

CHAPTER III

METHOD OF INVESTIGATION

A. Research Method

There are two kinds of research. They are; quantitative and qualitative. The methodology of the writer's research is quantitative method because the analysis stresses on the numerical data that processed with statistic data. There are various research designs such as descriptive, correlative, comparative, experiment and influence. Each of them is used depends on the objective of the research.

This research will focus on using team word-webbing as method to measure students' reading comprehension in learning news item text. The writer will use quantitative measurement in analyzing data. This study uses experimental research because this method establishes cause and effect relationship. Rodgers and Brown said "experiment is a situation in which one observes the relationship between two variables by deliberately producing a change in one and looking to see whether this alteration produces a change in the other". An experimental research, it means research methodology that can be used to search for treatment effect anything against the other under conditions the uncontrolled.¹ The writer wants to know the effectiveness of using team word-webbing to increase students' reading comprehension in news item text.

B. Participant and Setting

1. Population

Population is the most significant factor in conducting a research. Population is all cases, situations or individuals who share one or more characteristic.² Population is overall subject of research.³ Population is a region consisting of generalization; objects or subjects who have certain

¹ Sugiyono, *Metode Pendidikan Pendekatan Kuantitatif, Kualitatif dan R&D*, (Bandung: Alfabeta 2000), p. 107

³ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktek*, (Jakarta: Rineka Cipta, 1998), p. 130.

qualities and characteristic that set by the researcher to learn and then draw conclusion.⁴ The population is the group of interest to the researcher, the group to which she or he would like the result of the study to be generalized.

The population of this study is the 10th year students of MA Darul Amanah Sukorejo Kendal. The 10th grade students divide into 5 classes. Every class consists of 30 students.

2. Sample

Sample is part of population which is supposed to represent the characteristic of the population. Therefore, sample is taken from part population, but not whole. The part of population is observed is called a sample. Sample is a group of individual which is taken from a given population.⁵

I choose the two classes as samples. I choose the samples based on the consideration that the classes have a little different score in English achievement.

3. Sampling Technique

The writer determined the sample by using purposive technique. The writer took the sample based on the students' numbers and the same average score of the 10th year students of MA Darul Amanah in the academic year of 2010/2011. The numbers of students in each class are as follows:

X A: 40 X B: 38 X C: 37
X D: 34

On the basis of these data, the writer then took the two classes with the same average score and have the same numbers of students; X A and X C then were taken as samples. They were taken randomly as experimental class and control class. In this study, the writer chose 30 students in each class to be his respondent. Choosing samples, the writer use five pieces of

⁴ Sugiyono, *Metode Pendidikan Pendekatan Kuantitatif, Kualitatif dan R&D*, P. 117

⁵ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktek*, p. 27.

paper that was written the name of class in each paper, then the writer choose 2 papers randomly. Class that was in the paper that the writer take is became as sample.

4. Setting

This research is conducted in Islamic Boarding School of Darul Amanah. In this place, the education program in Darul Amanah is Tarbiyatul Mu'allimin Al-Islamiyah (TMI); its education combines some curriculum such as Department of Religion Affairs, Gontor or Modern Boarding School and Traditional Boarding School or salafy. Darul Amanah has relation with Darunnajah Islamic Boarding School in Jakarta. In Darul Amanah, there were several levels; they are MTs, MA and SMK. Darul Amanah located in Sukorejo Kendal.

C. Research Variable

Variable is a variation object of the study. Variable is the object of research or something that become the concern of research. There are two types of variables: dependent variable and independent variable. The dependent variable is the variable of focus or the central variable on which other variables will act if there is any relationship. The independent variable is selected by researcher to determine the relationship with the dependent variable.⁶ So, the variables in this study are:

1. Independent variable is an input variable, that which causes, in part or in total, a particular outcome, it is stimulus that influences response, and antecedent or a factor which may be modified to affect an outcome.⁷ It means that an experiment involves making a change in the value of one variable called the independent variable. In this research, the independent variable is using team word webbing in teaching reading comprehension.
2. Dependent variable is the outcome variable that which is caused in total or in a part by the input, antecedent variable. It is the effect,

⁶ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktek*,. p. 118 -119.

