) was 61,027 and the standard deviation (S) was 5,24. After counting the average score and standard deviation, table of observation frequency was needed to measure Chi-quadrate (X^2_{score}).

Table IV. 7 Table of the Observation Frequency

of Control Class

Class		Bk	Z_i	$P(Z_i)$	Ld	Oi	Ei	$\frac{(O_i - E_i)^2}{E_i}$
		50.5	-2.01	0.4778				
51 – 54					0.0834	4	3.3	0.1717
		54.5	-1.25	0.3944				
55 – 58					0.2100	9	8.2	0.0801
		58.5	-0.48	0.1844				
59 – 62					0.0741	7	2.9	5.8455
		62.5	0.28	0.1103				
63 – 66					0.4634	11	18.1	2.7678
		66.5	1.05	0.3531				
67 – 70					0.1118	4	4.4	0.0298
		70.5	1.81	0.4649				
71 – 74					0.0300	2	1.2	0.5888
		74.5	2.57	0.4949				
						37	**X² =**	**9.484**

Based on the Chi-quadrate table (X^2_{table}) for 5% alpha of significance with dk 6 – 1 = 5, it was found X^2_{table} = 11,07. Because of $X^2_{score} < X^2_{table}$, so the data of control class after getting treatments distributed normally.

While from the result of X C students in experimental group, after they were taught by using reading courseware, was found that the maximum score of questionnaire was 78 and minimal score of questionnaire was 55. The stretches of score were 23. So, there were 6 classes with length of classes 4. From the computation of frequency distribution, it was found (ΣX) = 2438, and $(\Sigma(X - \overline{X})^2)$ = 1015,57. So, the average score $(\overline{X})$ was 65,89 and the standard deviation (S) was 5,31. By seeing the average score of students in experimental class, it could be concluded that there was an improvement of students' score of questionnaire after they got treatments by using reading courseware. After counting

the average score and standard deviation, table of observation frequency was needed to measure Chi-quadrate (X^2_{score}).

Table IV. 8 Table of the Observation Frequency of Experimental Class

Class		Bk	Z_i	$P(Z_i)$	Ld	Oi	Ei	$\dfrac{(O_i - E_i)^2}{E_i}$
		54.5	-2.14	0.4838				
55	58				0.0661	5	1.8	5.7927
		58.5	-1.39	0.4177				
59	62				0.1788	5	4.8	0.0062
		62.5	-0.64	0.2389				
63	66				0.1951	5	5.3	0.0136
		66.5	0.11	0.0438				
67	70				0.3516	16	9.5	4.4599
		70.5	0.87	0.3078				
71	74				0.1396	5	3.8	0.4019
		74.5	1.62	0.4474				
75	78				0.0437	1	1.2	0.0274
		78.5	2.37	0.4911				
						37	**X² =**	**10.702**

Based on the Chi-quadrate table (X^2_{table}) for 5% alpha of significance with df 6 – 1 = 5, it was found X^2_{table} = 11,07. Because of $X^2_{score} < X^2_{table}$, so the data of experimental group distributed normally.

2) **Homogeneity of Questionnaire**

The writer determined the mean and variance of the students' score either in experimental or control class. By knowing the mean and variance, the writer was able to test the similarity of

the two variance in the post-test between experimental and control class.

Table. IV. 9 Homogeneity of Questionnaire (Post-test)

Variance Sources	Experimental	Control
Sum	2438	2258
N	37	37
$\overline{X}$	65,892	61,027
Variance (s^2)	28,210	27,416
Standard deviation (s)	5,311	5,236

The computation of the test of homogeneity as follows:

$$F = \frac{Biggest\ Variance}{Smallest\ Variance}$$

$$= \frac{28,210}{27,416}$$

$$= 1,029$$

On a 5% with df numerator (nb - 1) = 37 – 1 = 36 and df denominator (nk – 1) = 37 – 1 = 36, it was found $F_{table\,(0.025)(36:36)} = 1,743$. Because of $F_{score} \leq F_{table}$, so it could be concluded that both experimental and control class had no differences. The result showed both classes had similar variance (homogenous).

3) **Test of difference between two averages in the post-test of experimental and control class**

After counting standard deviation and variance, it could be concluded that both classes have no differences in the test of similarity between two variances in post-test score. So, to differentiate if the students' results of questionnaire in experimental and control class after getting treatments were significant or not, the writer used t-test to test the hypothesis. To see the difference between the experimental and control group, the writer used formula:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{s\sqrt{\dfrac{1}{n_1} + \dfrac{1}{n_2}}}$$

Where:

$$S = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

Based on table IV. 6, first the writer had to find out S by using the formula above:

$$\text{S} \quad = \sqrt{\frac{(37-1)28{,}210 + (37-1)27{,}416}{37 + 37 - 2}}$$

$$= 5{,}274$$

After S was found, the next step was to measure t-test:

$$\text{t} \quad = \frac{65{,}89 - 61{,}03}{5{,}274\sqrt{\dfrac{1}{37} + \dfrac{1}{37}}}$$

$$= 3{,}968$$

After getting t-test result, then it would be consulted to the critical score of t_{table} to check whether the difference is significant or not. For a = 5% with df 37 + 37 − 2 = 72, it was found $t_{table(0.95)(72)}$ = 1.67. Because of $t_{score} > t_{table}$, so it could be concluded that there was significance of difference between the experimental and control class. It meant that students' motivation in experimental class was better than students' motivation in control class after getting treatments.

