

CHAPTER IV

RESEARCH FINDING AND DISCUSSION

This chapter deals with the data presentation and discussion of the research. The researcher would like to consider and review what happened during the implementation of the treatment at second grade of MTs Mathlabul Huda Dukun Gresik. The researcher answers the problems stated in the research questions. Furthermore, he compares the results of pre-test and post-test in numerical number.

The discussion of the research findings section mainly talks about the result of the experimental and the control group and the students' responses during implementation of the treatment.

A. Research Finding

1. The result of the experimental and the control group

Brain gym is used to improve the students speaking ability. This study is conducted to find out whether there is a significant difference between the students who are taught using brain gym and those are taught without using brain gym.

1. Analysis of Pre-test

Pre-test in the experimental and controlled group is given in the first meeting before conducting the treatment. It is attended by 18 students. Data is

collected through pre-test in both groups in order to find out their speaking ability in both groups are homogeneous or not. It is given before the treatment.

The result of pre-test can be seen in the following table ;

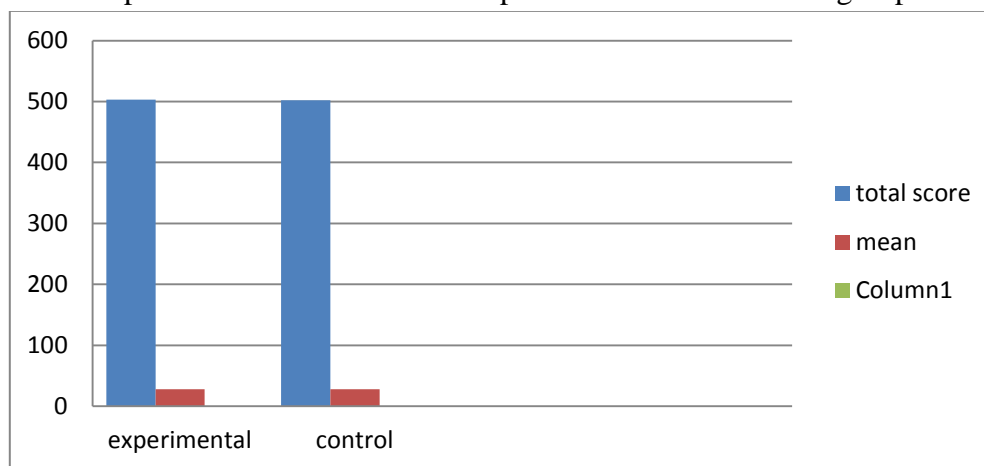
Table 4.1
Pre-test score of experimental group and control group

Group	N	Total score	Mean
Experimental group	18	503	27.94
Control group	18	502	27,88

The result would be described through the following figure.

Figure 4.1

Chart of pre-test score and mean of experimental and controlled group



After getting score the researcher uses this following formula to see the average

$$\text{The average of students' score} = \frac{\text{the total of students' score}}{\text{the number of students}}$$

The chart shows that the sum of the pre-test scores is 503 for the experimental groups and 502 for the controlled groups. While, the mean of the pre-test scores of the experimental group is 27,94 and the controlled group is 27,88. It means that the students of the both groups have slight difference of ability before the treatments has been given.

The result shows that many students can not achieve the minimum score that is 80. Here, the students face some problems in speaking. They get difficulty in their fluency. Some of them are poor in grammar and vocabulary. It makes them get difficulties in expressing their ideas into the right order.

2. The treatment

The researcher does this research at MTs Mathlabul Huda Babakbawo Dukun Gresik. It is done in three meetings, on October 13th 20th and 27th 2013. The researcher uses six kinds of brain gym movement, there are; the thinking cap movement, hook-ups movement, the calf pump movement, the energy yawn movement, belly breathing movement and positive point movement. In every meeting, he uses two different movements. For the detail of every movement, we can see on page 12 – 18.

a. The first meeting

The first treatment is held on the second day of the research. It is on October 13th2013. At this point, the researcher implements the thinking cap movement and hook-ups movement.

