CHAPTER III
RESEARCH METHOD

This chapter discusses sources of data, research design, research setting, population and sample of research, variables and indicators of research, methods of data collection, and methods of data analysis.

A. Research Design

The writer used quantitative approach for this research. This study used experimental research. In other words, the experimental study can be interpreted as the research methods used to find a specific treatment effect on controlled conditions.[1] According to Nunan, experiment is designed to collect data in such a way that threats to the reliability and validity of the research are ministered.[2] The result of the students' achievement in pre-test and post-test will be expressed in mathematic. In this term, quantitative data refers to the use of t-test.

B. Research Setting

1. Subject and Place of the Research

This research was conducted at MTs N Sumber Rembang which is located at Polbayem Street Sumber

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[1] Sugiyono, *Metodologi Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D,* (Bandung: Alfabeta, 2013), p. 107

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

Rembang Telp/Fax 08112703907. The subject of this study is the eighth of MTs N Sumber Rembang in the academic year of 2015/2016.

2. Time of the Research

This research was conducted from 9th January 2016 to 7th February 2016 on the second semester in the academic year 2015/2016.

C. Source of Data

1. Population

According to Sugiyono, population is generalization area consisting of objects or subjects that have certain qualities and characteristics defined by the researchers to be studied and then drawn conclusions.[3] The population of this research is all of the students from eighth grade of MTs N Sumber Rembang in the academic year of 2015/2016, that consist of six classes, those are VIII A consist of 40 students, VIII B consist of 34 students, VIII C consist of 34 students, VIII D consist of 34 students, VIII E consist of 33 students, and VIII F consist of 36 students. So, the number of population is 211 students.

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[3] Sugiyono, *Metodologi Penelitian Pendidikan…* p. 117.

2. Sample and Sampling Technique

Based on Suharsimi Arikunto, sample is a part of population that will be observed.[4] Sample 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. In this research, the writer used random sampling in choosing the sample, because it is one of the techniques that all individual of population may have the same opportunity and have been chosen as the sample.[5] After the writer used random sampling, there are two classes that chosen as a sample, those are VIII A and VIII C. the two classes will be given the same material but with different way. So, it means that VIII A is chosen as the experimental class and will be taught by using course review horay (CRH) on reading narrative texts, and VIII C is chosen as controlled class and will be taught without course review horay (CRH) on reading narrative texts.

D. **Variable and Indicators of the Research**

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[4] Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik,* (Yogyakarta: Rineka Cipta, 2010), p. 174.

[5] Sukardi, *Metodologi Penelitian Pendidikan*, (Yogyakarta: Bumi Aksara, 2010), p. 58.

Variables can be defined as everything that will be the object of observation research.[6] Sugiyono states that research variable is an attribute, characteristic, and value of person, object, or the variation of activity which has been determined by researcher to observe and take the conclusion. There are two types of variables based on the term of causation:[7]

1. Independent Variable (X)

According Sugiyono, independent variable can be called *stimulus, predictor,* or *antecedent.* Independent variable is variable which has the influence or the cause of change or make the existence of dependent variable. So, the independent variable in this research is the use of Course Review Horay in teaching learning process. The indicators from this variable are:

a. The teacher explains the objective of learning

b. Teacher forms the heterogeneous group study consisting of 7 to 8 students and ask students to prepare a yell.

c. Teacher delivers reading material related narrative text

d. Teacher tells students in each group to read and comprehend about the material

e. To test their comprehension, teacher read the question randomly about narrative text

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[6] S. Margono, *Metodologi Penelitian Pendidikan,* (Jakarta: PT Rineka Cipta, 2010), p. 82.

[7] Sugiyono, *Metode Penelitian Pendidikan…* p. 61.

f. Teacher identify the students' answer correctly with mark (√) and wrong answer with the cross mark (X), students who have got the sign checklist mark (√) must shout horray.

2. Dependent Variable (Y)

Dependent variable is variable which is influenced or became effect of the independent variable.[8] Dependent variable in this research is students' achievement on reading narrative texts. The researcher can measure it based on students' score from the test, and the indicators are:

a. Identifying the social function/purpose of narrative text.

b. Identifying the generic structures of narrative text such as orientation, complication, and resolution.

c. Identifying the language features of narrative text.

d. Identifying the moral value of narrative text.

E. Methods of Data Collection

To get an accurate data, in this research the writer used two ways to collect data, they are follows:

1. Test

The test is a set of stimulus given to someone with the intent to get the answers that can be used as the basis for scoring numbers.[9] The writer gave the test in experimental and control class. The writer will be given a test in the multiple

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[8] Sugiyono, *Metode Penelitian Pendidikan…* p. 61.