⁷ Louis Cohen, Lawrence Manion and Keith Mornson, *Research Method in Education*, (New York: Routledge, 2007) 6th Ed., p. 504

consequence of or response to an independent variable.⁸ It means that dependent variable is observing the effect of that change on another variable called dependent variable. The dependent variable in this research is the increase of students' reading comprehension. The writer can measure it using students' score from the test.

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

Table III. 1

Variable	Indicators
<p>1.(Independent Variable)</p> <p>Using Team Word-Webbing</p>	<p>a. Dividing students into group</p> <p>b. Students work in group</p> <p>c. Conducting roundtable around students during activity</p> <p>d. Preparing chart paper and color pens</p> <p>e. Using webbing (mapping) technique</p>
<p>2.(Dependent Variable)</p> <p>The increase of Students' Reading Comprehension in News Item Text</p>	
Sub-Variable	Indicators

⁸ Louis Cohen, Lawrence Manion and Keith Mornson, Research Method in Education, p. 504

<p>a. Sub-Variable; Students' ability in understanding News Item Text such as</p>	<ol style="list-style-type: none"> 1) Identifying variation of sentence structure in news item text. 2) Identifying rhetorical steps of the text. 3) Identifying communicative purpose of the text
<p>b. Sub-Variable; Students' ability in explaining News Item Text, such as</p>	<ol style="list-style-type: none"> 1) Identifying mean idea of a paragraph. 2) Identifying meaning of words in the text 3) Identifying sentence meaning in the text
<p>c. Sub-Variable; Students' ability in mentioning things related News Item Text, such as:</p>	<p>Identifying events, participants, settings of the text</p>

D. Technique of Data Collection

1. Documentation

The documentation method was to look for the data concerning matters or the variable that took the form of the note, transcript, book, newspaper, magazine, inscription, agenda, etc.⁹ It refers to the archival data that helps the researcher to collect the needed data. Documentation method is to get a researcher data linked to research object that will be elaborated in this research. This method is used to collect the data from the result of students' test. It is also to get the data of the students' name list that include in population and sample of research documentation of teaching and learning process in English subject. The writer got the data from teacher English guidance.

⁹ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktek* p. 237

2. Observation

Observation was the activity that was done by the researcher to get data. There were two kinds of observation, they were: Non systematic observation' which was done by the researcher without using instrument. Systematic observation which was done by the researcher using instrument as the guide of the research.¹⁰

The observation focuses on students' activity in classroom. In this part, the researcher used checklist as instrument to take information related to the activity in the class room. The observation paper can be seen in appendix.

3. Test

Test is a set question used to measure the achievement or capability of individual class.¹¹The purpose of a test are several, for example to diagnose a students' strengths, weakness and difficulties, to measure achievement, to measure aptitude and potential, to identify readiness for a program. In this Research, test is given to try-out class, control class and experiment class. Tests were used to measure students' reading comprehension skill and were administered twice; namely, the pre-test and post-test.

a. Pre-test

Before the teacher explains new material by using short movie, the teacher will give a test to the students. Pre-test will be given before the experience is run.

b. Post-test

Post-test will be given to the experimental class and the control class. The text will be given in order to know the increase of students' reading comprehension in news item text. Post test will be given to the both of class after receiving treatment. The experimental class taught in

¹⁰ Suharsimi Arikunto, *Dasar-Dasar evaluasi Pendidikan*, (Jakarta: Bumi Aksara, 2002) 3rd Ed, p.157

¹¹ Suharsimi Arikunto, *Dasar-Dasar evaluasi Pendidikan*. p. 158

teaching reading news item using team word-webbing. Besides that, the control class taught without using team word-webbing.

$$\text{score} = \frac{\text{the number of right answer}}{\text{the number of question}} \times 100\%$$

In collecting the required data in the test the writer used multiple choices. The choice of multiple-choice type was based on the following considerations:

- a. It was easy and consistent
- b. It was easy to compute and determine the reliability of the test
- c. It was economical because the number of items can be answered in a short period of testing time¹²

Each of the tests consisted of some reading passages and 35 multiple choices reading comprehension questions followed in reading passage. Correct answers were scored 1 each and wrong answers were scored 0. Total score was 35. The test passage can be seen in appendix.