The researcher begins the meeting by praying together and checking the attendance. Then, the researcher shows some pictures of kinds of sport to get students interest. Then, the researcher gives the thinking cap activities. In the beginning, students feel confused with the researcher' instruction, then the researcher repeats the instruction again until they understand, then they could enjoy the movement.

The researcher gives some expression of asking and giving opinion. Then he divides them into 4 groups, the researcher asks them to make a discussion in their group about some topics given to them, while the researcher just controls them

The researcher gives the second movement that is hook up movement, then asks students to make a conversation in pair that will be practiced in front of the class

b. The second meeting

The second treatment is held on October 20th 2013, in this meeting, the researcher uses the calf pump movement and the energy yawn movement.

After praying and checking students' attendance, the writer asks about cinema or movie they like. Then, he gives example of the calf pump movement. Students do this movement enjoyably, after that the researcher gives the material "expressing of giving and refusing invitation". In this

meeting the researcher uses movie as theme, the researcher divides them into 4 groups and gives a text as example.

The researcher gives the second movement that is the energy yawn movement. After that, the researcher asks them to make conversation in pair and practice it.

c. The third meeting

The third treatment is held on October 27th 2013. In this meeting, the researcher uses belly breathing movement and positive point movement.

The researcher asks students some questions about their activities last week, they give various answers. Then, the researcher gives belly breathing movement, after that the researcher gives the formula of simple past. Then, the researcher divides them into 5 groups and gives them a task in group.

The researcher gives the second movement that is positive point movement, after that he asks them to make a story about their own experience in past event.

3. Analysis of post-test

Post-test is conducted to both of experimental and controlled groups in the same week after receiving the treatment. The purpose of post-test is to know whether there are improvements in the student's achievements of

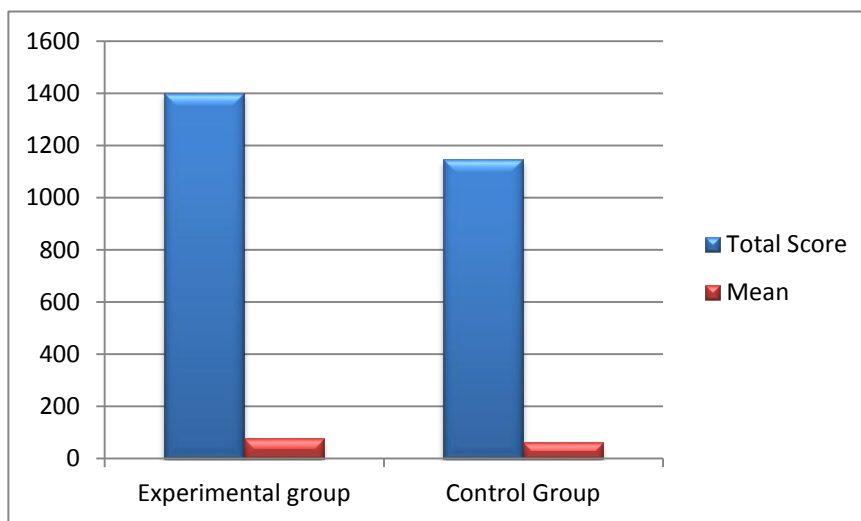
experimental group. The result of the post-test score and mean of the experimental and controlled groups are presented in following table.

Table 4.2
The post-test score of experimental and controlled groups.

Group	N	Total score	Mean
Experimental group	18	1402	77,79
Controlled group	18	1147	63,72

The result would be described through the following figure.

Figure 4.2
The post-test score and means of experimental and controlled group.



After getting score, the researcher uses this following formula to see the average

$$\text{The average of students' score} = \frac{\text{the total of students' score}}{\text{the number of students}}$$

The chart shows that the sum of the post-test scores is 1402 for the experimental groups and 1147 for the controlled groups. While, the mean of the post-test scores of the experimental group is 77,79 and the controlled group is 63,72.

