CHAPTER III

RESEARCH METODOLOGY

In this chapter, the researcher illustrates how this study is conducted with the subject of research methodology. It consists of research design, population and sample, research variables, research instruments, criteria of the test, technique of data collection and analysis.

3.1 Research Design

This research uses quantitative method using experimental design which related to the true experimental consist of Pre and Post-Test Control Group Design. According to Creswell (2012: 295) state that we apply an experimental design to know cause and effect of the independent and dependent variable. This research uses the snowball sampling design by asking the teacher to determine the control group and experimental group.

In this study consist of two groups that are experimental and control groups which experimental group taught using Directed reading thinking activity (DRTA) through Numbered Head Together (NHT) while control group taught by conventional method. The aim of this experiment is to know the effectiveness of teaching reading comprehension using Directed Reading Thinking Activity (DRTA) through Numbered Head Together (NHT) by giving pre and post test to all control and experimental groups. Table 3.1.1 showed the design of the experimental research.

Table 3.1. Design of the Research

Group	Pre-test	Treatment	Post-test
Experiment	O1	X	O2
Control	O1	-	O2

Note   :

O1   : Test before treatment

X   : Treatment using DRTA through NHT

O2   : Test after treatment

3.2 Population and Sample

3.2.1   Population

The target population was SMP Muhammadiyah 17 Surabaya . The population was eight grades of students of SMP Muhammadiyah 17 Surabaya in academic years of 2016/2017 which consist of four classes that are 8A,8B,8C,8D. It is located on Jl.Gogor Muhammadiyah VI 6-8 Wiyung-Surabaya.

**Table. 3.2. The Population of the Research**

Class	Students
8A	27
8B	26
8C	27
8D	27
Total	**107**

3.2.2   Sample

After the population selected researcher then select the sample it is determined by snowball sampling technique which the researcher ask the teacher to decided which class become control and experimental class. The sample was two classes of eight grades of SMP Muhamadiyah Surabaya 17 that are 8C consist of 27 students as a control class taught by conventional method and 8D consist of 27 students as an experimental class taught by Directed Reading Thinking Activity (DRTA) Through Numbered Head Together (NHT).

3.3 Research Variables

Based on the relation between each variables the researcher divided variable into independent, dependent variable and Moderator variable. Depend on the topic of this study the dependent variable is students ability that is reading comprehension while independent variable is the DRTA through NHT method that are Directed Reading Thinking Activity (DRTA) and Numbered Head Together (NHT) and moderator variable is students responses. Here are the example of relation between independent and dependent variable.
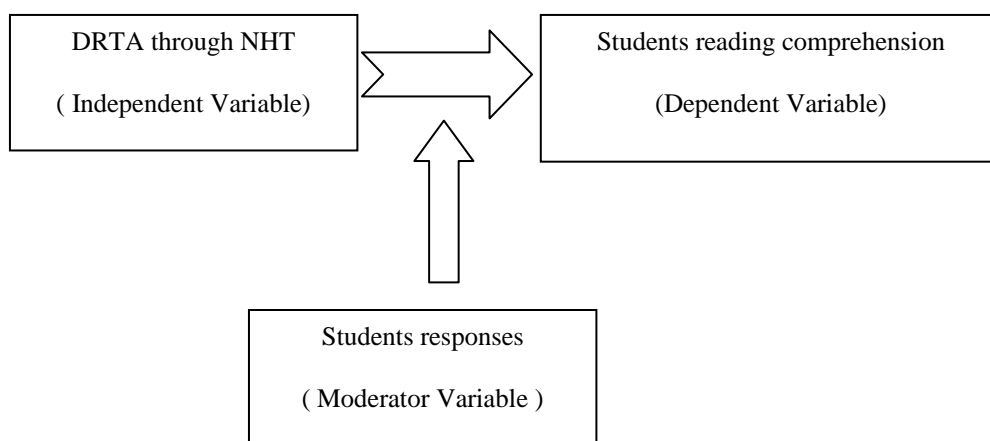
3.4 Research Instruments

3.4.1 Try Out

Try out was given at 9th of Mei 2017 held before pre-test and pos-test it is examined outside class of control and experimental group in the same grade and the same questions. It is aimed to measures the validity and reliability of the instrument before tested in control and experiment class. The researcher decided to give try out in 8A of SMP Muhamadiayah 17 Surabaya that consist of 26 students. The researcher gives 50 objective questions multiple choice reading comprehension about recount text.

3.4.2 Test

In this study the researcher uses pre-test and post-test. Pre-test given before treatment to know the initial scores while post-test given after treatment using DRTA and NHT strategy to measure whether the strategy effectively improve their reading comprehension. The test consist of 25 multiple choice reading comprehension about recount text as intruments to measure the effectiveness ofDirected Reading Thinking Activity (DRTA) throughNumbered Head Together (NHT).

3.4.3 Questioner

Questioner used for collecting data about students responses in application of DRTA through NHT to know the appropriateness and effectiveness of the method. Giving 12 items of questions divided into three categories that are students responses about English, the advantages of DRTA through NHT in their reading comprehension and the students responses about applying DRTA through NHT strategy. By giving four choices of answer, two positive answer (strongly agree and agree) and two negative answer (disagree and strongly disagree).

