

CHAPTER III

RESEARCH METHOD

This study investigates the Brain Gym to improve students' speaking skill. The discussion of this chapter elaborates research design, population and sample, setting of the study, procedure, research variables, data sources, data collection technique, research instrument, data analysis technique.

A. Research Design

Research design is the plan of the research that will be conducted.³⁵ This research uses quasi experimental research. Experimental research is the way to find a causal relationship (relationship clause) between the two factors that are deliberately caused by the researcher by reducing or setting aside other factors that interfere. Experiments are always done with the intent to see a treatment.³⁶

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 research design of pretest and posttest control and experimental group can be illustrated as follows:

³⁵SuharismiArikunto, *ProsedurPenelitianSuatuPendekatanPraktek*(Jakarta: PT. RinekaCipta, 2006),51

³⁶SuharsimiArikunto, *ProsedurPeneltianSauatPendekatanPraktek*, (Jakarta: Bina Aksara,1987), 3

Table 3.1
Research Design

Group	Pretest	Treatment	Posttest
A	X1	BG	Y1
B	X2	-	Y2

Explanation:

A : experimental group

B : control group

X1 : the pretest given in experimental group

X2 : the pretest given in control group

BG : Brain gym

Y1 : the post test given in experimental group

Y2 : the post test given in control group

Based on the diagram above, there are two classes (groups) which are divided into experimental group and control group (A and B). Both of them do pretest (X1 and X2). The pretest is given in order to find out their speaking ability in both groups are homogeneous or not. It is given before the treatment. Next, the treatment (BG) would be applied to the experimental group and posttest (Y1 and Y2) is given to both

groups. Post test is applied in order to find out students ability in speaking of the two groups. The score of both groups are compared with the improvement.

B. Hypotheses

This study is consisted of two hypotheses. they are:

Ho : There is no significant improvement by using of brain gym in teaching speaking skill at MTs Mathlabul Huda Babak Bawo Dukun Gresik.

Ha : There is a significant improvement by using of brain gym in teaching speaking skill at MTs Mathlabul Huda Babak Bawo Dukun Gresik.

C. Setting of the Study

This research is conducted at MTs Mathlabul Huda located on Jl. Raya Babak Bawo Dukun Gresik. MTs Mathlabul Huda is not the most favorite school but it is a big enough school. Although MTs Mathlabul Huda is located in village, the facilities in this school are good enough.

This research is conducted on October 12th 2013 – October 28th 2013.

1. Population

According to Arikunto which is quoted by RistyanaPrimadana, population is the whole subject of the research.³⁷ Thus, in this study the populations are all students of MTs Mathlabul Huda.

2. Sample

Sample is the process of selecting a number of individuals (objects of research) for a study such the individual (the object of study) is representative of a larger group on the selected object.³⁸ In this study the sample are VIII A and VIII B. the students of VIII A is chosen as the experimental class and VIII B as the control class.³⁹ Each class has 19 students. The total number of the samples is 38 students

D. Research Procedure

Research procedure is a series of research process.⁴⁰ The procedure of this research is described below;

I. Preparation

The researcher prepares everything needed in the research as follows :

³⁷Primadana Ristyana, Unpublished thesis: *“The Effectiveness Of Using Short Note In Teaching Writing At Smp Negeri 1 Bangsal Mojokerto”* (Surabaya: State Institute of Islamic Studies Sunan Ampel Surabaya, 2011), 25

³⁸Sumanto, *Metodologi Penelitian Sosial & Pendidikan*, (Yogyakarta: Andi Offset, 1995), 39

³⁹ Both sample groups are chosen based on teacher' recommendation

⁴⁰Narbuko cholid – Achmadi Abu, *Metodologi Penelitian* (Jakarta: PT Bumi Aksara, 2009), 57

a. Designing time

Before going to the class, the researcher determines the time with the teacher. The researcher makes the material, lesson plan. The researcher holds a pretest at 12th October 2013. It is conducted to both groups before the treatment. Then does the treatment three times at 13, 20 and 27 October 2013. The last is posttest, it is given at 28th October 2013 to both groups.

b. Preparing material

First, the researcher analyzes the syllabus and then compiles, selects, and adapts materials. The source of the material is from the internet and text book :

- Contextual teaching and learning bahasa inggris SMP kelas VIII
- English focus for VIII grade Junior High School

c. Making lesson plan

The researcher makes the lesson plan based on standard competences in syllabus. The researcher filled the lesson plan activity with the step of brain gym and some additional activities that support the technique.

d. Making a test

There is two kind of test. They are pretest and post test. Researcher gives the pretest before conducting the research and the post test is delivered after the technique applied.

