# CHAPTER III

# RESEARCH METHOD

This chapter presents six topics dealing with the research method. There are research design, population and sample, research instrument, instrumentation of developing test, validity and reliability testing, data collection method, and data analysis.

## A. Research Design

This research is conducted in pre-experimental design using quantitative approach with one group pretest-posttest design. This research uses pre-experimental because it does not have random assignment of subject to group or other strategy to control extraneous variable. The reason of researcher uses pre-experimental research because the researcher can't determine the homogenity of students' reading comprehension in MTs Aswaja Tunggangri. Therefore in this research the researcher just takes one group or class to use pretest and posttest design to know the result of treatment. This research is classified as pre-experimental design because it is little or no control of extraneous variables. In the one group pretest-posttest design, a single group is measured or observed not only after being exposed to a treatment concisely but also before. Pre-experimental research involved administering pre-test to dependent variable, applying the experimental treatment to the subjects, and administering the post-test. The result of the treatment is comparing in the pretest and posttest score. The design of this research can be seen at the table below:

**Table 3.1 The Design of One-Group Pretest Post Test**

| Pre-test | Independent variable | Post-test |
|---|---|---|
| Y1 | X | Y2 |

**Explanation:**

Y1 = Pre-test

X = Treatment

Y2 = Post-test

The prosedure of pre-experimental design that used one group pre-test and post-test:

1. Administering pre-test before applying Numbered Head Together with the purpose to measuring score the students' reading comprehension in the seventh grade students at Mts Aswaja Tunggangri
2. Applying treatment in teaching reading by Numbered Head Together (NHT) to the subject in the seventh grade students at MTs Aswaja Tungganggri. There are some procedures of Numbered Head Together (NHT) technique in teaching descriptive text: firstly, teacher divided class into some groups that consist of four students, each student has a number 1, 2, 3, 4; next, teacher asks a question based on the descriptive text which given by teacher; then students put their heads together to discuss about the answer, each student has responsibility to make sure all members in their group know the answer; the last, teacher called a number randomly and the student with that number must answered it with the explanation.

3. Administering a post-test after applying Numbered Head Together (NHT) with the purpose measuring score the students reading comprehension in the seventh grade students at MTs Aswaja Tunggangri.

In this research, the researcher wants to know the effectivenes of Numbered Head Together (NHT) in teaching reading by conducting pre-experimental design. Researcher applying one group pre-test and post test design, she wanted to find out there is any significance different score of students reading comprehension before and after taught by using Numbered Head Together (NHT) in the seventh grade students at MTs Aswaja Tungganggri in academic year 2015/2016.

**B. Population and Sample**

1. Population

According to Sugiyono (2015: 117) population is generalization region that consists of object, subject that have quality and certain characteristic who prescript by researcher for study to pull the conclusion. Meanwhile Sukardi (2012: 53) also states that population in principle is all members of human, animal, event, or thing which live together in a place and a planned become target conclusion from the last result of research. According to the explanation above a population is the whole of subject used by the researcher. The population in this research is all of the students from seventh class in MTs Aswaja Tunggangri from A class until C class which consists of 66 students.

2. Sample and sampling

The Sample in this research is students in seventh B class that consists of 22 students; 15 male and 7 female. Sampling is a sampling technique (Sugiyono, 2010: 63). The sampling method is discussion of how the technique in the withdrawal or the sampling to be sample representative (Fauzi, 2009: 185). In this study, researcher used purposive sampling technique. These samples were taken by taking the subject is not based on strata, random or region, but based on their specific purpose (Arikunto, 2006: 138-140). Where, the seventh grade at MTs Aswaja Kalidawir consists of three classes those are A, B, and C. In this research the researcher chooses B class as sample of the research based the characteristics. The characteristics of B class is student unmotivated in reading activity.

