

## CHAPTER IV

### RESEARCH FINDING

#### A. Findings

##### 1. Discription of the Data

###### a. Validity

The calculation of validity uses the formula correlation Pearson's product moment with rude report which said by Pearson with the formula as follow:

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

For item number 1

$$\sum X = 20 \quad \sum Y = 462$$

$$\sum Y^2 = 213444 \quad N = 40 \quad \sum XY = 143$$

$$r_{xy} = \frac{40 \sum 143 - (\sum 20)(\sum 462)}{\sqrt{\{28 \sum 40 - (\sum 40)^2\} \{40 \sum 213444 - (\sum 462)^2\}}}$$

$$\begin{aligned} r_{xy} &= \frac{748}{17406,87} \\ &= 0.04927 \end{aligned}$$

After got score R count look for T count by formula:

$$t_{hitung} = \frac{r_{xy} \sqrt{n-1}}{\sqrt{1-r_{xy}}}$$

$$= \frac{0.04297 \sqrt{40 - 1}}{\sqrt{1 - 0.04297}}$$

$$= 1.265$$

Then compare with  $t_{table}$  in significance 5% ( $\alpha=0.05$ ) and grade freedom  $n-2$ , so got  $t_{table} = 1.68$ . if  $t_{count} > t_{table}$ , so the test is valid, for item number 1 because  $t_{count} > t_{table}$  so test item number 1 is valid.

Table 3.1

item	$t_{count}$	Explentaion
1	1.265	Valid
2	1.764	Valid
3	1.786	Valid
4	2.356	Valid
5	2.625	Valid
6	1.892	Valid
7	1.125	Valid
8	1.896	Valid
9	1.125	Valid
10	2.654	Valid
11	2.685	Valid
12	2.685	Valid
13	1.785	Valid
14	1.452	Valid
15	1.376	Valid

#### b. The Calculation of Reliability

The calculation of reliability test uses the formula K-R 20

(Kuder-Richarson 20):

$$r_{11} = \left[ \frac{n}{n-1} \right] \left[ \frac{S^2 - \sum p \cdot q}{S^2} \right] \text{ dengan } S^2 = \frac{\sum x^2 - \left[ \frac{(\sum x)^2}{n} \right]}{n}$$

$$\Sigma x = 735 \quad \Sigma x^2 = 15165 \quad \Sigma(p.q) = 7.768 \quad n=40$$

$$S^2 = \frac{15165 - \frac{(735)^2}{40}}{40}$$

$$= 6.441$$

$$r_{11} = \left[ \frac{40}{40-1} \right] \left[ \frac{6.441^2 - 7.768}{6.441^2} \right]$$

$$= 1.026 \times 0.813$$

$$= 0.83$$

With interpretation coefficient of reliability as follow:

DP : 0.00 – 0.20 = Poor

DP : 0.21 – 0.40 = Satisfactory

DP : 0.41 – 0.70 = Good

DP : 0.71 – 1.00 = Excellent

DP : Negative = All of poor

As the calculation above 11  $r = 0.83$  so the writer can take the summary that test is reliable and according to categories excellent.

Table 3.2

Table of Difficulty Index of Instrument test

item	B	Js	P	explanations
1	35	40	0.81	Easy
2	20	40	0.50	Average
3	19	40	0.47	Average
4	21	40	0.52	Average
5	20	40	0.50	Average

6	40	40	1	Easy
7	30	40	0.75	Easy
8	35	40	0.81	Easy
9	35	40	0.81	Easy
10	35	40	0.81	Easy
11	35	40	0.81	Easy
12	40	40	1	Easy
13	40	40	1	Easy
14	36	40	0.90	Easy
15	30	40	0.75	Easy

## 2. Data Description

The data were framed into two tables which are from controlled class and experimental class. Each table consists of students' score test which given by the writer. Here are the score of pre-test, post-test, and gain score.

