CHAPTER IV

FINDING OF THE RESULT OF RESEARCH

To find out the difference between the students who are taught by using song lyrics and the students who are not taught by using song lyrics in vocabulary of verb, the writer did an analysis of quantitative data. The data is obtained by giving test to the experimental class and control class after giving a different method of learning both classes.

This chapter presents the data that was collected during the experimental research. First analysis focuses on the validity, reliability, index difficulty, and discriminating power of instruments. Second analysis represents the result of pre-test and post-test that was done both in experimental and control group.

A. First Analysis

The first analysis item validity is used to know the index validity of the test. To know the validity of instrument and reliable instrument. Try out tests were conducted for VIII C of MTs Uswatun Hasanah Mangkang. Class VIII C consisted of 22 respondents. They were given a try out using the instrument that will be used in control and experiment class. The following is the interpretation of the try out test to find out the validity and reliability of the instrument.

1. Validity of Try Out Test

It is obtained that from 25 test items; there are 20 test items which are valid and 5 test items which are invalid. They are to invalid with the reason the computation result of their r_{xy} value (the correlation of score each item) is lower than their r_{table} value.

The following is the example of item validity computation for item number 5 and for the other items would use the same formula.

Formula:

N = 22 $\sum Y = 389$

$\sum XY = 353$ $\sum X^2 = 19$

$\sum X = 19$ $\sum Y^2 = 7363$

$$r_{xy} = \frac{N\sum XY - \left(\sum X\right)\left(\sum Y\right)}{\sqrt{\left\{N\sum X^2 - \left(\sum X^2\right)\right\}\left\{N\sum Y^2 - \left(\sum Y^2\right)\right\}}}$$

Criteria:

The item is valid if $r_{xy} > r_{table}$

$$r_{xy} = \frac{(22\times 353) - (19)(389)}{\sqrt{\left\{(22\times 19) - (19)^2\right\}\left\{(22\times 7363) - (389)^2\right\}}}$$

$$= 0.481$$

Because of $r_{xy} > r_{table}$, so item number 5 is valid.

2. Reliability of Try Out Test

After validity items had been done, the next analysis was to test the reliability of instrument. It was done to find out whether a test had higher critical score and gave the stability or consistency of the test scores or not. From the computation of reliability of the try out instruments, it was obtained 0.783, for α 5 % with N = 22 It was obtained 0.423.thus, the value resulted from computation is higher than its critical value. It could be concluded that the instruments that were used in this research was reliable. The complete analysis and the computation as follow:

Before computing the reliability, the writer had to compute Varian (S^2) with the formula below:

N = 22 $\sum Y = 389$

$\sum Y^2 = 7363$ $\sum pq = 5{,}492$

$$S^2 = \frac{\sum y^2 - \frac{(\sum y)^2}{N}}{N}$$

$$S^2 = \frac{7363 - \frac{(389)^2}{22}}{22}$$

$$S^2 = \frac{7363 - 6878}{22}$$

$$S^2 = \frac{485}{22}$$

$$S^2 = 22{,}05$$

The computation of the Varian (S^2) is 20, 72. After finding the Varian (S^2) the writer computed the reliability of the test as follows:

Formula:

$$r_{11} = \left(\frac{n}{n-1}\right)\left(\frac{S - \sum pq}{S^2}\right)$$

$$r_{11} = \left(\frac{25}{25-1}\right)\left(\frac{22{,}05 - 5{,}492}{22{,}05}\right)$$

$$r_{11} = 1{,}04\left(\frac{16{,}56}{22{,}05}\right)$$

$$= 0.782$$

The result shows that 0.783 is more than 0,423, it meant that the items of instrument were valid.

3. Discriminating Power of Try Out Test

The discrimination power of an item indicated the extent to which the item discriminated between the tests, separating the more able tests from the less able. To do this analysis, the number of try-out subjects was divided into two groups, upper and lower groups.

Formula:

$$D = \frac{B_A}{J_A} - \frac{B_B}{J_B} = P_A - P_B$$

Criteria:

D = 0.00 – 0.20 : Less

D = 0.21 – 0.40 : Enough

D = 0.41 – 0.70 : Good

D = 0.71 – 1.00 : Excellent

Calculation:

Below is the example of the computation of discriminating power on item number 5.

BA=11 BB=8

JA=11 JB=11

$$D = \frac{11}{11} - \frac{11}{8} = 0{,}27$$

The result obtained D = 0, 27

Because of the result is between 0, 21–0, 40. So the item number 15 is enough.