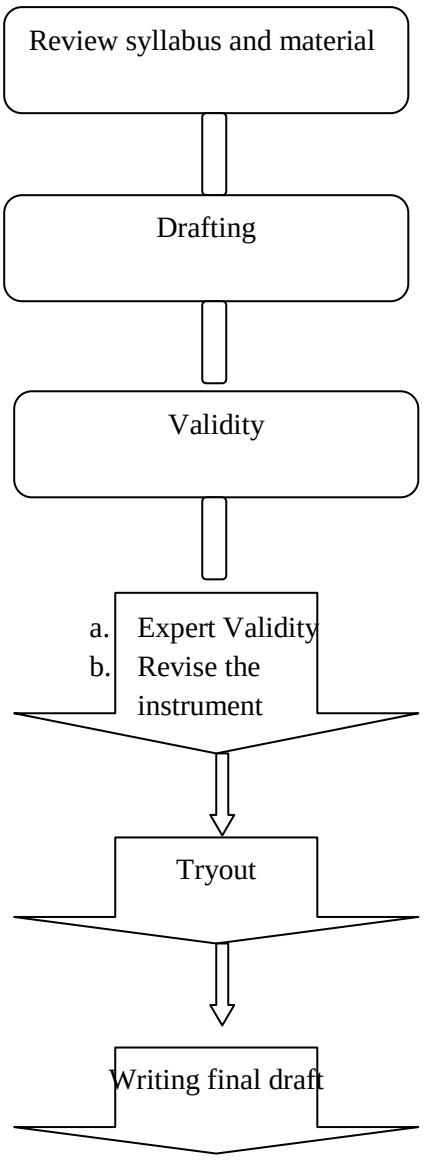
The researcher found that in B class the students tend to be passive in learning English especially for reading activity and Numbered Head Together (NHT) as a model of teaching method that suitable to prove the problem, because Numbered Head Together (NHT) is one kinds of cooperative learning method which is useful for students not only to comprehend the English text but the students can learn discuss and work together with another because this technique requires students work in a group and it makes the condition in the classroom become conducive and active.

## C. Research instrument

Research instrument is tool of collecting data. Instrument is a tool used to measure natural phenomenon or social will be observed (Sugiyono 2015: 148). The instrument in this research is test. Arikunto (2006: 127) states that "test is a series question, exercise or other means which used to measure the skill, knowledge, intelligent, ability or talent that have by individual or group". Thus a test is a method to gain the data by giving some question to the respondent. In this research the writer used achievement test, the test of this study is the writer made by adapted the material module book at MTs Aswaja Tungganggri and internet.

The test were in the form of objective test that are multiple choices. The writer requires 20 questions which is 20 questions of multiple choices. The score the objective tests the writer treats them without any difference. Means, there was only one correct answer for each items. The test is used to measure the process that students making after learn something in achieving objectives. This test used to measure the students achievement in reading comprehension before and after they taught by using Numbered Head Together (NHT) in MTs Aswaja Tungganggri.

**D. Instrumentation of developing test**




1. Review Syllabus and material

The first step in developing the research instrument is reviewing literature which consist of syllabus and insturt material. The purpose of reviewing literature is to get data on the materials used for pre-test and

post-test, so that the instrument of test would test what should be tested. Hence, the instrument met the criteria of content validity.

In addition, the researcher reviewed syllabus as well. This is done to know the materials and basic competence which should be mastered by the students of the seventh grade of Mts Aswaja Tunggangri. Morever, the syllabus also fold her some information such time allotment, classroom activities, etc. The result of reviewing literature was useed to write draf of test.

2. Drafting

The next steps in instrumentation is drafting. Drafting is process to write an instrument. In process of drafting, researcher started this step by determining kinds of reading test that would be used and level of difficulties that is suitable with the students in VII-B class. Before writing instrument, researcher also asked her lecturer to give suggestion about the test, type of the test and content of the test. The test consists of 20 items. It contains of short paragraph from "Bangkit" book. The material of this content about descriptive text. In step of drafting, researcher should careful to arrange test. The researcher also thinks about ability of students, material of this test, and also the reseacher mach with material in book.

3. Validity

After drafting, the reasearcher should doing validity test. Validity it is the degree to which a test measures what it is supposed to measure (Gay, 1992:155). It means that to strengthen this instrument , researcher needs to test its validity. Validity including content validity, face validity

and construct validity. In the design of quantitative research, validity is important point because test becomes main component to collect data. If test do not have validity it's also researcher do not have valid data. To do validity, researcher needs spend more time. Researcher going to meet expert validity to her advisor. To strengthen this test researcher also doing validity to English teacher of Mts Aswaja Tunggangri.

