

## CHAPTER III

### METHOD OF INVESTIGATION

#### A. Research design

A research design encompasses the methodology and procedures employed to conduct scientific research. The design of a study defines the study type (descriptive, correlation, semi-experimental, experimental, review, meta-analytic) and sub-type (e.g., descriptive-longitudinal case study).

In this case, the researcher used form an experimental research. Experimental research is conducted mostly in laboratories in the context of basic research. The principle advantage of experimental design provided the opportunity to identify cause-and-effect relationships. In experimental research, the investigator manipulated conditions for the purpose of determining their effect on behavior.

The approach used in this research was quantitative. It was quantitative because it emphasizes the systematic measurement and quantification of variables, statistical analysis of the quantitative data, and the use of mathematical models.<sup>1</sup> While the method employed was through experimental research in which its purpose to search or compare the certain treatment toward other within controlled condition.<sup>2</sup> This kind of experiment was true experimental design in form of pretest-posttest control group design. Here, there were two groups which had been chosen randomly (R). Both two groups were given pretest to know the first condition whether or not there was a difference of competence level between them. The pretest result was said well if there was no significant difference. After giving pretest, the experimental group was given a

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<sup>1</sup> Donna M. Johnson, *Approach to Research Second Language Learning*, (London: Longman, 1992), p.34.

<sup>2</sup> Sugiyono, *Metodologi Penelitian Pendidikan, (Pendekatan Kuantitatif, Kualitatif, dan R&D)*, (Bandung: Alfabeta, 2007), 3<sup>rd</sup> Ed, p. 107.

certain treatment (X) while the control one was not. Here, the treatment refers to the teaching by means of using films technique. The design can be figured out as follow.

Figure 2. The design of experimental research

R	O1	X	O2
R	O3		O4

In which:

O1 = Pretest value of experimental group

O2= Posttest value of experimental group

O3= Pretest value of control group

O4= Posttest value of control group

X = Treatment

R = Random sample

## B. Research Setting

SMA N 1 Bergas was located at Soekarno Hatta Street. It was purposively selected as the research setting because of two major reasons. Firstly, its location was reachable for researcher to conduct the research. The second reason why it was selected to be the research setting was its School located in Central of city. It was mean that in this school had good infrastructure. This condition matches to the characteristic of films as media which was considered can accommodate the various abilities of the students in classroom. Therefore, there was a great possibility of students' heterogeneity of intelligences and competences, social background and students' characteristics.

## C. Population and Sample

### 1. Population

The participants were students of eleventh grade of SMA N 1 Bergas Semarang in the academic year of 2012/2013 class 3 science 3 as the control class that consist of 32 students and 3 Science 1 as the experiment class that consist of 32 students

Population was formulated as the whole groups of people or object that have been formulated clearly.<sup>3</sup> The population in this research was all students of eleventh grade of SMA N 1 Bergas in academic year of 2012/2013.

## **2. Sample and Sampling Technique**

Sample is some of chosen population using certain procedure so that can be expected to represent its population. Sampling is the process done to choose and take sample correctly from population so that it can be used as valid representative to the population.<sup>4</sup> A correct sample can make valid research.

The sample might be categorized in paired sample because there are experimental and control group that compared. Two classes were chosen randomly, in which the each class consist of 32 students. Class XI Science 1 was chosen as the experimental group which was taught by means of using film while class XI Science 3 was chosen as the control group which was taught by means of non-using film . The researcher's consideration on choosing the samples was based on the cognitive structure of the students in each class. At this school, the students were distributed thoroughly into their classes without regarding their cognitive competence. So, every class had the same right to be the sample of the research. In addition, there was a pre-test to ensure that students' competence of both class are equal

In order to get the representative samples, the sampling must be done in the correct way. Sampling could be defined as the process of selecting individuals that could represent different characters of the larger group (population). In selecting the sample, the researcher used simple random sampling. Sukestiyarno and Wardono state that if the characteristic

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<sup>3</sup>Suharsimi Arikunto, *Prosedur Penelitian : Suatu Pendekatan Praktik*, (Jakarta:PT. Asdi Mahasatya, 2006) 5<sup>th</sup> Ed., P.130

<sup>4</sup>Sugiarto, et al., *Teknik Sampling*, (Jakarta: Gramedia Pustaka Utama, 2003), 2<sup>nd</sup> Ed, P.4

of population is homogeneous and placed in different classes, and in order not to change the class composition which has been homogeneous, the sampling can be done by selecting the class randomly.<sup>5</sup>

#### D. Variables and Indicators

Variable refers to the object of research that becomes research focus. This research, that used film as media in the teaching of spoken report text, had two variables. Those variables were:

##### 1. The independent variable

Independent variable is the variable that the experimenter changes within a defined range. The independent variable in this research was the use of media in the teaching learning process for both groups. The experimental group using film as media to facilitate while the control group by using text only.