Since the obtained t-score was higher than the critical score on the table, the difference was statistically significance. Therefore, based on the computation there was a significance difference between teaching reading using reading courseware and teaching reading without reading courseware for seventh grade students of

MTsN Model Babakan Lebaksiu Tegal. Teaching reading with reading courseware seemed to be more effective to improve students' motivation than teaching reading without reading courseware. It can be seen from the result of the questionnaire where the students taught reading by using reading courseware got higher scores than the students taught reading without reading courseware.

b. **Analysis of Test**

1) **Normality of Test**

Test of normality was used to find out whether data of control and experimental class, which had been collected after they got treatments, come from normal distribution normal or not. The formula, that was used, was Chi-quadrate. The result computation of Chi-quadrate (X^2_{score}) then was compared with table of Chi-quadrate (X^2_{table}) by using 5% alpha of significance. If $X^2_{score} < X^2_{table}$ meant that the data spread of research result distributed normally.

Based on the research result of VII A students in the control class after they got usual treatments (using reading text), they reached the maximum score 90 and minimum score 55. The stretches of score were 35. So, there were 6 classes with length of classes 5. From the computation of frequency distribution, it was found (Σx)= 2665, and ($\Sigma(X - \overline{X})^2$)= 1572,79. So, the average score ($\overline{X}$) was 72,027 and the standard deviation (S) was 6,610. It meant that there was an improvement of students' score after they got treatments. After counting the average score and standard deviation, table of observation frequency was needed to measure Chi-quadrate (X^2_{score}).

Table IV. 10 Table of the Observation Frequency of

Control Class

Class	Bk	Z_i	$P(Z_i)$	Ld	Oi	Ei	$\dfrac{(O_i - E_i)^2}{E_i}$
	54.5	-2.65	0.4960				
55 – 60				0.0369	2	1.4	0.2186
	60.5	-1.74	0.4591				
61 – 66				0.1595	6	6.2	0.0078
	66.5	-0.84	0.2996				
67 – 72				0.2717	12	10.6	0.1859
	72.5	0.07	0.0279				
73 – 78				0.3644	10	14.2	1.2481
	78.5	0.98	0.3365				
79 – 84				0.1341	6	5.2	0.1134
	84.5	1.89	0.4706				
85 – 90				0.0268	1	1.0	0.0020
	90.5	2.79	0.4974				
					37	$X^2 =$	**1.776**

Based on the Chi-quadrate table (X^2_{table}) for 5% alpha of significance with dk 6 – 1 = 5, it was found X^2_{table} = 11.07. Because of $X^2_{score} < X^2_{table}$, so the data of control class after getting treatments distributed normally.

While from the result of VII E students in experimental class, after they were taught reading by using reading courseware, was found that the maximum score was 95 and minimal score was 70. The stretches of score were 25. So, there were 6 classes with length of classes 4. From the computation of frequency distribution, it was found (ΣX) = 3100, and ($\Sigma(X - \overline{X})^2$) =

1120,27. So, the average score ($\overline{X}$) was 83,784 and the standard deviation (S) was 5,578. By seeing the average score of students in experimental class, it could be concluded that there was an improvement of students' score after they got treatments by using reading courseware. After counting the average score and standard deviation, table of observation frequency was needed to measure Chi-quadrate (X^2_{score}).

Table IV. 11 Table of the Observation Frequency of Experimental Class

Class		Bk	Z_i	$P(Z_i)$	Ld	Oi	Ei	$\dfrac{(O_i - E_i)^2}{E_i}$
		69.5	-2.56	0.4896				
70	74				0.0551	1	1.5	0.1599
		74.5	-1.66	0.4345				
75	79				0.1733	3	4.7	0.6025
		79.5	-0.77	0.2612				
80	84				0.2293	11	6.2	3.7353
		84.5	0.13	0.0319				
85	89				0.3425	13	9.2	1.5227
		89.5	1.02	0.3106				
90	94				0.1429	7	3.9	2.5582
		94.5	1.92	0.4535				
95	99				0.0397	2	1.1	0.8036
		99.5	2.82	0.4932				
						37	X² =	9.382

Based on the Chi-quadrate table (X^2_{table}) for 5% alpha of significance with df 6 – 1 = 5, it was found X^2_{table} = 11,07. Because of $X^2_{score} < X^2_{table}$, so the data of experimental class after getting treatments distributed normally.