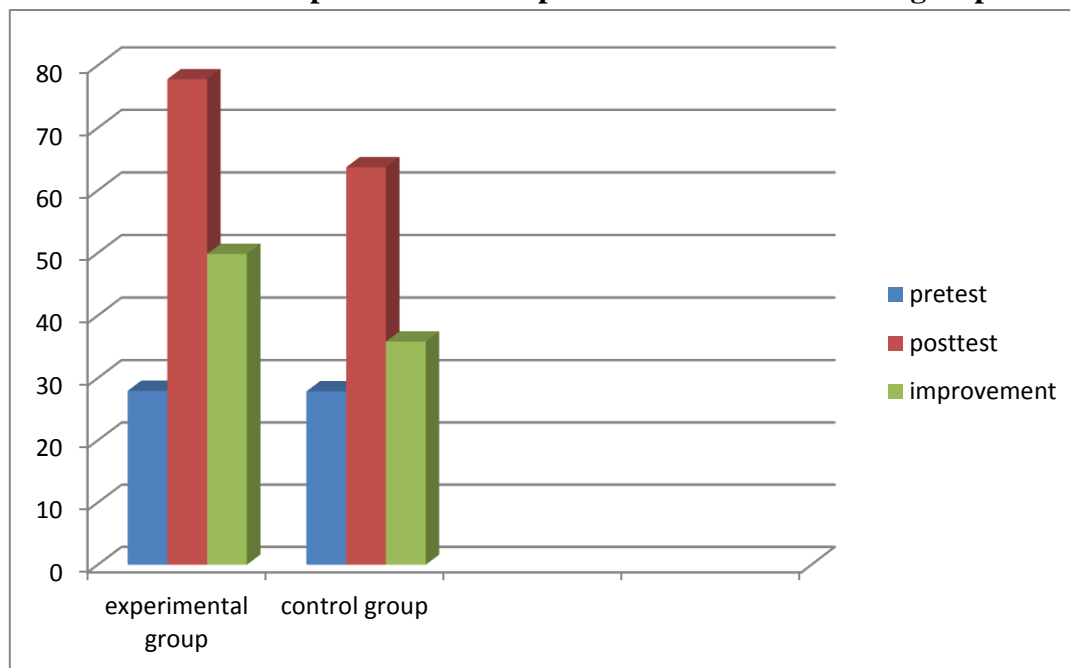
From the result of pre-test and post-test scores of experimental group, we could see that the post-test score is higher than pre-test. It would be compared with pretest to find out the improvement. The improvement can be seen through the following table.

Table 4.3
The improvement of Experimental and Controlled group

Group	Mean		
	Pre-test	Post-test	Improvement
Experimental group	27,94	77,79	49,85
Controlled group	27,88	63,72	35,84

Described through the following figure

Figure 4.3
The improvement of Experimental and Controlled group



From the table above, it shows that the mean difference of experimental class is higher than control class. The score of experimental group is mean difference 49,85, whereas controlled group is mean difference 35,84. It can be concluded that the treatment given by brain gym has more influence than Traditional technique.

Overall improvement between pre-test and post-test score of the experimental group is higher than the controlled group. Then, the researcher calculates the two meant post-test scores by using t-test formula to know whether the improvement is significant or not.

4. Analysis of significance

After the researcher gives the pre-test, treatments and post-test, then the researcher calculates the different mean of pre-test and post-test score between experimental and controlled groups to know whether the result of brain gym is significant or not between both of groups. Then, the result is analyzed using t-test formula. Before it is done, the standard deviation of the two groups is calculated first. The formula is :

Experimental group

$$\begin{aligned}
 S_e &= \frac{\sum X_e - \sum(X_e - \bar{X})^2}{n_e} \\
 &= \frac{1402 - 349,78}{18} \\
 &= \frac{1052,22}{18} \\
 &= 58,46
 \end{aligned}$$

The standard deviation of experiment group is 58,46

So the variance is $S^2 = 3417,2$

Control group :

$$S_c = \frac{\sum X_c - \sum(X_c - \bar{X})^2}{n_c}$$

$$\begin{aligned}
 &= \frac{1147 - 775,61}{18} \\
 &= \frac{371,39}{18} \\
 &= 20,63
 \end{aligned}$$

The standard deviation of control group is 20,63

So the variance is $S^2 = 425,71$

The result of the calculation is presented in this table.