Before doing the test, researcher will do try out first. Good evaluation of our tests can help us measure students' skill more accurately. Based on the statement above, before administering the real test (pre-test and post-test), I conducted a try out test to assess the test quality.

E. Technique of Data analysis

The writer analyzes the data through giving test to the students it needs some steps in analyzing of the data. The following are the steps had been taken by the writer.

1. Try-out Instrument of the Test
 - a. Validity of Test

The validity is an important quality of any test. It is a condition in which a test can measure what is supposed to be measured. According to Arikunto, "a test is valid if it measures what it purpose to be measured".¹³

¹² J.B Heaton, *Writing English Language Tests*, (London: Longman, 1975), p. 12-13

¹³ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktek*, p. 65.

The validity of an item can be known by doing item analysis. It is counted using product – moment correlation formula:

$$r_{xy} = \frac{N \sum xy - (\sum x)(\sum y)}{\sqrt{\{N \sum x^2 - (\sum x)^2\} \{N \sum y^2 - (\sum y)^2\}}}$$

Where:

r_{xy} : the coefficients of correlation between X and Y

N : the total of subject of experiment

$\sum X$: the sum of score of X item

$\sum Y$: the sum of score of Y item¹⁴

b. Reliability of Test

It means consistent. Reliability refers to the consistency of test scores. Besides having high validity, a good test should have high reliability too.

Alpha formula is used to know reliability of test is K - R. 20.¹⁵

$$r_{11} = \left(\frac{n}{n-1} \right) \left(1 - \frac{\sum pq}{S^2} \right)$$

Where:

r_{11} : The reliability coefficient of items

n : The number of item in the test

P : The proportion of students who give the right answer

q : The proportion of students who give the wrong answer

S^2 : The standard deviation of the test

Calculation result of r_{11} is compared with r_{table} of product moment by 5% degree of significance. If r_{11} is higher than r_{table} , the item of question is reliable.

c. Degree of Test Difficulty

A good question is a question that is not really difficult and not really easy. Formula for degree of test difficulty is.

¹⁴ Suharsimi Arikunto, *Dasar-Dasar evaluasi Pendidikan*. p. 73

¹⁵ Sugiyono, *Metode Penelitian Kuantitatif Kualitatif dan R&D*, p. 132.

$$P = \frac{B}{JS}$$

Where:

P : The difficulty's index.

B : The number of students who has right answer.

JS : The number of students.¹⁶

The criteria are:

$P = 0,00 \leq p \leq 0,30$ Difficult question

$P = 0,30 \leq p \leq 0,70$ Sufficient

$P = 0,70 \leq p \leq 1,00$ Easy.

d. Discriminating Power

The discriminating power is a measure of the effectiveness of a whole test. The higher and low values of discriminating power are the more effective the test will be.

$$D = \frac{BA}{JA} - \frac{BB}{JB}$$

Where:

D : discrimination index.

JA : member of student in upper group.

JB : member of student in low group.

BA : member of students in upper group who answer the item correctly.

BB : member of students in low group who answer the item correctly.

The criteria are:

$D < 0.2$ is poor.

$0.2 < D \leq 0.4$ is fair.

$0.4 < D \leq 0.7$ is good.

$0.7 < D \leq 1$ is very good.

¹⁶Sugiyono, *Metode Penelitian Kuantitatif Kualitatif dan R&D*, p. 207-208.