4. Difficulty Level of Try Out Test

The following is the computation of the level difficulty for item number 5 and for the other items would use the same formula.

Criteria:

$0.00 \leq P < 0.30$ is difficult

$0.30 \leq P < 0.70$ is sufficient

$0.70 \leq P < 1.00$ is easy

Calculation

B=11+8=19

JS= 22

$$P = \frac{B}{JS} \qquad P = \frac{19}{22}$$

$P = 0{,}86$

Because of the result is between 0.70 – 1.00, so the item number is easy.

B. Second Analysis

The second analysis represents the result of pre-test and post-test that was done both in experimental and control group. This analysis will answer the research question "How are song lyrics effective to improve students' vocabulary of verb? We can conclude song lyrics is effective when the result of post test of the experimental class (using song lyrics technique) and control class (using conventional technique) has significant differences or the assumption that those classes is equal is not fulfilled.

Before the researcher tested the hypothesis that had been mentioned in the chapter two, the researcher analyzed and tested hypothesis prerequisites which contained of normality test and homogeneity test. Second analysis dealt with normality test, homogeneity test, and t-test (test of difference two variants) in pre-test and post-test.

1. Analysis of Pre-test

The experimental group (class VIII A) was given a pre-test on May 17, 2010 and control group (class VIII B) was given a pre-test on May 18, 2010.

a. Test of Normality

Test of normality was used to find out whether data of control and experimental group which had been collected from the research come from normal distribution normal or not. The result computation of Chi-square (X^2_{score}) then was compared with table of Chi-Square (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 result of VIII A students in experimental group, before they were taught vocabulary of verb by using song lyrics, was found that the maximum score was 65 and minimal score was 30. The stretches of score were 35. So, there were 6 classes with length of classes 6. From the computation of frequency distribution, it was

found ($\Sigma f_{i.} x_i$) = 1233 and ($\Sigma f_{i.} x_i^2$) = 62922. So, the average score ($\overline{X}$) was 51.46 and the standard deviation (S) was 9.4868. After counting the average score and standard deviation, table of observation frequency was needed to measure Chi-Square (X^2_{score}).

Table 2. Table of the Observation Frequency of Class VIII A

Class	Bk	Z_i	$P(Z_i)$	Ld	Ei	Oi	$\frac{(O_i - E_i)^2}{E_i}$
	29.5	-2.09	-0.4816				
30 – 35				0.0544	1.4	2	0.2999
	35.5	-1.45	-0.4271				
36 – 41				0.1326	3.3	4	0.1415
	41.5	-0.82	-0.2945				
42 – 47				0.2193	5.5	5	0.0424
	47.5	-0.19	-0.0752				
48 – 53				0.2463	6.2	4	0.7553
	53.5	0.44	0.1710				
54– 59				0.1878	4.7	6	0.3622
	59.5	1.08	0.3589				
60 – 65				0.0973	2.4	4	1.0103
	65.5	1.71	0.4561				
					X^2	=	2.6116

Based on the Chi-Square table (X^2_{table}) for 5% alpha of significance with df 6– 3 = 3, it was found X^2_{table} = 7.81. Because of $X^2_{score} < X^2_{table}$, so the initial data of control group distributed normally.

While from the research result of VIII B students in the control group before they were taught vocabulary without song lyrics they reached the maximum score 30 and minimum score 65. The stretches of score were 35. So, there were 6 classes with length of classes 6. From the computation of frequency distribution, it was found ($\Sigma f_{i.} x_i$) = 1287, and ($\Sigma f_{i.} x_i^2$) = 67908. So, the average score ($\overline{X}$) was 51.46 and the standard deviation (S) was 8.4285. After counting the average score and standard deviation, table of observation frequency was needed to measure Chi-Square (X^2_{score}).