II. Action

First, the researcher conducts pretest. After pre test, the researcher makes a plan to teach speaking. The researcher prepares material which is taken from book and internet, and the last conduct post test

Table 3.2
The Teaching Procedure

No	Date	Experiment Group	Control Group
1	12 th of October 2013	Pretest	Pretest
2	13 th of October 2013	1 st treatment Teacher taught using brain gym technique	1 st treatment Teacher taught without brain gym technique
3	20 th of October 2013	2 nd treatment Teacher taught using brain gym technique	2 nd treatment Teacher taught without brain gym technique
4	27 th of October 2013	3 rd treatment Teacher taught using brain gym technique	3 rd treatment Teacher taught without using brain gym technique
5	28 th of October 2013	Posttest	Posttest

III. Evaluation

After doing pretest, treatments and posttest the researcher analyzes the data collected using t-test, to analyzing t – test the researcher uses this formula:

$$t = \frac{\bar{X}_e - \bar{X}_c}{\sqrt{\left(\frac{Sse + Ssc}{n_e + n_c - 2}\right)\left(\frac{1}{n_e} + \frac{1}{n_c}\right)}}$$

Where :

t : t test

\bar{X}_e : the mean of the experiment group

\bar{X}_c : the mean of the control group

sse : sum of quadrate deviation of the experiment group

ssc : sum of quadrate deviation of the control group

ne : the number of experiment group

nc : the number of control group

E. Data and Source Data

The data that researcher uses are:

1. English lesson plan.
2. Student's English Score.
3. Student's response to the implementation of brain gym in teaching speaking.

Source of Data

1. English teachers and students of MTs Mathlabul Huda Dukun Gresik
2. Student's score in English subject.
3. The condition of teaching and learning process which is gotten from the questionnaire.

F. Data Collection Technique

To collect the data appropriately, it needs to use the appropriate technique

The researcher uses some techniques to collect the data. They are:

1. Assessment (oral test)

Since the study is quasi experimental, pretest and post test is used to collect data. The collect data is the scores obtained from pre and posttest that is given to both control and experimental group. The score from the pre test is used to see the initial ability of both groups, before conducting the treatment. On the other hand, the scores from posttest is used to measure whether the implemented technique improve students' speaking skill or not. This assessment is aimed to measure students' ability after and before applying brain gym in teaching speaking.

Because this research focuses on speaking ability, therefore the pre and post test are designed as oral test. The following table is scale to measured speaking:

Provenience Description	1	2	3	4	5	6	(A)
Accent	0	1	2	2	3	4	
Grammar	6	12	18	24	30	36	
Vocabulary	4	8	12	16	20	24	
Fluency	2	4	6	8	10	12	
Comprehension	4	8	12	15	19	23	
Total							

2. Questionnaire

This is used for getting the data of students' response about the brain gym, this is done after the test. It means that in this study, the students is given some questions about their opinions of brain gym. The students must answer the question based on what they get after the study. The questionnaire can be seen in appendix 4, it is adopted from Rubik Maslukhah's thesis and it has been validated by Drs. Abdullah Sani. M.Pd and Lisanul Uswah Sadieda. S,Si.⁴¹

⁴¹ Maslukah Rubik, Unpublished thesis: "*perbedaan hasil belajar matematika siswa dengan dan tanpa menggunakan brain gym*" (Surabaya: State Institute of Islamic Studies Sunan Ampel Surabaya, 2010), 59

3. Observation

Observation is an evaluation by observing to the objects directly, accurately, and systematically⁴². It can be about the situation of teaching and learning process when the observer implementing brain gym in the teaching of speaking. The situation that observed are about the implementation of brain gym in teaching speaking, how the students' respond during the activity. The activity must be followed by giving tick (✓) to the observation checklist and making note to the object which is observed. It meant that in this research the researcher has made form of observation checklist then give checklist to every item. This is used for support the data in questionnaire.