Table 4.4
The calculation result of mean and variance

Group	N	Mean	Variance
Experimental Group	18	77,89	3417,2
Control Group	18	63,72	425,71

After the researcher knows the differences between mean and variance from both group. Then, the researcher calculates the t-test.

$$\begin{aligned}
 t &= \frac{\bar{X}_e - \bar{X}_c}{\sqrt{\left(\frac{Sse + Ssc}{n_e + n_c - 2}\right) \left(\frac{1}{n_e} + \frac{1}{n_c}\right)}} \\
 &= \frac{77.89 - 63.72}{\sqrt{\left(\frac{3417,2 + 425,71}{18 + 18 - 2}\right) \left(\frac{1}{18} + \frac{1}{18}\right)}} \\
 &= \frac{14,17}{\sqrt{\left(\frac{3842,91}{34}\right) \left(\frac{2}{18}\right)}}
 \end{aligned}$$

$$\begin{aligned}
 &= \frac{14,17}{\sqrt{(113,03)(0.11)}} \\
 &= \frac{14,17}{\sqrt{12,43}} \\
 &= \frac{14,17}{3,53} \\
 &= 4,014
 \end{aligned}$$

So the t-test is 4,014

5. Testing Hypotheses

To check whether or not the difference between two means of the experiment group and the control group is statistically significant, the obtained t- value should be consulted with the critical value in the t-table.

The hypothesis of this research states that:

- a. H(o) : stated that there is no significance effect of brain gym technique on improving students' speaking skill.
- b. H(a) stated that there is significance effect of brain gym technique on improving students' speaking skill.

Before the experiment is conducted, the level of significance should have been decided first so the decision making would not be influenced by the result of the experiment.

In this experiment, there are 18 students as experiment group and 18 students too as control group. So, the number of the both groups is 36 students.

From the number we can know that the degree of freedom (df) is 34, which is obtained from the formula $N_e + N_c - 2 = 34$. With distribution of standard significant was 0,05 and degree of freedom is 34. So, the result of t-table is $(0,05 : 34) = 2,042$. The obtained t value is 4,0141 so the t value is higher than t-table $(4,0141 > 2,042)$. It is concluded that “there is significance effect of brain gym technique on improving students’ speaking skill”.

1. Data analysis of students’ response

The second research question of this study is about the students’ response to the brain gym activities. In this research, the researcher uses questionnaire to get information from the respondent. It is arranged in form of rating scale. Student’s response is divided into three aspects there are easiness, interesting, and joyful. It is rated in scale of “easiness” very easy (VE), easy (E), not easy (NE), “interesting” very interesting (VI), interesting (I), not interesting (NI), And very joyful (VJ), joyful (J), not joyful (NJ). It would be said positive if respondents answer the very easy, very interested, and very joyful is more than 65%. Respondents indicate their opinion by checking or putting mark on the position on the scale which most represent what they feel. Then, students’ response score is percentage, and the result of students’ respond is described bellows:

Table 4.5
The result of students’ response of brain gym movement

No	Brain Gym	Aspect
----	-----------	--------

	Movement	Easiness			Joyful			Interasting		
		VE	E	NE	VJ	J	NJ	VI	I	NI
		%	%	%	%	%	%	%	%	%
1	The thinking cap	88	11	0	72	11	16	77	22	0
2	Hook up	27	72	0	78	5	16	77	2	0
3	The calf pump	55	33	11	83	11	5	83	16	0
4	The energy yawn	72	16	11	72	16	11	11	77	5
5	Belly breathing	77	22	0	83	11	5	72	16	11
6	Positive points	83	11	5	27	66	5	72	22	5

Where :

VE = Very Easy	NJ = Not Joyful
E = Easy	VI = Very Interesting
NE = Not Easy	I = Interesting
VJ = Very Joyful	NI = Not Interesting
J = Joyful	

