CHAPTER III

RESEARCH METHODOLOGY

A. Research Design.

The research design which is used in this study is an experimental research. An experimental research involved on two groups: experimental group and control group. An experimental group is a research which has the purpose to find the cause-effect relationship among variables in a controlled condition which received a new treatment while control group as usual treatment. In conducting the experiment, the researcher devotes great care to the manipulation and the control of the variables and to the observation and measurement of the result[45].

The researcher used here is the true experimental design. According to Nunan, experiment is designed collect data in such as a way that treats to the reliability and validity of research are ministered[46]. In order word, experiment is the way to find the causal relationship between two factors which are raised by the researcher in purpose by reducing or eliminating any distracting factors.

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[45] Donald Ary, Lucy Cheser Jacobs, Chris Sorensen, *Introduction to Research in Education*, 8th Edition (Canada: Nelson Education,2010), 26
[46] David Nunan, *Research Methode in Language Learning* (Cambridge: University Press, 1992), 47.

B. **Population and Sample**

   1) Population

Population used in quantitative research when research does by getting sample as a subject research. But if the goal of the study was the entire population, it is more appropriate to use the term the subject of research, especially in the experimental study. Population is a whole set of characteristics of object study.[47] Population is a generalization region consisting of the object or subject that have certain qualities and characteristics defined by the researcher to learn and then drawn conclusions[48].

The populations on this study are on eight grades MTs. Al–Raudlah in the academic year 2014/2015 is divided into two classes. There are 24 students at A class and 24 students at B class on eight grade of MTs. Al–Raudlah as the subject of the researcher. The total number of population is 49 students.

   2) Sample

Studies were conducted when the researcher wants to generalize the conclusions on the results of the sample to the entire population, because the

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[47] Moh. Mahmud Sani, *Metodologi Penelitian*, (Mojokerto: Mitra Utama Offset, 2012), 89

[48] Suharsimi Arikunto, *Prosedur Penelitian: Suatu Pendekatan Praktik* (Jakarta: PT Rineka Cipta, 2010), 130

samples taken are expected to represent the entire population.[49] Sample research done According to Sugiyono, sample is part of amount and characteristics possessed by this population[50]. What is learned from the sample, the conclusion will be applied to the population. In this research the sample were two classes, there are A class as an experiment class and B class as a control class.

C. Procedure and Time Line

In collecting data, the researcher needs four weeks and done some steps as follows:

1. 1st weeks asks permission and meet to headmaster and the English teacher of the school.

2. 2nd week, the researcher gives pre-test to both control and experiment class (class VIII A and VIII B).

3. 3rd week, the researcher gives treatment to experiment class (class VIII A).

4. 4th week, the researcher gives post-test to both control and experiment class.

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[49] Moh. Mahmud Sani, *Metodologi Penelitian*, (Mojokerto: Mitra Utama Offset, 2012), 90

[50] Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif dan R&D* (Bandung: Alfabeta, 2013), 81

Table 3.1

Time List of the Research

No	Activity	Date			
1	Asks permission	√			
2	Pre test		√		
3	Treatment			√	
4	Post test				√

D. Research Instrument

Research instrument refers to any equipment used to collect the data.[51]

As an experimental research, the instrument used in this research was tests.

1. Observation checklist

The observation checklist is used to know the activities during the

teaching learning process, such as how the teacher carried out the material,

what the teacher did to manage the classroom and the student's response.

2. Item test

Item tests are used to know the ability of the student in pre-test and post-

test.

E. Data Collection Technique

1. Observation

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[51] Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*(Jakarta: PT Rineka Cipta, 2010), 192.

Observation is one of the useful research instruments to collect data by using the power of observation.[52] The instrument used is a sheet implementation learning plans. Observation technique is the main technique in collecting the data about the students' performance, condition of class, students' response concerning the use of webbing strategy. It deals with the students activities in English learning activity

2. Test

Test is a question which is used to measure competence, knowledge, intelligence, and ability of talent which is possessed by individual or group to collect data. Test used in this study is pre-test and post-test.

a. Pre test

Before taught new material by webbing strategy, the researcher gave test to the students. Pre-test was given to the experimental and control classes in same way. This test was given before the experiment was run.

b. Post test

Post-test was given to the experiment class and control class. It was given in order to know the score of students' achievement after they taught by using webbing strategy (experiment class) and without using by webbing strategy (control class).

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[52] Moh. Mahmud Sani, *Metodologi Penelitian*, (Mojokerto: Mitra Utama Offset, 2012), 136

F. Data Analysis Technique

In this research, researcher used a true experimental design, because there are experimental group and the control group. The extraction is done at random. This can be illustrated as follows:[53]

$$R \ O_1 \ X \ O_2$$
$$R \ O_3 - O_4$$

R   : Experimental and control groups were taken randomly.

O_1 dan O_3 : Both groups observed the pre-test to determine the ability of the start, which is expected to begin with the same abilities.

O_2 : The ability of the students who had been given method webbing strategy.

O_4 : The ability of students without being given method webbing strategy.

X   : Treatment. Over the group as the experimental group were given treatments, which are used in learning English webbing strategy method while the bottom group was not given treatment/control group.

In this case there are two analyses. The first analysis to examine differences in the ability of the initial experimental group and the control group

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[53] Prof. Dr. Sugiyono, *metode penelitian kuantitatif kualitatif dan R&D* (Bandung: ALFABETA, 2011), 159.