2) **Homogeneity of Test**

The writer determined the mean and variance of the students' score either in experimental or control class. By knowing the mean and variance, the writer was able to test the similarity of the two variance in the post-test between experimental and control class.

Table. IV. 12 Homogeneity of Test (Post-test)

Variance Sources	Experimental Class	Control Class
Sum	3100	2665
N	37	37
$\overline{X}$	83,784	72,027
Variance (s^2)	31,119	43,694
Standard deviation (s)	5,578	6,610

The computation of the test of homogeneity as follows:

$$F = \frac{Biggest\ Variance}{Smallest\ Variance}$$

$$= \frac{43,694}{31,119}$$

$$= 1,404$$

On a 5% with df numerator (nb - 1) = 37 – 1 = 36 and df denominator (nk – 1) = 37 – 1 = 36, it was found $F_{table\,(0.025)(36:36)} =$ 1.743. Because of $F_{score} \leq F_{table}$, so it could be concluded that both experimental and control group had no differences. The result showed both groups had similar variance (homogenous).

3) **Test of difference between two averages in the post-test of experimental and control class**

After counting standard deviation and variance, it could be concluded that both classes have no differences in the test of similarity between two variances in post-test score. So, to differentiate if the students' results of reading test in experimental and control class after getting treatments were significant or not,

the writer used t-test to test the hypothesis. To see the difference between the experimental and control class, the writer used formula:

$$t = \frac{\overline{x}_1 - \overline{x}_2}{s\sqrt{\dfrac{1}{n_1} + \dfrac{1}{n_2}}}$$

Where:

$$S = \sqrt{\frac{(n_1 - 1)\, s_1^2 + (n_2 - 1)\, s_2^2}{n_1 + n_2 - 2}}$$

Based on table IV. 6, first the writer had to find out S by using the formula above:

$$S = \sqrt{\frac{(37 - 1)31{,}119 + (37 - 1)43{,}694}{37 + 37 - 2}}$$

$$= 6{,}116$$

After S was found, the next step was to measure t-test:

$$t = \frac{83{,}78 - 72{,}03}{6{,}116\sqrt{\dfrac{1}{37} + \dfrac{1}{37}}}$$

$$= 8{,}268$$

After getting t-test result, then it would be consulted to the critical score of t_{table} to check whether the difference is significant or not. For a = 5% with df 37 + 37 − 2 = 72, it was found $t_{table(0.95)(72)}$ = 1.67. Because of $t_{score} > t_{table}$, so it could be concluded that there was significance of difference between the experimental and control class. It meant that experimental class was better than control class after getting treatments.

Since the obtained t-score was higher than the critical score on the table, the difference was statistically significance. Therefore, based on the computation there was a significance difference between teaching reading using reading courseware and teaching

reading without reading courseware for the seventh grade students of MTsN Model Babakan Lebaksiu Tegal. Teaching reading with reading courseware seemed to be more effective than teaching reading without reading courseware. It can be seen from the result of the test where the students taught reading by using courseware got higher scores than the students taught reading by using reading text.

C. Discussions

The data were obtained from the students' score of questionnaire and students' achievement scores of the test of reading. They were pre-test and post-test scores from the experimental and control class. The average score of questionnaire for experimental class was 58.22 (pre-test) and 65.89 (post-test). The average score of questionnaire for control class was 58.03 (pre-test) and 61.03 (post-test).The average score of test for experimental class was 71.08 (pre-test) and 83.78 (post-test). The average score of test for control class was 70.68 (pre-test) and 72.03 (post-test). The following was the simple tables of pre and post-test students' average score.

Table IV. 13 The Pre-test and Post-test Students' Average Scores of the Experimental and Control Class

Class	The Average of Pre-Test		The Average of Post-Test	
	Questionnaire	Test	Questionnaire	Test
Experimental	58,22	71,08	65,89	83,78
Control	58,03	70,68	61,03	72,03

Based on the result on the table above, the data shows that result in both questionnaire and test in experiment class is higher than result of questionnaire and test in control group. It can be concluded that students in experimental class have higher motivation in learning reading, thus, their achievement in post-test is better.

D. Limitation of Research

The writer realized that there were some hindrances and barriers in doing this research. The hindrances and barriers occurred because of the limitation of the research. Some limitations of this research are:

1. Relative short time of research makes this research could not be done maximum.
2. The research is limited at MTsN Model Babakan Lebaksiu Tegal. So that when the same research will be gone in other schools, it is still possible to get different result.
3. It spent a lot of time to prepare the equipments like computer, LCD projector, and others.
4. It was not easy to find the appropriate reading courseware. In selecting reading courseware, teacher had to consider content of reading courseware and students level.

Considering all those limitations, it needs to do more research about teaching reading using reading courseware, so that, the more optimal result will be gained.