##### 2. The dependent variable

Dependent variable is variable that measures the influence of the independent variable. The dependent variable in this study was the students' achievement in the test score. Based on the variables above, the writer can make indicators that support the variables. The schema of indicator's variable is stated as follows:

##### a. Table of indicator's Variable

Variable Indicators

Table 2

Variable	Indicator
<b>Independent Variable )</b>	a. Preparing films and the tools,

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<sup>5</sup> Sukestiyarno and Wardono, *Statistika*, (Semarang: UNNES Press, 2009), P. 51.

Using films	<p>such as laptop, LCD, and sound.</p> <p>b. Playing short films about report text</p> <p>c. Asking students to watch films and take a note in every scene.</p>
<p><b>2. ( Dependent Variable )</b></p> <p>Students' achievement in speaking report text. It is indicated by the fluency, vocabulary, grammar and pronunciation</p>	

The indicator of dependent variable as follow :

The scoring guidance taken from brown (2004) and brown (2007)

Table 3

Aspect	Score	Explanation
Pronunciation	5	Speech consists of almost appropriate pronunciations
	4	Speech consist of hardly in appropriate pronunciations
	3	Speech consists of some inappropriate pronunciations
	2	Speech consists of mostly inappropriate pronunciations
	1	Speech consists of very poor pronunciations
Grammar	5	Makes few (if any) noticeable errors of grammar or word order
	4	Occasionally make grammatical and/or word order errors which occasionally obscure meaning

	3	Makes frequent errors of grammar and word order which occasionally obscure meaning
	2	Grammar and word are difficult to understand Most sentences and/or restrict him to basic pattern order errors make comprehension
	1	Error in grammar and word order so sever as to make conversation virtually unintelligible
Vocabulary	5	Use of wide range of vocabulary taught previously
	4	Sometimes use in inappropriate terms and/o must rephrase ideas because of lexical inadequacies
	3	Frequently use the wrong words in conversation
	2	Mistake of word and very limited vocabulary make comprehension so difficult
	1	Vocabulary limitation so extreme as to make conversation virtually impossible
Content	5	Ideas highly organized, covers all the information from the picture
	4	Idea well organized, covers almost the information from the picture
	3	ideas less organized, some missing parts the information from the picture
	2	Ideas less organized covers only the main information from the picture

### **E. Data Collection Techniques**

In processing the data, the researcher attempted to employ these following methods.

#### **1. Documentation**

It refers to the archival data that helps the researcher to collect the needed data. The researcher functioned the document related to the object research such as students name list and the English subject schedule. It help the researcher conduct the experiment, for example; students' name lists to be used in determining the group for the experiment. In this case, the data got by the help of the English teacher the administration officer.

## 2. Test

It is a set of questions and exercises used to measure the achievement or capability of the individual or group.<sup>6</sup> In this research, there were two kinds of test, pre test and post test that were given to the students as participants, either the experimental or the control group. Before carrying out the teaching, the pre test was given to both groups in order to make sure that the two groups have similar and equal level of proficiencies.

The post test was given to the experimental group after being taught by using films as media and was given to the control one after being taught by means of non-films media. The test is in form of discrete item test on gap filling format. The post test was aimed to assess their improvement on the student's ability in speaking, particularly on speaking report text. The test is speech test.

## 3. Observation

It refers to the activity of giving total concern to research object by the sense. In this research, the concern of research was focused on the students' observable behavior pertaining to their understanding on English speaking report text. The instrument used in this research is observation check list

## F. Instruments

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<sup>6</sup>Suharsimi Arikunto, *Prosedur Penelitian : Suatu Pendekatan Praktik*, (Jakarta:PT. Asdi Mahasatya, 2006) 5<sup>th</sup> Ed.,P. 150.

The instruments that will be used here are test, interview guide and observation checklist.

