

CHAPTER III

METHODS OF INVESTIGATION

This chapter discussed research design, research variable, subject and setting of research, instruments, procedures of experimentation, scoring technique, and method of data analysis.

A. Research Design

In this study, the writer uses an experimental research. An experimental research involved two groups: experimental group and control group. An experimental group received a new treatment while control group received a usual treatment. According to Nunan, experiment is designed to collect data in such a way that treats to the reliability and validity of the research are minimized.¹ This study used pre-test and post-test.

The design of the experiment could be described as follows:

$$\begin{array}{c} \mathbf{E\ 01\ X\ 02} \\ \hline \mathbf{C\ 03\ Y\ 04} \end{array}$$

Adopted from Arikunto.²

Where:

E = experimental group

C = control group

01 = pre-test for experimental group

02 = post test for experimental group

03 = pre-test for control group

04 = post test for control group

X = treatment by using documentary film

Y = treatment without documentary film

From the design above, subjects of research were grouped into an experimental group (top line) and a control group (bottom line). The quality of subjects was first checked by pre-test them (01 and 03). Then, the experimental treatment (taught by using documentary film) was applied to the experimental group,

¹ David Nunan, *Research Method in Language Learning*, (Cambridge: Cambridge University Press, 1992), p. 47.

² Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, (Jakarta: PT Rineka Cipta, 2006), p. 86.

while the control group was taught without the aid of documentary film. The test was held in the form of composition. The results of post-test (02 and 04) were then computed statistically.

B. Research Variable

According to Fred D. Kerlinger as cited by Arikunto, that all experiments have one fundamental idea behind them; to test the effect of one or more independent variables on a dependent variable (it is possible to have more than one dependent variables in experiments).³

This research, that used documentary film as medium in the teaching of writing report text, had two variables. Those variables were:

1. The independent variable

According Larry B. Christensen states that “Independent variable is the variable that the experimenter changes within a defined range; it is the variable in whose effect the experimenter is interested.”⁴ The independent variable in this research was the use of media in the teaching learning process for both groups. The experimental group wrote report text through documentary film while the control group wrote report text without the aid of documentary film (by using text only).

2. The dependent variable

Larry B. Christensen states, Dependent variable is variable that measures the influence of the independent variable.⁵ The dependent variable in this study was the students’ achievement in writing report text.

3. Indicators

Based on the variables above, we can make indicators that support the variables. The schema of indicators variables are stated as follows:

³ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, (Jakarta: PT Rineka Cipta, 2006), p. 119.

⁴ Larry B. Christensen, *Experimental Methodology*, (Massachusetts: University of South Alabama, 2001), 8th Ed, p. 145.

⁵ Larry B. Christensen, *Experimental Methodology*, (Massachusetts: University of South Alabama, 2001), 8th Ed, p. 145

Table 1 Indicators of Variable

Variable	Indicators
<p>(Independent Variable) The use of documentary film</p>	<ul style="list-style-type: none"> • Preparing the any documentary film and the tools, such as : video player, computer, LCD, etc. • Playing documentary film Stop playing documentary film after the students finished report the object.
<p>(Dependent Variable) Students' achievement in writing report text</p>	
Sub-Variable	Indicators
<ul style="list-style-type: none"> • Sub-Variable; Students' ability in understanding report Text. • Sub-Variable; Students' ability in writing report text. 	<ul style="list-style-type: none"> • Identifying variation of sentence structure in report text. • Identifying rhetorical steps of the report text. • Identifying communicative purpose of the report text. • Making correct report text.

C. Subject and Setting of The Research

This study was conducted in MA Roudlotut Tholibin located at Street Tayu Pati KM 03, Pakis-Tayu-Pati, Jawa Tengah. The subjects of this study were the eleventh grade students of MA Roudlotut Tholibin Pakis Tayu Pati in the Academic Year of 2013/2014. This study was conducted in the second semester.

