CHAPTER III
RESEARCH METHOD

A. Research Design

This research was quantitative in nature, because the result of the students' achievement in reading would be expressed in the language of mathematic, evaluated consequently and also interpreted by appropriate statistical procedures. In this term, quantitative data refers to the use of T-test.

In this study, the researcher used an experimental research with the form of true experimental design. An experimental research involved two groups; experimental group and control group.

In this study, the researcher use pre test – post test control group design.

$$E = O_1 \ X \ O_2$$

$$C = O_3 \qquad O_4$$

Adopted from Arikunto.[38]

Where:

E : the symbol for experimental class

C : the symbol for control class

O_1 :pre test for experimental class

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[38] Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik,*(Jakarta: Rineka Cipta, 2006), p.86.

O_2 : post test for experimental class

O_3 : pre test for control class

O_4 : post test for control class

X: Treatment for experimental class

B. Research Setting

1. Subject and place of the research

This study was conducted in MTs NU Nurul Huda Semarang. The subjects of this study were the eighth grade student of MTs NU Nurul Huda Semarang in the academic year of 2013/2014. This study was conducted in the first semester.

2. Time of the research

This study was conducted from September 2nd to September 30th, 2013, counted since the proposal was submitted until the end of the research.

3. Procedures of the research

In collecting data, there were some procedures of the research, those steps were:

a. Preliminary visit (meet the administration officer)

The researcher visited the school to get information about teacher and students as participants. To gain the information, the researcher asked the administration officer.

b. Contact the headmaster

The researcher asked permission to the headmaster of MTs NU Nurul Huda Semarang by giving the permission letter.

c. Contact the English teacher

After receiving research permission from the headmaster of the school, the researcher met the English teacher and asked for the data of students, and asked guidance for the researcher conducted the research. The researcher explained about test and material that will be given to the students.

d. Give the pre test

In this section, the researcher gave the pre test to experimental and control class. The researcher gave an assignment of descriptive text based on paper. The students had to work at20questions in 35 minutes.

e. Give the treatment

In this session, the experimental class received a new treatment using inquiry method as the method in the teaching reading of descriptive texts, but the control group did not get the treatment in the teaching reading of descriptive texts.

f. Give the post test

In this section, the researcher gave the post test to measure the improvement of students' understanding on

reading of descriptive texts. The researcher gave an assignment to read a descriptive text. The students had to work at 20 questions in 35 minutes. Students had to pay attention to the five aspects of reading which would be used in the assessment. The procedures of collecting the data could be seen in the following table:

Table 1

The Schedule of The Research

No	Task	What to prepare	Date
1.	Preliminary visited (meet the administration officer)	Letter of research.	Monday, September 02, 2013.
2.		Letter of research.	Thursday, September 05, 2013.
3.	Contacting the headmaster	-	Monday, September 09, 2013.
4.	Contacting the English teacher	Pre test worksheet.	
5.	Giving the pre-test	Lesson plan, handout, worksheet, teaching	*Experimental class:* - Tuesday, September 17, 2013.

		materials.	*Control class:*
	Giving the treatment		- Thursday, September 19, 2013. *Experimental Class:* - Wednesday, September 18, 2013. - Wednesday, September 18, 2013. *Control Class:* - Sunday, September 22, 2013. - Sunday, September 22, 2013.
6.	Giving the post test	Post test worksheet.	*Experimental class:* - Tuesday, September 24, 2013. *Control class:* - Thursday, September 26, 2013.

C. Population, Sample and Sampling Technique

1. Population

   Population was all cases, situations or individuals who share one or more characteristic.[39] Population was generally areas which consisted of object or subject which had certain quality and

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[39]David Nunan, *Research Methods in Language Learning*, (Cambridge: Cambridge University Press, 1992), p. 231.

characteristic which decided by the researcher to study and collected the summary.[40]The population of this study was all students of the eighth grade of MTs. NU Nurul Huda Semarang the academic year of 2013/2014 which had five classes. The eighth grade of MTs. NU Nurul Huda Semarang was divided into five classes. There were class VIII A, VIII B, VIII C, VIII D and VIII E. There were 40-47 students in each class. The total numbers of the population were 227students.

2. Sample

Sample was representative of population that would be observed.[41] The researcher took sample in this research because the respondents were more than 100. The respondents were less than 100, it was better to take them all as sample.[42] The important thing in this study was the aim of sampling was to construct a sample that can represent the entire population. It meant that sample had to be able to represent the whole data of population.