#### 1. Test

It was used to investigate the students' achievements after being taught. The steps to arrange the test are as follows.

- a. Limit the tested material. Here, the material was limited in report text
- b. Determine the term to do the test.
- c. Determine the test type. Speech test was used because it is considered can appropriately measure the learners' knowledge in understanding the speaking in report text.

#### 2. Documentation

Another data is needed to help the researcher run the research. In addition to do that, data have been collected through documentation of the students' previous examination score from the school. It was used to validate the sample. Documentation of students' speaking test recording was used to evaluate students' speaking skill.

#### 3. Observation check list

In arranging this instrument, the researcher listed some students' observable behavior that indicates their understanding on speaking report text during presentation and teamwork. In this research, the researcher observed of school, students and English teacher of the school.

In this research the writer used check list (√) to get the data. The observation is used to know the activities during teaching and learning process, such as how teacher explains the material, what is the students' respond and how is the student's work in doing the test. In this study, observation is only used to support the data about students' imagination on reflected on their engagement in learning processes.

Table 4  
Checklist of Observation

No	Aspect Observation	Low	Average	High
1.	Students are enthusiastic in listening to teacher's explanation			
2.	Students show curiosity by asking the question			
3.	Students ask question to clarify understanding			
4.	Students are enthusiastic to answer teacher's question.			
5.	Students are enthusiastic doing the test.			
6.	Students enjoy to learn English			
7	Students pay attention to English learning			

### **G. Data Analysis Technique**

#### 1. Prerequisite test

Before testing the hypothesis that is to compare the difference of students' academic achievement using t-test formula, there is a prerequisite test to know the legality of the sample. Here, the normality and homogeneity test are employed.

a) Normality Test

It is used to know the normality of the data that is going to be analyzed whether both groups have normal distribution or not. In this case, the researcher employed the Lilliefors test.<sup>7</sup> The hypothesis proposed in this test is as follow.

Ho : The population is normally distributed

H<sub>1</sub> : The population is not normally distributed

The procedures to test data normality by Lilliefors formula might be sequenced as follow.

- 1) The observed data of X<sub>1</sub>, X<sub>2</sub>, ....., X<sub>n</sub> are changed into standard numeric of Z<sub>1</sub>, Z<sub>2</sub>, ....., Z<sub>n</sub> using the formula

$$Z_i = \frac{X_i - \bar{X}}{S}$$

X<sub>i</sub> : the observed data

$\bar{X}$  : mean of the sample

S : standard deviation of sample

- 2) From the list of standard normal distribution, each of standard numeric is calculated by the chance using the formula F(Z<sub>i</sub>) = P(Z < Z<sub>i</sub>) ----- it can be looked at the width of Standard Normal Distribution table.

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<sup>7</sup> Sujana, *Metode Statistika*, (Bandung: Tarsito, 1996), p. 466.

- 3) Compute the value of  $Z_1, Z_2, \dots, Z_n$  in which it is stated in  $S(Z_i)$ .
- 4) Compute the difference of  $F(Z_i) - S(Z_i)$  and determine the absolute value.
- 5) Compare the value of  $L_{\text{observed}}$  and the critical value of  $L_{\text{table}}$ .

The test criterion can be stated if  $L_o \leq L_{\text{table}}$ , the sample taken from the population is normally distributed. It means that  $H_o$  is accepted.

b) Homogeneity Test

It is used to know whether experimental group and control group, that are decided, come from population that has relatively same variant or not. The formula used here is Barlett test, in which the computation procedures are as follows.<sup>8</sup>

- 1) Make the table of Barlett test as shown below.

**Table 5.**  
**The values needed to Barlett test.**

$$H_o : \sigma_1^2 = \sigma_2^2 = \dots \sigma_k^2$$

Sample	dk	1/dk	$s_i^2$	$\text{Log } s_i^2$	$(dk) \text{Log } s_i^2$
Group1	$n_1 - 1$	$1/(n_1 - 1)$	$s_1^2$	$\text{Log } s_1^2$	$(n_1 - 1) \text{Log } s_1^2$
Group2	$n_2 - 1$	$1/(n_2 - 1)$	$s_2^2$	$\text{Log } s_2^2$	$(n_2 - 1) \text{Log } s_2^2$
....	....	.....	...	....	.....
K	$n_k - 1$	$1/(n_k - 1)$	$s_k^2$	$\text{Log } s_k^2$	$(n_k - 1) \text{Log } s_k^2$
Sum	$\sum(n_i - 1)$	$\sum 1/(n_i - 1)$			$\sum(n_i - 1) \text{Log } s_i^2$

- 2) Test the merger variance and the whole sample.

$$s^2 = \sum (n_i - 1) s_i^2 / \sum (n_i - 1)$$

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<sup>8</sup>Suharsimi Arikunto, *op. cit* p. 250.