1. Research Population

According to *Encyclopedia of Educational Evaluation* as cited by Arikunto, population is a set (or collection) of all elements possessing one or more attributes of interest.⁶ In this study, the population or the subject of the research are the eleventh grade students at M.A Roudhotut Tholibin Pakis-Tayu-Pati in the academic year of 2013/2014. The number of the population is 44 students. They are divided into XI A, B and C.

⁶ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, (Jakarta: PT Rineka Cipta, 2006), p. 130.

2. Research Sampling

The research is an experimental research, so the researcher needs to take two classes that will be an experimental and control class as the sample from seven classes of the population. To determine the two classes, the researcher used *purposive sampling technique*. This technique was done by taking the subject/sample which is not based on strata, random or area but it is based on the consideration of a certain purpose.⁷ The consideration that the researcher tried to complete in preliminary research was the sample that will be chosen has to be homogeny, so that the research will be a good and valid research. Because we know that something that can be compared is something that has the similar characteristic. The researcher took class XIA and XIC, because based on the result of the summative test of the first semester, these two classes gained similar average achievements and considered as homogeneous class. Each class consisted of 22 students. Students in class XIA was using documentary film and considered as experimental group. While students in class XIC was taught without using documentary film (using text) and considered as control group.

D. Technique of Data Collection

The techniques of collecting data in this study were:

1. Test

Test is an examination or trial to find its quality, value, composition, etc.⁸ In conducting to this study, the writer used test as the first method of collecting the data. The test is used to collect the students' writing that must be analyzed to identify students' achievement on writing report text.

The researcher gathered the data by analyzing the test of report text written by the students. The researcher gave the test twice (pre-test and post-test) in both experimental and control groups. He gave an assignment to write a report text about Rice, Thanksgiving Days, and Barefoot Children. The students have to use at least 50 words in 35 minutes. Students must pay attention to the five aspects of writing which is used in the assessment. These five aspects are as follow: content, organization, vocabulary, grammar and mechanic.

⁷ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, (Jakarta: PT Rineka Cipta, 2006), p. 139

⁸ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, p.223

2. Documentation

Document is a piece of written or printed material that provides a record of evidence or event an agreement, ownership, identification etc. Documentation is the accumulation, classification, and dissemination of information.⁹ It refers to the archival data that help the writer to collect the needed data. In this study, this method is used to get the data that related to the object research such as students name list and students' scores are included in the population. In this case, the data was gained by the help of the English teacher.

E. Scoring Technique

In this study, the writer used analytic scale to score or evaluate the students' achievement in writing. O'Malley and Pierce state that analytic scale separates the features of a composition into components that are each scored separately.¹⁰ This analytic score has five aspects, which are used as consideration in scoring and each aspect scores five. So, the maximum score is 25. But it will be multiplied with 4, so the final maximum score will be 100. The aspects are:

1. Grammar

Brown states that grammar is the system of rules governing the conventional arrangement and relationship of words in a sentence.¹¹

2. Vocabulary

Vocabulary plays important role in writing; it is the basic thing that should be owned by students. The lack of vocabulary means the failure in the communication. Students cannot make a communication especially in writing if they master little vocabulary.

3. Mechanics

Mechanic is connecting with the appropriate punctuation or spelling that is used in writing. Mechanic will make students' writing well and reasonable to be read. The examples of mechanic are capital letter, quotation, comma, semicolon, and others.

⁹ John Eastwood, *Concise Oxford Dictionary*, 8th Ed. (London: Oxford University Press, 2004) p. 256.

¹⁰ J. Michael O'Malley and Lorraine Valdez Pierce, *Authentic Assessment for English Language Learners*, (London: Longman, 1996), p.144.

¹¹ H. Douglas Brown, *Teaching by Principle* (San Fransisco: Longman,2001), p. 362.

4. Relevance

It contains reasonable sentences (supporting sentences) that support to the main idea. If students write paragraph without state the main idea, the reader will confuse to decide the main topic of the text.

5. Fluency (style and ease of communication)

Fluency refers to the sentences that flow easily and not too hard to understand by audiences (readers). If the researcher uses strange vocabulary, the readers will confuse what the purpose of writing.