After getting percentage of all item, the researcher get the data

$$\text{Very Easy} = \frac{4}{6} \times 100 \% = 66 \%$$

$$\text{Very Joyful} = \frac{5}{6} \times 100 \% = 83 \%$$

$$\text{Very Interesting} = \frac{5}{6} \times 100 \% = 83 \%$$

From the percentage of each item above, it can be found that there are 66% of respondents are favored with “Very Easy” criterion, 83% of respondents are favored with “Very Joyful” criterion, and 83% of respondents are favored with “Very interesting” criterion. It means that the brain gym movement is welcomed by students

because the most alternative answer is “Very Easy, very Joyful and Very Interesting”. In order words, the results of students’ respond of brain gym movement is “positive”

B. Discussion

In this section, the researcher discusses about the research findings and divides the discussion into two matters, namely the discussion of the results of treatment and the discussion of students’ responses. The explanation of each discussion is described as follows:

1. The Result of Treatments

This study focuses on teaching speaking by using brain gym whether improve or not. Based on the data finding above, this study indicates positive result. It is proven by the result of students pre-test which mean 27,94 increase become 77,79. Also, the calculation of t-test shows that the t-value is 4,014. It is bigger than t table 2,042.

The researcher takes two classes, the control group and the experimental group. The control group is taught without applying brain gym while experimental is taught by applying brain gym. The treatment is conducted in three times in order to make students get treatments well. The result is satisfactory, the scores of students significantly increase.

In the First treatment, the researcher begins the meeting by praying together and checking the attendance, the researcher shows some pictures of kinds of sport to get students interest. Then, the researcher gives the thinking

cap activities, in the beginning, students feel confused with the researcher's instruction, then, the researcher repeats the instruction again until they understand. then, they can enjoy the movement.

The researcher gives some expression of asking and giving opinion, then divides them into 4 groups, the researcher asks them to make a discussion in their group about some topics that given to them, the researcher just controls them.

The researcher gives the second movement that is hook up movement. The researcher asks students to make a conversation in pair that will be practiced in front of the class

The second treatment, the researcher uses the calf pump movement and the energy yawn movement. After praying and checking students' attendance, the writer asks about cinema or movie they like, then, the researcher gives example of the calf pump movement. Students do this movement enjoyably, the researcher gives the material "expressing of giving and refusing invitation". In this meeting, the researcher uses movie as theme, the researcher divides them into 4 groups and gives a text as example. Then, the researcher gives the second movement that is the energy yawn movement. After that, the researcher asks them to make conversation in pair and practice it.

The third treatment, the researcher uses belly breathing movement and positive point movement. The researcher asks students some questions about

their activities last week, students give various answers. The researcher gives belly breathing movement. Then, the researcher gives the formula of simple past. After that, the researcher divides them into 5 groups and gives them a task in group. The researcher gives the second movement that is positive point movement, after that, he asks them to make a story about their own experience in past event.

2. The Result of Students' Response

The result of students' response of brain gym movement can be seen in table 4.5. For clearer it is described bellow:

- a. From the easiness aspect, 4 out of 6 movements get more than 65%, there are the thinking cap movement gets 88%, the energy yawn movement gets 72%, belly breathing movement gets 77%, and positive points movement gets 83%. While the other 2 get less than 65%. there are Hook up that just gets 27% and The calf pump just gets 55%
- b. From joyful aspect 5 out of 6 movements get more than 65%, there are the thinking cap movement gets 72%, hook up movement gets 78%, the calf pump movement gets 83%, the energy yawn movement gets 72%, and belly breathing gets 83%. While the other 1 less than 65% there is positive points which just gets 27%
- c. From interesting aspect 5 out of 6 movements get more than 65%, there are the thinking cap movement gets 77%, hook up movement gets 77%,

the calf pump movement gets 83%, belly breathing gets 72% and positive points movement gets 72%. While the other 1 less than 65%, there is the energy yawn which just gets 11%

After all items are presented in percentage, it can be seen that all aspects, in average, get more than 65%. It means that the students' response is "positive"