- 3) Compute the unit of B using formula  $B = (\text{Log } s_i^2) \sum (n_i - 1)$
- 4) Compute  $\chi^2$  using formula  $\chi^2 = (\text{In}10) \{B - \sum(n_i - 1) \text{Log } s_i^2\}$
- 5) Consult the computation result to the table by comparing  $\chi^2_{\text{calculated}}$  with  $\chi^2_{\text{table}}$  by the chance of  $(1-x)$  and by degrees of freedom of  $df = (k-1)$ . if  $\chi^2_{\text{calculated}} < \chi^2_{\text{table}}$ , it means that the distribution of data is homogen.

## 2. Hypothesis Test

To respond to the objectives of the study, the researcher will examine the data in the following steps that is to prove the researcher's hypothesis about the difference of students' improvement on spoken report text between students will taught by means of film from those taught by means of non-films.

- a. Score the post test. After giving the post test to the students, the researcher will scored its result.
- b. Compare the result of the test of the two groups. This step will done to prove the research hypothesis. Here, the t-test formula is used. In this case, because the group size is the same, the formula for computing the t-test value is like this.<sup>9</sup>

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}}$$

In which

t : t - value

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<sup>9</sup>James Dean Brown and Theodore S. Rodger, *Doing Second Language Research*, (British: Oxford Press, 2002), P. 208.

$\bar{X}_1$  : Average score of experimental group

$\bar{X}_2$  : Average score of control group

$N_1$  : Number of students of experimental group

$N_2$  : Number of students of control group

$S_1^2$  : Standard deviation for experimental group

$S_2^2$  : Standard deviation for control groups

The test criterion is :  $H_a$  is accepted if  $t_{calculated} > t_{table}$  by degrees of freedom of  $df = (n_1 + n_2 - 2)$  and by the chance of 0.05 level of significance.

#### 4. Procedure and time line

The data was collected by the researcher by doing some efforts. The steps of collecting the data includes preliminary visit, contact the headmaster, ask the data about the students as participants, give pre-test, give the treatments, give the post-test, conduct the observation and interview. The procedures of collecting the data could be seen in the following table.

**Table 6**  
**The sequences of administration of the data collection**

No.	Task	What to prepare	Date
1.	Preliminary visit (meet the administration officer)	-	First week
2.	Contact the headmaster	Research	First week

3.	Contact the English teacher to ask data of data of students' as participants	permission letter -	Second week
4.	Give pre-test	Pre-test worksheet	Second week
5.	Give treatment	Lesson plan, LCD, Laptop, recorder handbook, worksheets, observation checklist,	Third week
6.	Give post-test	Post-test worksheet, and recorder	Fourth week
7.	Collecting and analyzing data	The data	Fifth week

### 1. Preliminary Visit

The researcher visited the school to get information about the students and teacher as participants. To gain the information, the researcher asked the administration officer whether the school possibly become the setting of research or not by describing the researcher's intention and ask for information about setting and participants.

## 2. Contact the Headmaster

The researcher meet the headmaster of the school by giving the permission letter.

## 3. Contact the English Teacher

The researcher meet the English teacher and ask for the data of students and negotiate what the class should become the participants that is the control and experimental group.

## 4. Give Pre-test

In this session, the researcher gave the pre-test of spoken report text on five points; the organization, content, grammar, punctuation / spelling, and style or quality of expression . Both experimental and control group were given this kind of test. This test is to ensure that both two groups is the same in spoken proficiency.

## 5. Give the Treatment

In this session, the experimental group was given the treatment and was teach by researcher as the experimenter by means of using films as media while the control group was teach by the same teacher and material but different in teaching technique that is by means of non using films as media. The students received the treatment. During the treatment, the observation also conducted.

## 6. Give Post-test

Having administered the treatment, the post-test was given to both groups to test their understanding on English speaking report text.