3.5 Criteria of the Test

3.5.1 Validity

Validity is the criteria of the test. According to Heaton (1983:159) Defined that validity test is the scope of measure what should be measured. All of the test must suitable with the constructor. The purpose is to provide a true measure of certain skill which planned to measure.

According to Brown (2003:22) He divided five type of validity that are content validity, criterion validity, construct validity, consequential validity, and face validity. In this study the researcher use of content validity and construct validity. To measure the content validity the researcher holds the validation with the English teacher

and lecturer to get the validity of lesson plan using standard competency and basic competency of eight grades curriculum 2004 KTSP (See appendix V) and for the content of the test (pre-test and post-test) the researcher holds the validation with the English reading lecture(See Appendix VII). The instrument of the test should be appropriate with the syllabus and depend on the students ability to get the validity of the data.

In construct validity the researcher uses SPSS version 21 to know the validity of instrument.. To determine the construct validity of each numbers of item it could be correlate between r_{count}> r_{table}. If r_{count} is greater than r_{table} (0.381) it means that the instrument is valid. Based on the result showed that there are 29 items are valid that are number(2.8.9.10.11.12.13.18.19.20.21.22.23.29.30.31.32.35.36.37.40 .41.42.43.44.46.48.49.50) for efficiency the researcher used 25 items for test that are number 2. 8. 9. 10. 11. 19. 20. 21. 22. 23. 29. 30. 31. 32. 35. 36. 37. 40. 41. 42. 43. 44. 46. 48. 49. 50. (See Appendix I).

Table 3.3.Syllabus of Curriculum 2004 (KTSP)

Standard Competency	Basic Competency
Memahami makna teks tulis fungsional dan essei pendek sederhana berbentuk *descriptive* dan *recount* yang berkaitan dengan lingkunagn sekitar.	5.1 Membaca nyaring bermakna teks tulis fungsional dan essei berbentuk descriptive dan recount pendek sederhana dengan uapan,tekana dan intonasi yang berterima yang berkaitan dengan lingkungan sekitar.
	5.2 merespon makna dalam teks tulis fungsional pendek sederhana secara akurat,lancar dan berterima yang berkaitan dengan lingkungan sekitar.

3.5.2 Reliability

Test evidently reliable if it consistent and dependable. According to Brown (2003:21) stated that reliability is giving the same test to the same students in two different times, The test have to show the consistent result. It means that if the test given to the students in different occasion the score must be similar and dependable means the score must prove and believable.

After conducted the validity then the question which are valid must be tested of reliability. Accroding to Usman & Akbar (2008:289) if the result is $\geq$ 0,80 the istrument is reliable. The calculation result uses SPSS software version21 showed that score of reliability is 0,939 it is greater than 0,08 (0.939>0.80) itindicated that the test is reliable.

Table 3.4. Result of reliability

Reliability Statistics

Cronbach's Alpha	N of Items
.939	29

3.6 Technique of Data Collection

To collect the data the researcher used pre-test post-test to measuring the effectiveness of Directed Reading Thinking Activity (DRTA) through Numbered Head Together (NHT) strategy in reading comprehension students in eight grades students of SMP Muhammadiyah 17 Surabaya. The procedures of collecting the data through the following steps :

a) The researcher gave try-out for students outsides control and experimental class to measure validity and reliability of instruments. Here the researcher was giving try-out for 8A grades of SMP Muhammadiyah 17 Surabaya (on 9th of May 2017).

b) The researcher was giving the pre-test to both experimental and control group with 25 multiple choice about reading recount text

to measure the students achievement in reading comprehension test (10th and 15th of May 2017)

c) The teacher gave the treatment by applying Directed Reading Thinking Activity (DRTA) through Numbered Head Together (NHT) on 8D as experimental class. however, in 8C as a control class was given conventional method (on 16th- 18th of May 2017).

d) Finally, the researcher was giving post-test with the 25 multiple choice about reading comprehension recount text to both experimental and control class to measure the mean score between class to analyze the differences achievement using DRTA through NHT and conventional method (on 18th of May 2017).

e) To know the suitability of method the questionnaire was given to all experimental class to know their feedback and effectiveness after using the method.

3.7 Technique of Data Analysis

After all the data collected the researcher then analyze the data to know the result of research. To calculating the data SPSS application vesion21 was used and T-test analyze to measure whether there is significant difference between experimental and control group. Here are the hypothesis of implementing DRTA through NHT:

H_0 : $\mu_1 = \mu_2$. The mean scores of experimental and control class are same (sig > 0.05).

There is no significant difference of the reading method (DRTA through NHT) in students reading comprehension.between experimental and control group.

H_1 : $\mu_1 \neq \mu_2$. The mean scores of experimental and control class are different (sig < 0.05)

There is significant difference of reading method (DRTA through NHT) in students reading comprehension. between experimental and control group.