[9] S. Margono, *Metodologi Penelitian Pendidikan…* p. 170.

choice form. Before the teacher explained material by using Course Review Horay (CRH), the teacher gave pre-test to experimental and control class in the same way. Post-test was given to experimental and control class. It was given in order to know students' understanding and score on the reading narrative texts after they are taught using Course Review Horay (CRH) in experimental class and without using Course Review Horay (CRH) in control class.

2. Documentation

Besides data from result of the test, the documentation is needed to help the researcher run the research. According to Sugiyono, the documentation method is used to look for the data concerning matters or the variable that took the form of the note, transcript, book, newspaper, magazine, inscription, notes of a meeting, agenda, etc.[10] The Researcher used the documents related to the object of research such as students' name list.

F. Data Analysis Technique

Analysis of the data is a crucial step in the study because the function of data analysis is to store the results. Analyzing the data collected from this study, researchers used quantitative

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[10] Sugiyono, *Metode Penelitian…* p. 274.

analysis techniques, which use statistical data analysis techniques.[11]

1. Instrument of Study

Instruments are measuring equipment used to determine of research data collection.[12] The choosing of instrument had been done by considering: validity, reliability, degree of test difficulty, and discriminating power.

a. The Validity

The validity is a measure that showed levels of validity or validity of instrument.[13] Instrument that is valid or invalid have high validity. Conversely, the less valid instrument means having a low validity. To determine the validity of the items used *point biseral* correlation formula as follows:[14]

$$r_{pbis} : \frac{M_p - M_t}{S_t} \sqrt{\frac{p}{q}}$$

Where:

r_{pbis} =   point biseral correlation coefficient

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[11] Sugiyono, *Metode Penelitian…* p. 333.

[12] Purwanto, *Instrumen Penelitian Sosial dan Pendidikan Pengembangan dan Pemanfaatan,* (Yogyakarta: Pustaka Belajar, 2010), p. 123.

[13] Sugiyono, *Metode Penelitian …* p. 173.

[14] Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik…* p. 283.

M_p = the mean scores of subjects who correctly searched items correlation with the test.

M_t = the average score of the total score.

S_t = standard deviation of the total score

p = the proportion of subjects who answered right against the grain of the item being tested for validity item.

q = the proportion of subjects who answered one of the items of the item being tested for validity item.

Calculating result of r_{pbis} is compared with score r_{table} by 5% degree of significant. If $r_{count} > r_{table}$ test items of question is validity.

b. Reliability

Reliability is used to indicate that an instrument sufficiently reliable to be used as a means of collecting data for the instrument has been good.[15] To search for reliability throughout the test used formula Kuder and Richardson with the K-R 20. The formula is as follows:

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

Where:

r_{11} = reliability of the test

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[15] Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*... p. 221.

N = quantity of question

S = standard deviation

p = the proportion of subject who answered the item correctly

q = the proportion of subject who answered the item incorrect.[16]

Next step is consulting the result of r_{11} is compared with score of r_{table} by 5 % degree of significance. If $r_{count} > r_{table}$ test item of question is reliable.

c. Degree of Test Difficulty

The good question is question which did not hard and easy. Degree of test difficulty was indicating with difficulty of index (P). The formula of degree of test difficulty as follow:

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

Where:

P = index of difficulty

B = the number of students who answer an item correctly

JS = the total number of students

The index of difficulty level can be classified as follows:

[16] Suharsimi Arikunto, *Dasar-dasar Evaluasi Pendidikan*, (Jakarta: Bumi Aksara, 2006), p. 100.

P = 0,00- 0,30 is difficult

P = 0,30- 0,70 is medium

P = 0,70- 1,00 is easy. [17]

d. Discriminating Power

The discriminating power is ability of question to distinguish between a smart student (higher progress) and a silly student (lower progress). The number to show discriminating power is discriminating index (D). Calculating the discriminating power used the formula: [18]

1) Sequence the data from higher to lower score.

2) Determine of the upper and lower group.

3) Calculate Discriminating Power, with the formula:

$$D = \frac{B_A}{J_A} - \frac{B_B}{J_B} \, P_A - P_B$$

Where:

D   =   discriminating power

B_A =   number of students in the upper group who answered the item correctly

B_B =   number of students in the upper group who answered the item correctly

J_A =   number of all students in the upper group

J_B =   number of all students in the lower group

[17] Suharsimi Arikunto, *Dasar-dasar Evaluasi Pendidikan*… p. 208.

[18] Suharsimi Arikunto, *Dasar-dasar Evaluasi Pendidikan*… p. 211.