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[40]Sugiyono, *Metode Penelitian Kuantitatif Kualitatifdan R&D*, (Bandung: CV Alfabeta, 2006), p.19.
[41]SuharsimiArikunto, *ProsedurPenelitianSuatuPendekatanPraktik*, p. 131.
[42]SuharsimiArikunto, *ProsedurPenelitianSuatuPendekatanPraktik*, p. 134.

The object were regarded that each of groups had the equal chance to be chosen as the sample.[43] The researcher took two classes from the eighth grade of MTs. NU Nurul Huda Semarang the academic year of 2013/2014 as a sample the researcher used VIII D as an experimental class and VIII C as control class.

3. Sampling technique

In this research, the researcher used simple random sampling technique. It was simple because the way of taking sample from population was done randomly without considering the strata or level of the population. Simple random sampling technique was used if the member of population was homogenous.[44]The researcher chose two classes as sample in this research; they were class VIII D as the experimental class VIII C as the control class.

[43]Sudjana, *Metode Statistika,* (Bandung: Tarsito, 2001), 6th Ed, p. 173.
[44]Sugiyono, *MetodePenelitianKuantitatifKualitatifdan R & D*, p. 82.

D. Variable of The Research

Variable was the object of research or something that becomes the concern of research.[45] In this research there is one variable.

Dependent Variable

Dependent variable was variable that was affected or that be the result because of the existence of the independent variable.[46]Dependent variable in this research was the facilitated students understanding on descriptive text. The researcher could measure students' score from the test and its indicators were:

1) Defining Descriptive Text

2) Identifying purpose of Descriptive Text

3) Identifying generic structure of Descriptive Text

4) Answering the questions related with Descriptive Text

The subjects of this research were divided into two groups. First was experimental group, which taught by using inquiry method and second was control group which would be taught without using inquiry method.

E. Technique of Data Collection

In collecting the data, the researcher took some techniques to collect the data in this study:

a. Documentation

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[45]Suharsimi Arikunto, *ProsedurPenelitianSuatuPendekatanPraktik,* p. 118
[46]SuharsimiArikunto, *ProsedurPenelitianSuatuPendekatanPraktik,* p.119

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The documentation in collecting the data was conducted by recording students' activity in the class. The documentation method was used to look for the data concerning matters or the variable that took the form of the note, transcript, book, inscription, ledger, agenda, etc.[47]Documentation was also the way to collect and gain the existing data. In this research, documentation method was done to get the data about students name list and previous score or students achievement in the experimental class and control class. Next, data was managed efficiently, then that data was analyzed to determine normality, homogeneity and average similarity between experimental class and control class in MTs. NU Nurul Huda Semarang the academic year of 2013/2014.

b. Test

Test was used to assess and measure students' achievement; mainly the cognitive side related to the students' mastery on learning as aim of education and teaching.[48] Test was a set of stimulation that was given to the students to get true answer that became based on score decision. This step was done to gain learning result data of students of experimental class and control class on descriptive text material. The researcher used one test type

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[47]SuharsimiArikunto, *ProsedurPenelitianSuatuPendekatanPraktik*, p. 158.
[48]Nana Sudjana, *Penilaian Proses Hasil Belajar*, (Bandung: PT Remaja Rosdakarya, 1999), 6th Ed., p. 35.

only. The test that was given to the students was multiple choice type. It meant students had to choose the right answer among a, b, c, or d. So the researcher knew how far the students' understanding on Descriptive Text.

In this research, the researcher gave pre-test and post-test. These tests were given to both control and experimental class.

a) Pre-test

Before the teacher taught the material by using inquiry method, the teacher gave a 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 experimental class and control class. It was given in order to know the score of students' achievement after they were taught by using inquiry method (experimental class) and without using inquiry method (control class).

The score of students' achievement on Descriptive Text could be calculated by using this following formula:

$$Score = \frac{The\ number\ of\ true\ answer}{The\ number\ of\ questions} x100 \quad 38$$

The post test was the last test that was held in own class (experimental class and control class) separately with the same questions list. But, before test was given into experimental class and control class, the test was given to try out class to get the validity, reliability, degree of difficulty and degree of question distinction. After all of step was requested then the post test was given to the experimental class and control class. Post test was used to measure students' achievement after they were given treatments. The result of the test was analyzed statistically to get normality, homogeneity, and average (right hand test). Those data were used to answer the problem in this research.