4. Expert Validity and Tryout

a. Expert Validation

In this step the researcher met an expert of ELT mainly on reading learning to check the content, type of test, and level of difficulty of the draff of the reasearch instrument the draff consist of 20 items with multiple choise. The experts that researcher met are an experienced English Lecturer and English teacher of Mts Aswaja Tungggangri.

b. Instrument revision

After researcher did expert validation, there are some feedbacks given by the experts. This feedback is used to revise the draff of instrument. First, from direction and instructions of each task. Direction is guideline include the explanation about how many task in this test and how many time students doing this test. If resercher gives time limits its more easy for the researcher to manage time. Then, instructions include the test is very important for students. Students will be know the ways to answer the question from read the instructions of each task. In this test, the instructions in order to students can understand the way to answer the questions. If the instructions not understandable students can spend more

time and also have impact to their score because they unfinished answer selection the test. The second, researcher should revise the placement of the questions and answers. Researcher should arrange the questions and answer. The purpose is to make students easy to choose the correct answer.

5. Tryout

After the test finish to validity, then researcher doing try out this test to another subject of sample will be used in this research. The purpose of conducting try out of the instrument is to achieve the validity and Reliability of the instrument. Tryout will be implement to 10 students of VII C at Mts Aswaja Tunggangri. Reasercher choose this subject based on characteristic of students ability that near same with the sample was used in this research.

6. Writing final draft

The last step of instrumentation is writing final draft. Writing final draft is rewrite instrument because it's done to validity and reliability instrument. Writing final draft doing by researcher after she conduct tryout. After tryout the test she analysis the data about validity and reliability of the test. In writing final draft researcher prepare to used this test for pretest. Resercher sould careful in this step. After researcher finish writing final draft. The test is alredy used in pre-test and post-test.

## E. Validity and Reliability Testing

1. Validity

The good instrument should be valid. Validity refers to the precise measurements of the test. Validity is defined as the extent to which the instrument measures what is suppose to measure. In this research used content validity and face validity.

a.) Content validity

Content validity is the content about what we say test about. The relevancy of the objective of the test and the content of the test items are show the content validity of the test. In this study, the test had content validity because this test based on the course objectives in the syllabus of first years of MTs Aswaja Tunggangri. The content validity in this research can be showed as follow:

**Table 3.2. Content Validity**

| No. | Competence Indicator | Test item |
|---|---|---|
| 1. | Students are able to determine the information of the text (literal comprehension). | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 17, 18, 19,20 |
| 2. | Students are able to determine the main idea. | 16 |
| 3. | Students are able to determine the implicit meaning of the text / purpose of the text (inferential comprehension). | 12 |
| 4. | Total | 20 |

b). Face validity

A test is said to have face validity if it is supposed to measure. Face validity is hardly a scientific concept, yet it is very important. In this

study the form of the tests was in the form of objective test, consists of multiple choices and true/false test. Then the researcher also consults this test with advisor and teacher.

Besides the researcher checked the validity of the test used content validity, the researcher also conducted a try-out of the test on February 18th 2016 to the same students of another class, that were students of VII C class of MTs Aswaja Tunggangri to know the validity and reliability of the test. The test consisted of 20 multiple choice of try out test were same with the items of pre-test and post-test. The data of students' score after finishing of try out can be seen in table.

**Table 3.3 The Students' score in Try - Out**

| NO. | NAME | TYR -OUT |
|---|---|---|
| 1. | AB | 55 |
| 2. | ANR | 70 |
| 3. | APM | 80 |
| 4. | EA | 65 |
| 5. | IMK | 90 |
| 6. | KN | 55 |
| 7. | MBH | 60 |
| 8. | MHN | 65 |
| 9. | MZA | 75 |
| 10. | NPA | 75 |

From the presentation of the result of try-out, the students' score could be categorized into the following table of criteria students' score

**Table 3.4 Table of Criteria Students' Score**

| No. | Grade | Qualification | Range Score |
|---|---|---|---|
| 1. | A | Excellent | 86 – 100 |
| 2. | B | Good | 76 – 85 |
| 3. | C | Average | 56 – 75 |
| 4. | D | Poor | 46 – 55 |
| 5. | E | Very poor | 0 – 45 |

Based on the table 3.3, it was found that IMK got score 86 – 100 showed that his score was categorized as excellent. APM got score 80 showed that her score was categorized as good. ANR, EA, MBH, MHN, MZA, and NPA got score 56-75 showed that their score was categorized as average. AB and KN got score 55 showed that their score was categorized as poor. After finishing try-out, then the researcher analyzes the test based students' score to know the instruction of the test clear or not and level of the test suitable or not.