P_A = the proportional of the upper group who answered the item correctly

P_B = the proportional of the lower group who answered the item correctly.[19]

The criteria of determining the index of discriminating are below:

D = 0,00- 0,20 (*Poor*)

D = 0,20- 0,40 (*Satisfactory*)

D = 0,40- 0,70 (*Good*)

D = 0,70- 1,00 *(Excellent)*

2. Analysis of Pre Test

Pre-test was done before the researcher gives the treatments for the population. This analysis aims to determine the initial conditions of the population if the two classes are in the same initial conditions or not.

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. The normality test with Chi Square is done to find out the distribution data. Step by step Chi Square test is as follows:

1) Determine the range (R); the largest data reduced the smallest.

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[19] Suharsimi Arikunto, *Dasar-dasar Evaluasi Pendidikan…* p. 213.

2) Determine the many class interval (K) with formula:[20]

   K = 1+ (3,3) log n

3) Determine the length of the class, using formula:

   $P = \dfrac{range}{number\ of\ class}$

4) Calculating the average ($\bar{X}$), with the formula :[21]

   $\bar{X} = \dfrac{\Sigma f_i\, x_i}{\Sigma f_i}$

5) Calculating variants, with the formula:[22]

   $S = \sqrt{\dfrac{n\,\Sigma f_i\, x_i{}^2 - (f_i\, x_i)^2}{n-(n-1)}}$

6) Calculate the value of Z , with the formula:[23]

   $Z = \dfrac{x-\bar{x}}{s}$

7) Calculating the frequency expository (E_i), with the formula:

   $E_i = n$ x wide area with the n number of sample

8) Calculate the Chi Square (X^2), with the formula:[24]

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

9) Determine dk = k-1, where k is the number of class intervals and α= 5%

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[20] Sudjana, *Metode Statistika,* (Bandung: PT Tarsito, 2005), p. 47.

[21] Sudjana, *Metode Statistika…*, p. 67.

[22] Sudjana, *Metode Statistika …*, p. 95.

[23] Sudjana, *Metode Statistika …*, p. 99.

[24] Sudjana, *Metode Statistika …*, p. 273.

10) Determining the distribution normality with test criteria:

If $X^2{}_{count} > X^2{}_{table}$ so the data is not normal distribution and other way if the $X^2{}_{count} < X^2{}_{table}$ so the data is normal distribution.

b. Homogeneity test

It means to get the assumption that sample of research come from a same condition or homogenous. It is used to know whether experiment class and control class, that are taken from population have same variant or not.

The steps as follows:

1) Calculate variants both classes (experimental and control classes), with the formula:

2) Determine $F : \frac{Vb}{Vk}$, Where:

V_b : Bigger Variant
V_k : Smaller Variant
Determine dk $= (n_1 - 1) : (n_2 - 1)$

a) Determine F_{table} with $\alpha = 5\%$

b) Determining the distribution homogeneity with test criteria:

If $F_{count} > F_{table}$, the data is not homogeneous and the other way if the $F_{count} < F_{table}$, the data is homogeneous.[25]

3. Analysis of Post Test

Post-test was held after all treatments were conducted. This test was used to measure students' achievement after experimental class and control class were given treatments and explanations. The result of test was analyzed statistically. There are types of post-test, as follow:

a. Normality Test

Steps normality second step is the same as the normality test on the initial data.

b. Homogeneity Test

Steps homogeneity second step is the same as the homogeneity test on the initial data.

c. Test of the Average

It is used to examine average whether experiment group and control group have been decided having different average. [26] If the average of two groups is not different, so the groups have same condition.

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

[25] Sugiyono, *Statistika untuk Penelitian,* (Bandung: Alfabeta, 2007), p. 140.

[26]Anas Sudijono, *Pengantar Statistik Pendidikan* 6th Ed., (Jakarta: PT. Raja Grafindo Persada, 1995), p. 326.

$$t = \frac{\overline{x_1} - \overline{x_2}}{S\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \quad \text{with}$$

$$S = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 1}}$$

Where:

$\overline{X_1}$ *: The mean score of the experimental group*

$\overline{X_2}$ *: The mean score of control group*

S_1^2 *: The standard deviation of experimental group*

S_2^2 *: The standard deviation of control group*

n_1 *: The number of experimental group*

n_2 *: The number of control group*

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

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

The hypotheses are:

Ho = $\mu_1 = \mu_2$

Ha = $\mu_1 \neq \mu_2$

μ_1 : average data of experimental group

μ_2 : average data of control group

If $t_{count} > t_{table}$ so H_o is rejected and there is no difference of average value from both of groups. Moreover, the other way if the $t_{count} < t_{table}$ so H_o is

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accepted and there is significant difference of average value from of groups.[27]

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[27] Anas Sudijono, *Pengantar Statistik Pendidikan* 6th Ed…, p.272-273.

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