Table 3. Table of the Observation Frequency of Class VIII B

Class	Bk	Z_i	$P(Z_i)$	Ld	Ei	Oi	$\frac{(O_i - E_i)^2}{E_i}$
	29.5	-2.61	-0.4954				
30 – 35				0.0246	0.6	1	0.2429
	35.5	-1.89	-0.4709				
36 – 41				0.0895	2.2	2	0.0253
	41.5	-1.18	-0.3813				
42 – 47				0.2006	5.0	5	0.0000
	47.5	-0.47	-0.1808				
48 – 53				0.2764	6.9	6	0.1198
	53.5	0.24	0.0956				
54– 59				0.2343	5.9	6	0.0035
	59.5	0.95	0.3299				
60 – 65				0.1222	3.1	5	1.2389
	65.5	1.67	0.4521				
					X^2	=	1.6304

Based on the Chi-Square table (X^2_{table}) for 5% alpha of significance with df 6 – 3 = 3, it was found X^2_{table} = 7.81. Because of $X^2_{score} < X^2_{table}$, so the initial data of control group distributed normally.

b. Test of Homogeneity

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 the test was measured by comparing the obtained score (F_{score}) with F_{table}. Thus, if the obtained score (F_{score}) was lower than the F_{table} or equal, it could be said that the Ho was accepted. It meant that the variance was homogeneous.

Table 4. Test of Homogeneity

Variant Sources	Control G	Experimental G
Sum	1275	1230
N	25	25
$\bar{X}$	51.00	49.20
Variants (s2)	66.67	80.58
Standart deviation (s)	8.16	8.98

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 group. The formula of the test of homogeneity as follows:

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

$$= 80.58/66.67$$

$$= 1.209$$

On a 5% with df numerator (nb - 1) = 25 – 1 = 24 and df denominator (nk – 1) = 25 – 1 = 24, it was found F_{table} = 1.98. 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 variants (homogenous).

c. Test of Difference Two Variants in Pre-test Between Experiment and Control Group

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

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

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. first the writer had to find out S by using the formula above:

$$S = \sqrt{\frac{(25-1)\,80.58+(25-1)66.67}{25+25-2}}$$

$$= 8.5805$$

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

$$t = \frac{49.20-51.00}{8.5805\sqrt{\frac{1}{25}+\frac{1}{25}}}$$

$$= -0.742$$

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 25 + 25 – 2 = 48, it was found $t_{table(0.975)(48)}$ = 2.048. Because of $t_{score} < t_{table}$, so it could be concluded that there was no significance of difference between the experimental and control group. It meant that both experimental and control group had same condition before getting treatments.

2. Analysis of Post-test

The experimental group was given post test on June 02, 2009 and control group was given a post test on June 03, 2009. Post-test was conducted after all treatments were done. Song lyrics were used as media in the teaching of vocabulary to students in experimental group. While for students in control group, they were given treatments without song lyrics. Post-test was aimed to measure students' ability after they got treatments.

a. Test of Normality

Test of normality was used to find out whether data of control and experimental group, which had been collected after they got treatments, come from normal distribution normal or not. The formula, that was used, was Chi-Square. The result computation of Chi-Square (X^2_{score}) then was compared with table of Chi-square (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 result of VIII A students in experimental group, after they were taught vocabulary of verb by using song lyrics, was found that the maximum score was 80 and minimal score was 35. The stretches of score were 45. So, there were 6 classes with length of classes 6. From the computation of frequency distribution, it was found ($\Sigma f_{i.} x_i$) = 1721.5 and ($\Sigma f_{i.} x_i^2$) = 138348.3 So, the average score ($\overline{X}$) was 68.86 and the standard deviation (S) was 8.32106 After counting the average score and standard deviation, table of observation frequency was needed to measure Chi-Square (X^2_{score}).

Table 5. Table of the Observation Frequency of Class VIII A

Class	Dk	Z_i	$P(Z_i)$	Ld	Ei	Oi	$\frac{(O_i - E_i)^2}{E_i}$
	44.5	-2.93	-0.4983				
45 – 50				0.0120	0.3	1	1.6415
	50.5	-2.21	-0.4863				
51 – 56				0.0550	1.4	2	0.2829
	56.5	-1.49	-0.4313				
57 – 62				0.1536	3.8	1	2.1008
	62.5	-0.76	-0.2777				
63 – 68				0.2604	6.5	6	0.0400
	68.5	-0.04	-0.0173				
69– 74				0.2683	6.7	8	0.2490
	74.5	0.68	0.2511				
75 – 80				0.1680	4.2	7	1.8657
	80.5	1.40	0.4191				
					X^2	=	6.1798

Based on the Chi-Square table (X^2_{table}) for 5% alpha of significance with df 6– 3 = 3, it was found X^2_{table} = 7.81. Because of $X^2_{score} < X^2_{table}$, so the initial data of control group distributed normally.