2. Pre-request Test

a. Normality Test

Normality test is used to know the distribution data normal or not. To find out the distribution data is used normality test with chi-square. The writer used Chi-square formula, as follows:

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

Cited from Sudjana.¹⁷

Where:

X^2 = Chi-kuadrat

O_i = Frequency that was obtained from data

E_i = Frequency that was hoped

k = the sum of interval class

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. By¹⁸:

- 1) Calculate Mean (\bar{X})
- 2) Calculate the Variance (S^2)

Formula:

$$S^2 = \frac{\sum (n_i - 1) S_i^2}{\sum (n_i - 1)}$$

- 3) Calculate B

$$B = (\log S^2) \times \sum (n_i - 1)$$

$$\text{Formula: } \chi_{hitung}^2 = (\ln 10)(B - \sum dk \log S_i^2)$$

¹⁷ Sudjana, *Metoda Statistika*, (Bandung: Tarsito, 2002). p. 272.

¹⁸ Soegeng Ysh, *Dasar-dasar Penelitian Bidang social, Psikologi dan Pendidikan*, (Semarang: IKIP PGRI Semarang Press, 2006), p. 198.

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:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{s \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \quad \text{Where: } s = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

Cited from Sudjana.¹⁹

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 reading achievement between the experimental and control group."

F. Hypothesis Test

Proposed hypothesis test in average similarity with the right test is as follows:

$$H_0 = \mu_1 = \mu_2$$

$$H_a = \mu_1 > \mu_2$$

If $\sigma_1^2 = \sigma_2^2$ (has same variant), the formula is:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{s \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \quad s = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

¹⁹ Sudjana, *Metoda Statistika*, p. 239.

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 $\sigma_1^2 \neq \sigma_2^2$ (has no same variant) the formula is:

$$t^1 = \frac{\bar{X} - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

Testing criteria that apply H_0 is accepted if $t_{count} > t_{table}$ with determine $dk = (n_1 + n_2 - 2)$ and $\alpha = 5\%$ with opportunities $(1 - \alpha)$. Values for other t H_0 rejected. This Analysis used to interprets more complete of the result of hypothesis. In this Analysis the researcher interprets from the results of the data which already proceed. Then, compare t-test or t_o with t table in the value 5%.

1. If the result of t value $< t_{table}$, it means there are no differences result between students who are taught by using team word-webbing and those are taught by using conventional method.
2. If the result of t value $> t_{table}$, it means there are differences result between students who are taught by using team word-webbing and those are taught by using conventional method.

G. Procedure and Timeline

This study will use experimental method; the design of the experiment can be described as the following:

<u>E</u>	<u>O1</u>	<u>X</u>	<u>O2</u>
C	O3	Y	O4

While:

E : Experimental group

- C : Control group
- O1 : Pre-test for the experimental group
- O2 : Post-test for the experimental group
- O3 : Pre-test for the control group
- O4 : Post-test for the control group
- X : Treatment using team word-webbing
- Y : Treatment without team word-webbing

In this study, there are three procedures to apply:

1. Administering a pre-test, the test administered before the treatment session, the researcher gives students test to measure students' reading comprehension before conducting treatment.
2. Giving the treatment, it will give in two forms; those are using team word-webbing in teaching reading news item text and without team word-webbing in teaching reading news item text.
3. Administering a post-test, after different treatment was given, the students both experimental and control group will get post-test on reading comprehension test. This test will aim to measure the students' achievement on reading comprehension text.

The timeline for collecting data, there are some steps taken by the writer, they are as follows:

1. The first meeting, asking permission to Head Master of School and English teacher, choosing participants and conducting try out.
2. The second meeting, giving pre-test to control and experiment class.
3. The third meeting, giving treatment to control and experiment class
4. The fourth meeting, giving the second treatment to both of control and experiment class
5. The fifth meeting, conducting post-test to both of control and experiment class
6. The sixth meeting, calculating the data