G. Research Instrument

Instrument is the measurement tool in the research for knowledge, skill, feel, intelligence, or attitudes.⁴³ Some instruments that is used by the researcher to support the data collection technique are:

1. Assessment form (test)

It contains some scores to measure the students' ability in speaking. The criteria of assessing the students' speaking ability are about fluency, vocabulary, accent, grammar, and comprehension. The researcher conducted the assessment after and before the treatment

⁴² Burhan Nurgiantoro, *Pengajaran dalam Pengajaran Bahasa dan Sastra*, Third Edition, (Jogjakarta: BPFE anggota IKAPI), 57.

⁴³ Sumanto, *Metodologi Penelitian Sosial dan Pendidikan*. (Yogyakarta: PT Andi Offset, 1995), 57

2. Questionnaire

This checklist consist of aspects that show students' response of the brain gym, the researcher designs the questionnaire to make sure that data got reliability.

3. Observation Checklist

Observation is data collection of human behavior that most commonly involves sight or visual data collection as well as that via other senses, such as hearing, touching or smelling⁴⁴.

They are used to inspect, observe, and record the implementation of using brain gym during the teaching learning process. The observation checklist is used to observe the students' activity during the brain gym is applied.

H. Data Analysis Technique

The data gathered from each test is used to answer the research question, in which those is analyzed by using descriptive quantitative. The data that is analyzed are:

1. Data analysis of the effectiveness of using brain gym

After collecting the data of pretest and post test from the experimental group and control group, then the researcher measures the score differences of post test between experimental group and control group by the statistical

⁴⁴[Susanto](#), *Penelitian Tindakan Kelas* (Jakarta: RinekaCipta, 2009), 6.

calculation. In this study, the researcher uses t – test formula to find out whether the mean differenced between them are significant or not.

a. Analysis of t-test

The data analyzed applying t -test formula to find out the influence of brain gym technique on improving students' speaking skill.

$$t = \frac{\bar{X}_e - \bar{X}_c}{\sqrt{\left(\frac{Sse + Ssc}{n_e + n_c - 2}\right) \left(\frac{1}{n_e} + \frac{1}{n_c}\right)}}$$

Where :

t : t test

\bar{X}_e : the mean of the experiment group

\bar{X}_c : the mean of the control group

sse : sum of quadrate deviation of the experiment group

ssc : sum of quadrate deviation of the control group

n_e : the number of experiment group

n_c : the number of control group

Before calculating the t -test the researcher calculates *mean, variance, and standard deviation*

1. Mean

Mean is computed by using the formula:

$$\bar{X} = \frac{\sum X}{N}$$

Where :
 \bar{X} : mean

$\sum X$: sum of scores

N : number of scores

2. Variance

The variance of a group of scores is computed by using the following formula:

$$S^2 = \frac{\sum X_e - \frac{(\sum X_e)^2}{n}}{n}$$

Where:

S^2 : variance

X : individual scores

n : number of scores in the group

3. Standard Deviation

The standard deviation of a group of scores was computed by using the following formula:

$$S = \sqrt{\frac{\sum X_e - \frac{(\sum X_e)^2}{n}}{n}}$$

Where :

S : standart deviation

X_e : individual scores

n : number of scores in group

After calculating the t-test, it shows the difference mean and standard deviation scores between students who are taught with brain gym technique and without brain gym technique. After that, comparing t- test with t table.

- a. If the value of t-test $>$ from the t table it shows there is significance effect of brain gym technique on improving students' speaking skill.
- b. If the value of t-test $<$ from the t table it shows there is no significance effect of brain gym technique on improving students' speaking skill.

b. Testing Hypotheses

This research has two hypotheses, null hypothesis (H_0) and alternative hypothesis (H_a) that should be proved. The conclusion based on the significant value and t-test calculated based on hypotheses as follows:

- a. Since significance value (t_o) $>$ from the critical value (t), then null hypothesis (H_0) rejected and alternative hypothesis (H_a) accepted.
- b. Since significance value (t_o) $<$ from the critical value (t), then null hypothesis (H_0) accepted and alternative hypothesis (H_a) rejected.

2. Data analysis of students' response

Students' response is analyzed by looking the percentage of students' response, the students' response would be said positive if the students' response that answer "very easy, very interesting and very joyful" is more than 65%.⁴⁵

⁴⁵Prihastuti, Unpublished thesis: "*pengaruh brain gym terhadap kecakapan berhitung*" (Surabaya: Universitasuirlangga, 2008), 28