While from the result of VIII B students in the control group after they got usual treatments, they reached the maximum score 80 and minimum score 45. The stretches of score were 35. So, there were 6 classes with length of classes 6. From the computation of frequency

distribution, it was found ($\Sigma f_i x_i$) = 1602, and ($\Sigma f_i x_i^2$) = 104556. So, the average score ($\overline{X}$) was 64.06 and the standard deviation (S) was 9.04655. 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-Square (X^2_{score}).

Table 6. Table of the Observation Frequency of Class VIII B

Class	Bk	Z_i	$P(Z_i)$	Ld	Ei	Oi	$\frac{(O_i - E_i)^2}{E_i}$
	44.5	-2.16	-0.4847				
45 – 50				0.0516	1.3	3	2.2618
	50.5	-1.50	-0.4331				
51 – 56				0.1347	3.4	3	0.0402
	56.5	-0.84	-0.2983				
57 – 62				0.2299	5.7	7	0.2732
	62.5	-0.17	-0.0685				
63 – 68				0.2567	6.4	7	0.0530
	68.5	0.49	0.1882				
69– 74				0.1875	4.7	5	0.0207
	74.5	1.15	0.3758				
75 – 80				0.0897	2.2	3	0.2568
	80.5	1.82	0.4654				
					X^2	=	2.9057

Based on the Chi-Square table (X^2_{table}) for 5% alpha of significance with df 6– 3 = 3, it was found X^2_{table} = 7.81. Because of $X^2_{score} < X^2_{table}$, so the initial data of control group distributed normally.

b. Test of Homogeneity

The writer determined the mean and variance of the students' score either in experimental or control group. 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 group.

Table 7. Test of Homogeneity

Varians Sources	Control G	Experimental G
Sum	1590	1700
N	25	25
$\bar{X}$	63.60	68.00
Variants (S^2)	76.08	64.58
Standart deviation (S)	8.72	8.04

The formula of the test of homogeneity as follows:

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

$$= 76.08/64.58$$

$$= 1.178$$

On a 5% with df numerator (nb - 1) = 25 – 1 = 24 and df denominator (nk – 1) = 25 – 1 = 24, it was found F*table* $_{(0.025)(24:24)}$= 2,27 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).

c. Test of Difference Two Variants in Post-test Between Experiment and Control Group

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

difference between the experimental and control group, the writer used formula:

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

Where:

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

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

$$S = \sqrt{\frac{(25-1)64.58 + (25-1)76.08}{25 + 25 - 2}}$$

$$= 8.3865$$

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

$$t = \frac{68.00 - 63.60}{8.3865\sqrt{\frac{1}{25} + \frac{1}{25}}}$$

$$= 1.855$$

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 25 + 25 – 2 = 48, it was found $t_{table(0.95)(48)}$ = 1.68. Because of $t_{score} > t_{table}$, so it could be concluded that there was significance of difference between the experimental and control group. It meant that experimental group was better that control group 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 in vocabulary of verb achievement score between students were taught using song lyrics and those were taught without using song lyrics for the eighth

grade students of MTs Uswatun Hasanah Mangkang Semarang. So it can be said that using song lyrics is effective to improve students' vocabulary of verb, and so the action hypothesis is accepted.

C. Discussions

Based on the calculation of normality and homogeneity test form class VIII A as the experimental class and VIIIB as a control class is normal distribution and homogeneous. The data were obtained from the students' achievement scores of the test of vocabulary. They were pre-test and post-test scores from the experimental and control group. The following was the simple tables of pre and post-test students' average.

Table 8.

Pre-test and Post-test Students' Average Scores of the Experimental and Control Group

No	Group	The Average Percentage of Pre-test	The Average Percentage of Post-test
1	Experimental	59.20	68.00
2	Control	51.00	63.60

The result of the research show that the experimental (the students who are taught using song lyrics) class has the mean value 68.00. Meanwhile, the control class (the students who are taught without using song lyrics) has the mean value 63.60. It can be said that the vocabulary achievement of experimental class is higher than the control class.

Based on t-test analysis that was done, it was found that the t-score (1.855) was higher than t-table by using 5% alpha of significance (1.68). Since $t_{score} > t_{table}$, it proved that there was a significant difference between the improvement of students achievement that was given a new treatment (using song lyrics) and the improvement of students achievement that was given a usual treatment.

D. Limitation of Research

The writer realized that this research had not been done optimally. There were some hindrances and barriers in doing this research. The hindrances and barriers were not caused by inability of the researcher but caused by the limitation of the research like time, fund, and equipment of research.