Table 2 Analytic Scoring of Writing

Writing Description	Component	Score
Grammar	5	Mastery of grammar taught on course – only 1 or 2 minor mistake.
	4	A few mistakes only (prepositions, articles, etc.)
	3	Only 1 or 2 major mistakes but a few ones.
	2	Major mistakes, which lead to difficulty in understanding, lack of mastery of sentence construction.
	1	Numerous serious mistakes – no mastery of sentence construction - almost inexplicit.
Vocabulary	5	Use of wide range of vocabulary taught previously.
	4	Good use of new word acquired – fairly appropriate synonyms, circumlocution.
	3	Attempts to use word acquired – fairly appropriate vocabulary on the whole but sometimes restricted – has to resort to use of synonyms, circumlocution, etc., on few occasions.
	2	Restricted vocabulary – use of synonyms [but no always appropriate] imprecise and vague affect meaning.

Writing Description	Component	Score
	1	Very restricted vocabulary-inappropriate use of synonyms seriously hinders communication.
Mechanic	5	No errors.
	4	1 or 2 minor errors only [e.g. ei or ie].
	3	Several errors – do not interfere significantly with communication – not too hard to understand.
	2	Several errors – some interfere with communication – some words very hard to recognize.
	1	Numerous errors – hard to recognize several words – communication made very difficult.
Relevance	5	All sentences support the topic – highly organized – clear progression of ideas well linked educated native speaker.
	4	Ideas well organized – links could occasionally be clearer but communication not impaired.
	3	Some lacks of organization – rereading required for clarification ideas.
	2	Little or no attempts at connectivity – though reader deduces some organization – individual ideas may be clear but very difficult to deduce connections between them.
	1	Lack of organization so severe that communication is seriously impaired.
Fluency	5	Flowing style – very easy to understand – both complex and simple sentences -very effective.
	4	Quite flowing style – mostly

Writing Description	Component	Score
		easy to understand a few complex sentences – very effective.
	3	Style reasonably smooth – not too hard to understand mostly [but not all] simple sentences – fairly effective.
	2	Jerky style – an effort needed to understand and enjoy – complex sentences confusing – mostly simple sentences or compound sentences.
	1	Very jerky – hard to understand cannot enjoy reading – almost all simple – complex sentences confusing – excessive use of “and”.

F. Data Analysis Technique

There were some steps to do the research; one of the most important steps was collecting data. It influenced the result of the research.

1. The Activities of Experimental Group

a. Pre-test

Pre-test was given before the treatments. First, the researcher came to the class. Then, he explained to the students what they had to do. Finally, he distributed the instruments and asked them to do the test.

b. Activities in Experimental Group

There were some activities in experimental group (Class XI A) as follows:

Table 3. Activities in Experimental Group

No.	Activities	Time Allotment
1.	a. Teacher lets students watch the documentary film. b. Teacher asks students to make notes about the events of the documentary film and other information that relates to the documentary film.	2x45'
2.	a. Teacher explains about the	2x45'

No.	Activities	Time Allotment
	generic structures of report text. b. Teacher shows the documentary film to students and lets them watch it. c. Teacher asks students to discuss the generic structures of the documentary film in pair.	
3.	a. Teacher explains about the linguistic features of report text. b. Teacher lets students watch the documentary film. c. Teacher asks students to analyze the linguistic features of report text from the documentary film.	2x45'
4.	a. Teacher reminds students about previous lesson. b. Teacher asks students to write a report text.	2x45'

c. Post-test

Post-test was held after all treatments were conducted. This test was used to measure students' achievement after they were given treatments. The result of test was analyzed statistically.