### a. Data of control class

Table 3.4

Score of Pre-test and Post-test of the Controlled Class

Students	Score		Gain score
	Pre-test	Post-test	
1	45	50	5
2	35	35	0
3	45	50	5
4	50	50	0
5	40	50	10
6	45	45	0
7	50	55	5
8	30	35	5
9	25	35	10
10	10	10	0
11	30	40	10
12	40	40	0
13	30	40	10
14	45	45	0
15	30	30	0
16	30	30	0

17	20	25	5
18	45	50	5
20	40	55	15
21	40	45	5
22	25	30	5
23	35	35	0
24	25	40	15
25	35	40	5
26	25	40	14
27	40	45	5
28	35	40	5
29	35	45	10
30	25	30	5
31	20	25	5
32	20	30	10
33	25	25	0
34	30	40	10
35	35	35	0
36	35	40	5
37	40	45	5
38	25	25	0
39	30	40	10
25	25	25	0
<b>Σ n = 40</b>	<b>Σ Y<sub>0</sub> = 1310</b>	<b>Σ Y<sub>1</sub> = 1515</b>	<b>Σ Y<sub>2</sub> = 205</b>
<b>Average</b>	<b>32,75</b>	<b>37,88</b>	<b>5,13</b>
<b>MAX</b>	<b>50</b>	<b>55</b>	
<b>MIN</b>	<b>10</b>	<b>10</b>	

$$M_{\text{pre-test}} = \frac{\Sigma Y_0}{N} = \frac{1310}{40} = 32,75$$

$$M_{\text{post-test}} = \frac{\Sigma Y_1}{N} = \frac{1515}{40} = 37,88$$

$$M_{\text{gain}} = \frac{\Sigma Y_2}{N} = \frac{205}{40} = 5,13$$

From the controlled class data shown above, it can be concluded that the highest score on the pre-test was 50 and the lowest score was 10 with an average of 32.75. The average of the pretest increased on the post-test up to 37.875. The highest score of post-test was 55 while the lowest score was 10. It can be seen that the controlled class could only gained score about 5.13 points.

## b. Data of experimental class

Table 3.4

Score of Pre-test and Post-test of the Experimental Class

Students	Score		Gain score
	Pre-test	Post-test	
1	30	35	5
2	35	40	5
3	45	60	15
4	40	50	10
5	45	55	10
6	45	45	0
7	30	35	5
8	5	35	30
9	30	35	5
10	30	40	10
11	30	40	10
12	30	30	0
13	30	40	10
14	30	45	25
15	40	45	5
16	40	45	5
17	20	30	10
18	25	30	5
20	35	45	10
21	35	45	10
22	25	40	15
23	10	35	25
24	35	40	5
25	50	50	0
26	40	40	0
27	25	35	10
28	35	40	5
29	45	45	0
30	25	35	10
31	25	35	10
32	30	40	10
33	25	45	20
34	40	65	25
35	45	50	0
36	25	30	5
37	35	45	10
38	35	50	15

39	35	45	10
40	20	30	10
<b><math>\Sigma n = 40</math></b>	<b><math>\Sigma Y_0 = 1290</math></b>	<b><math>\Sigma Y_1 = 1650</math></b>	<b><math>\Sigma Y_2 = 360</math></b>
<b>Average</b>	<b>32,25</b>	<b>41,25</b>	<b>9</b>
<b>MAX</b>	<b>50</b>	<b>65</b>	
<b>MIN</b>	<b>5</b>	<b>30</b>	

$$M_{\text{pre-test}} = \frac{\Sigma Y_0}{N} = \frac{1290}{40} = 32,25$$

$$M_{\text{post-test}} = \frac{\Sigma Y_1}{N} = \frac{1650}{40} = 41,25$$

$$M_{\text{gain}} = \frac{\Sigma Y_2}{N} = \frac{360}{40} = 9$$

Based on the calculation result above, it is shown that the mean of pre-test in experimental class was 32.25 and the mean of post-test was 41.25. It means that the students had gained score about 9 points. It is also shown that the highest score on pre-test was 50 and the lowest score was 5. While on the post-test result which the average of the post-test was 41.25, the highest score was 65 and the lowest score was 30.

### 3. Data analysis

#### a. Analysis of Pre-test and Post-test

##### 1) Normality

Before calculating the t-test value to find out the hypothesis of the research, a test of normality and homogeneity are needed to know whether the data has been normally distributed or not; the data are homogeneous or heterogeneous. These tests are valued using SPSS Statistics 17. The normality and homogeneity tests results can be seen as below:

Table 3.5

Normality of Pre-test Using One-Sample Kolmogorov-Smirnov Test

		CONTROLLED	EXPERIMENT
N		40	40
Normal Parameters <sup>a,,b</sup>	Mean	32.7500	32.2500
	Std. Deviation	9.33356	9.80254
Most Extreme Differences	Absolute	.122	.110
	Positive	.122	.091
	Negative	-.106	-.110
Kolmogorov-Smirnov Z		.770	.699
Asymp. Sig. (2-tailed)		.593	.713

- Test distribution is Normal.
- Calculated from data

The normality calculation above used *One-Sample Kolmogorov-Smirnov Test*. From the table above, it is shown the absolute difference (D) of controlled class data is 0.122. It is much lesser than  $D_{table}$  with the closest *Kolmogorov-Smirnov* critical points of 40 = 0.210. It means the pre-test of controlled class is normal. And the absolute different (D) of experimental class data is 0.110. It is also much lesser than  $D_{table}$  with the closest *Kolmogorov-Smirnov* critical points of 40 = 0.210. It also means that the pre-test of experimental class is normal.