2. Reliability

The way to know a good test is by reliability. Ary (2002:250) states that reliability is concerned with the effect of such random errors of measurement on the consistency of the scores. Reliability is the consistency of the measurement, or

degree to which an instrument measures the same way each time it is used under the same condition with the same subjects.

To measure that reliability of test item, the researcher firstly gained Try-out. It is to know whether the instrument suitable or not. In this research, the researcher used SPSS 16.0 for windows to know the reliability of test instruments. According to Riduwan (2014: 118), the criteria of reliability instrument can be divided into 5 classes as follows:

a. If the *alpha cronbach* score 0.00-0.20: less reliable
b. If the *alpha cronbach* score 0.211-0.40: rather reliable
c. If the *alpha cronbach* score 0.41-0.60: enough reliable
d. If the *alpha cronbach* score 0.61-0.80: reliable
e. If the *alpha cronbach* score 0.81-1.00: very reliable

From the answer of students' response in try-out test the researcher then analyze using reliability test based on Cronbach's Alpha. The result of reliability test was:

**Table 3.5 Reliability Testing for Multiple Choice**

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .624 | 20 |

From the computation in SPSS, the reliability value of multiple choice test was 0.624. Based on the Cronbach scale on the Cronbach value between 0.61-0.80 so it can be said that the instrument was reliable.

## F. Data Collection Method

Data collection method is the method to obtain the data in the research. In this research the data collection method is administering test that consist of pre test and post test. The procedure of administering test was clarified as follow:

1. Pre-test

   As the first meeting, the researcher gave a pre-test to the students. It was conducted to know the students score in reading comprehension before being taught the treatment. This test is given in order to know how far the students ability in reading comprehension of descriptive text. The pre-test comprised 20 items in form of multiple choices.

2. Treatment

   After gaining the pre-test, the researcher gives the treatment by teaching using Numbered Head Together (NHT). The postest was held on February 9$^{th}$ 2016 and on February 16 $^{th}$ 2016.

3. Post-test

   The post-test is given to the students after conducting the treatment of using Numbered Head Together (NHT) to increase the students' reading comprehension. Similarly to pre-test the post test also comprised 20 items in form of multiple choices.

## G. Data analysis.

In this research the writer uses a quantitative data analysis technique. The quantitative data of the research is analyzed by using statistical method. The technique is used to find the significant difference on the students' comprehension before teaching using Numbered Head Together (NHT) and after teaching

Numbered Head Together (NHT). The researcher in this research uses t-test by SPSS 16.0.

The steps to analysis of the data would use SPSS 16.0 windows program with the following stages:

1. Researcher should opened SPSS 16.0 windows program
2. Then, researcher should determine mean of students score in pre-test and post-test.
3. Those all of data move into paired variable columns.
4. After that, move data of pre-test to column variable 1 and data of post-test into column variable 2
5. Then click "ok" to get the result.

Then, result of paired sample t -test will be analized in hypothesis testing. According to Singh (2007:154-155) there are some steps to determine null hypothesis accepted or rejected:

1. Formulating a null and alternate hypothesis
2. Selecting of appropiate level of significance
3. Deciding on the location of critical region, based on the significance level
4. Selecting an appropiate test statistics to find the relevant critical value of the chosen statistic from test statistics table, to define the boundary of the critical region.
5. Computing the observed value of the chosen ststistics with the tabulated value and if the computed statistics fall in the critical region, researcher can reject the null hypothesis, otherwise they can suggest that they do not

have enough evidence to reject the null hypothesis and hence can accept an alternate hypothesis.

Null hypothesis is used when the experimental data (which is represented by a sample) does not necessarily warrant a generalization (which represents the entire population) that an intended improvement in the depent variable dis not occur (Srinagesh, 2006: 337). There are two formula used to analyze hypothesis testing.

1. When the numeral of $t_{table}$ 0.05 bigger than $t_{count}$ 0.000 the alternative hypothesis ($H_a$) is accepted and the null hypothesis ($H_0$) is rejected.
2. While the $t_{table}$ 0.05 smaller than $t_{count}$ 0.000 the alternative hypothesis ($H_a$) is rejected and the null hypothesis ($H_0$) is accepted.