(O_1: O_3). The test used T-test. The results are expected no significant difference initial ability between the experimental and control groups.

The second analysis to get test the hypothesis. The statistical technique used is the t-test for two related samples. It is to determine the difference between O_2 and O_4. If there is a difference which is O_2 greater than O_4, so the webbing strategy has a positive effect, and when O_2 smaller than O_4, it is the negative effect.[54]

Test "t" or "t" test is one test statistic used to test the truth or falsity of the null hypothesis states that the mean between two samples taken at random from the same population, there are no significant differences.[55]

Furthermore, the researcher gives rating students vocabulary to interpret the score of the student.

Table 3.2

Rating scale

Score	Criteria
100-85	Excellent
84-70	Good
69-55	Average
54-40	Poor

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[54] Prof. Dr. Sugiyono, *Metode Penelitian Kuantitatif Kualitatif dan R&D* (Bandung: ALFABETA, 2011), 159.
[55] Prof. Drs. Anas Sudijono, *Pengantar Stastik Pendidikan* (Jakarta: PT Raja Grafindo Persada, 2009), 278.

39-0	Very poor

1. Normality test

   Many steps to examine differences in the ability of the initial experimental group and the control group are follows:

   a. Determine the mean of variable I (X), with formula:

   $$M_x \text{ or } M_1 = \frac{\sum x}{N_1}$$

   b. Determine the mean of variable II (Y), with formula:

   $$M_y \text{ or } M_2 = \frac{\sum x}{N_2}$$

   c. Determine the standard deviation of variable X, with formula:

   $$SD_x \text{ or } SD_1 = \sqrt{\frac{\sum x^2}{N_1}}$$

   d. Determine the standard deviation of variable Y, with formula:

   $$SD_y \text{ or } SD_2 = \sqrt{\frac{\sum y^2}{N_2}}$$

   e. Determine the standard error of variable X, with formula:

   $$SD_{M_x} \text{ or } SE_{M_1} = \frac{SD_1}{\sqrt{N_1 - 1}}$$

   f. Determine the standard error of variable Y, with formula:

   $$SD_y \text{ or } SE_2 = \frac{SD_2}{\sqrt{N_2 - 1}}$$

   g. Determine the difference of standard error between men variable I and mean variable II, with formula:

$$SE_{M_1-M_2} = \sqrt{SE_{M_1}{}^2 - SE_{M_2}{}^2}$$

h. Determine t_o by using the formula:

$$To = \frac{M_1 - M_2}{SE_{M_1-M_2}}$$

i. Provide interpretation of "t_o" with working procedures as follows:

1. Formulate the alternative hypothesis (Ha): there is a significant different mean between variable X and variable Y.

2. Formulate the null hypothesis (Ho): there is not a significant different mean between variable X and variable Y.

j. Make comparisons between t_o and t_t with the first set a degrees of freedom with the formula:

$$df = (N_1 + N_2) - 2$$

From the result of *df*, it can be seen t_t at the significance level 5% or 1%. If t_o higher than or equal to t_t then the null hypothesis is rejected. Conversely alternative hypothesis is accepted or approved. Means between the two variables that we are investigating the difference, significantly indeed there is a difference. If t_o lower than t_t null hypothesis approved or accepted. Conversely alternative hypothesis is rejected. I mean the difference between variable I and variable II was not a significant difference.[56]

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[56] Prof. Drs. Anas Sudijono, *Pengantar Stastik Pendidikan,* (Jakarta: PT Raja Grafindo Persada, 2009), 314.

2. Hypothesis test

Many steps to test the hypothesis are follows:

a. Determine D (difference) between the scores of variable I and the score variable II. if the score of variable I we give symbol X being variable II we give the symbol Y, then:

$$D = X - Y.$$

b. Summing D, in order to obtain ΣD.

c. Determine the mean of the difference, according to the formula:

$$MD = \frac{\Sigma D}{N}$$

d. Squaring D, and then summed to obtain ΣD^2.

e. Determine the standard deviation of the difference (SD_D), using the formula:

$$SD_D = \sqrt{\frac{\Sigma D^2}{N} - \left(\frac{\Sigma D}{N}\right)^2}$$

f. Determine an error of the mean of difference (SE_{M_D}), using the formula:

$$SE_{M_D} = \frac{SD_D}{\sqrt{N-1}}$$

g. Determine t_o by using the formula:

$$t_o = \frac{M_D}{SE_{M_D}}$$

h. Provide interpretation of "t_o" with working procedures as follows:

1. Formulate first alternative hypothesis (Ha) and null hypothesis (Ho).

2. t_o significansi test, by comparing the magnitude t_o, with the first set degrees of freedom (*df*), which can be obtained by the formula:

    $df = N - 1$

3. Looking for prices criticism "*t*" listed in the table value of "*t*" by adhering to the *df* which have been obtained, either from the significance level of 5% or 1% significance level.

4. Make comparisons between t_o with t_t with the benchmark as follows:

    a) If t_o higher than or equal to t_t then the null hypothesis is rejected. Conversely alternative hypothesis is accepted or approved. Means between the two variables that we are investigating the difference, significantly indeed there is a difference.

    b) If t_o lower than t_t null hypothesis approved or accepted. Conversely alternative hypothesis is rejected. I mean the difference between variable I and variable II was not a significant difference.[57]

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[57] Prof. Drs. Anas Sudijono, *Pengantar Stastik Pendidikan,* (Jakarta: PT Raja Grafindo Persada, 2009), 306.