Table 3.6

Normality of Post-test Using One-Sample Kolmogorov-Smirnov Test

		CONTROLLED	EXPERIMENT
N		40	40
Normal Parameters <sup>a,,b</sup>	Mean	37.8750	41.2500
	Std. Deviation	9.86365	8.30122
Most Extreme	Absolute	.160	.151



Differences	Positive	.090	.151
	Negative	-.160	-.124
Kolmogorov-Smirnov Z		1.014	.953
Asymp. Sig. (2-tailed)		.256	.323

- Test distribution is Normal.
- Calculated from data

The normality calculation of post-test above used *One-Sample Kolmogorov-Smirnov Test*. From the table above, it is shown the absolute difference (D) of controlled class data is 0.160. It is much lesser than  $D_{table}$  with the closest *Kolmogorov-Smirnov* critical points of 40 = 0.210. It means the posttest of controlled class is normal. While the absolute different (D) of experimental class data is 0.151. It is also much lesser than  $D_{table}$  with the closest *Kolmogorov-Smirnov* critical points of 40 = 0.210. It also means the post-test of experimental class is normal.

## 2) Homogeneity

Table 4.7

### Pre-Test Homogeneity

#### Test of Homogeneity of Variance

	Levene Statistic	<i>df1</i>	<i>df2</i>	Sig
VALUE based on mean	.0000	1	78	1000
Based on median	.0000	1	78	1000

Based on median and with adjust <i>df</i>	.0000	1	76.300	1000
Based on trimmed Mean	.0000	1	78	100

From the result of homogeneity test above, it can be seen that all of degree of significance is 1.000. It is also higher than 0.01. So, it can be concluded that both of the groups are homogenous.

Hypothesis testing is the last step to find out the answer of hypothesis. From the hypothesis test, it will be found whether Teams Games Tournaments give positives effect to students or not. To analyze the hypothesis the writer used T-test formula below:

$$t_o = \frac{M_x - M_y}{SE_{M_x} - SE_{M_y}}$$

- a. Determining the Mean of Variable X, with formula:

$$M_x = \frac{360}{40} = 9$$

- b. Determining the Mean of Variable Y, with formula:

$$M_y = \frac{205}{40} = 5.13$$

- c. Determining the Standard Deviation Score of Variable X, with formula:

$$SD_x = \sqrt{\frac{9^2}{40}} = \sqrt{2.03} = 1.42$$

$$\sqrt{\quad} \quad 40$$

- d. Determining the Standard Deviation Score of Variable Y, with formula:

$$SD_y = \frac{\sqrt{5.13^2}}{\sqrt{40}} = \sqrt{0.66} = 0.81$$

- e. Determining the Standard Error Mean of Variable X, with formula:

$$SE_{Mx} = \frac{1.42}{\sqrt{40 - 1}} = \frac{1.42}{6.24} = 0.23$$

- f. Determining the Standard Error Mean of Variable Y, with formula:

$$SE_{My} = \frac{0.81}{\sqrt{40 - 1}} = \frac{0.81}{6.24} = 0.13$$

- g. Determining the Standard Error of different Mean of Variable X and Mean of Variable Y, with formula:

$$SE_{Mx} - SE_{My} = \sqrt{(0.23)^2 + (0.13)^2} = \sqrt{0.05 + 0.02} = \sqrt{0.07} = 0.26$$

- h. Determining to, with formula:

$$t_o = \frac{9 - 513}{0.23 - 0.13} \frac{3.87}{0.1} = 38.7$$

- i. Determining the Degree of Freedom (*df*), with formula:

$$Df = 40 + 40 - 2 = 78$$

From the result of statistical calculation above, it can be seen that the value of *t*<sub>0</sub> or *t*<sub>test</sub> is 38.7 and the degree of freedom (*df*) was 78. The

value of  $t$  in the degree of freedom of 78 and at the degree of significance 1% or  $t_{table}$  of  $df$  78 with  $\alpha=0.01$  is 2.375.