2. The Activities of Control Group

a. Pre-test

Pre-test was given before the treatment. First, the researcher came to the class. Then, he explained to the students what they had to do. Finally, he distributed the instruments and asked them to do the test.

b. Activities for control group

There were some activities in control group (class XI B) as follows:

Table 4 Activities of Control Group

No.	Activities	Time Allotment
1.	a. Teacher lets students watch the documentary film. b. Teacher asks students to make notes about the events of the documentary film and other information that relates to the	2x45'

No.	Activities	Time Allotment
	documentary film.	
2.	a. Teacher explains about the generic structures of report text. b. Teacher distributes the report text to the students and lets them read it. c. Teacher asks students to discuss the generic structures of the text in pair.	2x45'
3.	a. Teacher explains about the linguistic features of report text. b. Teacher lets students read the story. c. Teacher asks students to analyze the linguistic features from the text.	2x45'
4.	a) Teacher reminds students about previous lesson. b) Teacher asks students to write a report text.	2x45'

c. Post-test

Post-test was held after all treatments were conducted. This test was used to measure students' ability after they were given treatments. The result of test was analyzed statistically.

3. Pre-requisites Test

After conducted the test, data analysis was carried out to find out the data normality and the linearity of sample. It was meant to check if the research result met the requirement of good research or not. Data analysis discussed three main things as follow:

a. Test of data normality

The first step that had to be done before doing the research was to test the data normality. It was aimed to know whether the data came from normal distribution or not. The researcher used Chi-Quadrate formula, as follows:

$$X^2 = \sum_{i=1}^k \frac{(O_i - E_i)^2}{E_i}$$

Cited from Sudjana.¹²

Where:

X^2 = Chi-square

O_i = Frequency that was obtained from data

E_i = Frequency that was hoped

k = the sum of interval class

If the obtained score was lower than t-table score by using 5% alpha of significance, H_0 was accepted. It was meant that H_a was rejected. So, the data is normal.

b. Homogeneity Test

Homogeneity test is used to compare variance in a group of three categories data or more and its categories can be compared fairly if the categories are homogeneity. By:

1) Calculate Mean (\bar{X})

2) Calculate the Variance (S^2)

Formula:

$$S^2 = \frac{\sum x_1^2 - (\sum x_2)^2}{n(n-1)}$$

3) Calculate F

Formula:

$$F = \frac{\text{highest variance}}{\text{lowest variance}}^{13}$$

c. Test of Average

It is used to examine average whether experimental class and the control class that has been decided having significance different average.

The formula that is used in the t-test as follow:

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

Where:

¹² Sudjana, *Metoda Statistika*, (Bandung: Tarsito, 2002). p. 272.

¹³ Sudjana, *Metoda Statistika*, p. 250.

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

Cited from Sudjana.¹⁴

Where:

\bar{x}_1 = the mean score of the experimental group

\bar{x}_2 = the mean score of control group

n_1 = the number of the experimental group

n_2 = the number of the control group

s = standard deviation

s^2 = variance

If the obtained score is higher than t-table score by using 5% alpha of significance, H_0 is rejected. It means that H_a is accepted: "There is a significant difference in writing achievement between the experimental and control group."

4. Data Analysis

Firstly, the test was done in both groups, experimental and control group. Secondly, the result of the test was scored by using analytic scale. Thirdly, the means score of the two groups were determined. Finally, the two means were compared by applying t-test formula. T-test was used to differentiate if the students' result of writing a news item paragraph by using documentary film and without using documentary film was significant or not.

$$t = \frac{Mx - My}{\sqrt{\left[\frac{\sum x^2 + \sum y^2}{N_x + N_y - 2} \right] \frac{1}{N_x} + \frac{1}{N_y}}}$$

Where :

t = t – test

Mx = the mean score of experimental group

My = the mean score of control group

$\sum x$ = the total of deviation of experimental group

$\sum y$ = the total of deviation of control group

N_x = the number of the students of experimental group

¹⁴ Sudjana, *Metoda Statistika*, p. 239.

N_y = the number of the students of control group

If the obtained score was higher than t-table score by using 5% alpha of significance, H_0 was rejected. It meant that H_a was accepted: “There was a significant difference in writing achievement between the experimental and control group.”