F. Technique of Data Analysis

The data analysis method, which was used in this research, was quantitative analysis. Quantitative was concerned with the amount or number.

a. Try-Out Instrument of Test

1) Validity of Test

Validity was measurement that shows the validity of instrument. It was counted using product moment formula.[49]

$$r_{xy} = \frac{N\Sigma_{xy} - \Sigma_x - \Sigma_y}{\sqrt{\{N\Sigma x^2 - (\Sigma x)^2\}\{N\Sigma y^2 - (\Sigma y)^2\}}}$$

Notice:

R_{xy} : question correlation coefficient
N : number of students
X : number of each item score
Y : number of total score

2) Reliability

A reliable test score would be consistentof different characteristics of the testing situation. It meantthat it could be believed. Besides having high validity, a good test should have high reliability too. Alpha formula was used to know reliability of test is K - R. 20.[50]

$$r_{11} = \left(\frac{k}{k\text{-}1}\right)\left(\frac{S^2 - \Sigma pq}{S^2}\right)$$

Where:

r11 : The reliability coefficient of items
k : 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

[49]Suharsimi Arikunto, *Dasar-dasar Evaluasi Pendidikan*, (Jakarta: PT. Bumi Aksara, 2002), p.65

[50]Suharsimi Arikunto, *ProsedurPenelitianSuatuPendekatanPraktik*, p. 187

S^2 : The deviation standard of the test

3) Degree of test difficulty

A good question was a question that not really difficult and not really easy. Formula for degree of test difficulty was:[51]

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

Notice:

P   : difficulty's index
B   : number of students who have right answer
JS   : number of students

The criteria were:

P = 0,00   : too difficult question
0,00< P ≤ 0,03   : difficult question
0,00< P ≤ 0,70   : average question
0,70< P ≤ 1,00   : easy question
P = 1   : too easy question

4) Discriminating Power

The discriminating power was a measure of the effectiveness of a whole test. It was used to know how accurate the question differs higher subject and lower subject. The formula for discriminating power was:

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

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[51]Suharsimi Arikunto, *ProsedurPenelitianSuatuPendekatanPraktik,* p.208

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.

b. Pre- Test

1) Normality

It was used to know the normality of the data that was going to be analyzed whether both groups had normal distribution or not.

Chi square was used here: [52]

$$\chi^2 = \Sigma \frac{(O_i - E_i)^2}{E_i}$$

Notice:

χ^2 : chi square

[52]Sujana, *MetodeStatistika*, p.273

O_i : frequency from observation

E_i : expected frequency

2) Homogeneity

Was used to know whether experimental group and control group, that were decided, came from population that had relatively same variant or not. The formula was:[53]

$$F = \frac{Vb}{Vk}$$

Notice:

Vb   : bigger varian
Vk   : smaller varian

The hypotheses in homogeneity test were:

Ho   : homogeny variant: $\sigma_1^2 = \sigma_2^2$
Ha   : non homogeny variant: $\sigma_1^2 \neq \sigma_2^2$

3) Hypothesis Test

It is used to examine average whether experimental group and control group have been decided having different average. [54]

[53]Sujana, *MetodeStatistika*, p. 250
[54]Suharsimi Arikunto,*ProsedurPenelitianSuatuPendekatanPraktik*, p. 311.

T-test is used to analyze the data of this research. It was used to measure or to compare the mean scores of the two groups.[55]

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

$$t = \frac{\overline{X}_1 - \overline{X}_2}{S\sqrt{\dfrac{1}{n_1} + \dfrac{1}{n_2}}}$$

With:

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

Where:

$\overline{X}_1$: The mean score of the experimental group
$\overline{X}_2$: The mean of the control group
n_1 : The number of experimental group
n_2 : The number of control group
$S_1{}^2$: The deviation standard of experimental group
$S_2{}^2$: The deviation standard of both groups

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

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

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[55]James Dean Brown and Thedore S. Rodgers, *Doing Second Language Research,*p.205

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The hypotheses were:

Ho$\qquad = \mu_1 = \mu_2$

Ha$\qquad = \mu_1 \neq \mu_2$

$\mu_1$$\qquad$: average data of experimental group

$\mu_2$$\qquad$: average data of control group

c. Post-Test

Post-test was held after all treatments were conducted. This test was used to measure students' achievement after they were given treatments. The result of test was analyzed statistically.

1) Normality Test

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

2) Homogeneity Test

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

3) Test Average (Right-hand Test)

This test proposed that hypothesis test in average similarity with the right test as the steps right-hand test the initial data.