#### 4. Hypotheses testing

The research was held to answer the question whether Screabble Games media any effect on students' increase students' mastery of english vocabulary. In order to provide answer for the question above, the Alternative Hypothesis ( $H_a$ ) and Null Hypothesis ( $H_o$ ) were proposed as follows:

- a.  $H_o$  (Null Hypothesis): Teams Games Tournaments technique has no significant effectiveness in learning reading of narrative text.
- b.  $H_a$  (Alternative Hypothesis): Teams Games Tournaments technique has significant effectiveness in learning reading of narrative text

To prove the hypothesis, the obtained data from experimental class and controlled class were calculated by using  $t_{test}$  formula with assumption as follows:

- a. If  $t_o \leq t_{table}$ , in significant degree of 1%, the Null Hypothesis ( $H_o$ ) is accepted and the Hypothesis Alternative ( $H_a$ ) is rejected. It means that there is no significant effect of Teams Games Tournaments technique on students' reading narrative textability.
- b. If  $t_o \geq t_{table}$ , in significant degree of 1%, the Null Hypothesis ( $H_o$ ) is rejected and the Hypothesis Alternative ( $H_a$ ) is accepted. It means that there is a significant effect of Teams Games Tournaments technique on students' reading narrative textability.

According to the statistical calculation above, the value of  $t_0$  is 38.7, and the degree of freedom is 78 with 1% degree of significance is used by the writer. Based on the significance, it can be seen that on degree of freedom of 78, and in 1% degree of significance the value of  $t_{table}$  2.375. By comparing the result of  $t_0$  and  $t_{table}$ , in the degree of significance of 1%, it can be seen that  $t_0 > t_{table}$  ( $38.7 > 2.375$ ).

According to those results, a conclusion can be drawn that the  $H_0$  was rejected meanwhile the  $H_a$  was accepted.

#### 5. Interpretation

From research findings above shows that in the post test, students from experimental class perform better than students from controlled class. It can be seen from the result of the average score of post-test of controlled class and experimental class. The average score of post-test of controlled class is 37.88. While, the average score of post-test of experimental class is 41.25. So the average score of post-test of experimental class higher than average score of posttest of controlled class.  $41.25 > 37.88$ .

Afterward, the experimental class and controlled class students' gain score illustrates that the average gain score for experimental class students is higher than the average gain score for controlled class students. The average gain score of experimental class is 9.0. While the average gain score of controlled class is 5.13.

Then, from the data testing we can infer that both the pre-test and posttest have normal distribution as shown by the normality test that was done by the use of SPSS calculation. The result of normality of pre-test shown the absolute difference (D) of controlled class data is 0.122. It is much lesser than  $D_{table}$  with the critical points of  $40 = 0.210$ . And the absolute different (D) of experimental class data is 0.110. It is also much lesser than  $D_{table}$  with the critical points of  $40 = 0.210$ . It means the pre-test of both controlled class and experimental class is normal. And the result of normality of post-test it is shown the absolute difference (D) of controlled class data is 0.160. It is much lesser than  $D_{table}$  with critical points of  $40 = 0.210$ . While the absolute different (D) of experimental class data is 0.151. It is also much lesser than  $D_{table}$  with the critical points of  $40 = 0.210$ . It also means that post-test of both controlled class and experimental class is normal.

Moreover, it is also confirmed that both experimental class and controlled class are classified as homogenous group according to the SPSS calculation. From the result of homogeneity test, it can be seen that the degree of significance is 1.000. It is also higher than 0.05. So, it can be concluded that both of the groups are homogenous.

Last of all, based on the result of analysis data, the value of  $t_{table}$  in the degree of significance of 1% was 2.375. Then the value of  $t_o$  was 38.7. It means that the Null Hypothesis ( $H_o$ ) was rejected and the Alternative Hypothesis was accepted. Therefore, it can be inferred that

Teams Games Tournaments technique has effectiveness in learning reading of narrative text as shown by 38.7 value of  $t_o$  which was higher than 0 (zero). The  $t$ -observation ( $t_o = 38.7$ ) which is higher than  $t$ -table ( $t_{table} = 2.376$ ) shows that the effectiveness of using scrabble game. The effectiveness of using scrabble game to increase students mastery of vocabulary can be seen from experimental class students' active involvement in the learning process and experimental class students average gain score which was recorded at score 9.0.