CHAPTER III

RESEARCH METHOD

This subchapters included in the discussion of research method are (1) research design, (2) population and sample or subjects, (3) research instrument, (4) validity and reliability, (5) data collecting method, (6) data analysis.

A. Research Design

Scientific research is the application of the scientific approach to studying a problem (Ary 2010 : 19) Experimental is scientific investigation in which the researcher manipulates one or more independent variables, controls, any other relevant variables, and observes the effect of the manipulations on the dependent variables (Ary 2010:284) Experimental research is unique in two very important respect : it is the only type of research that directly attempts to influence a particular variable, and when properly applied, it one or more dependent variable.

This study uses pre-experimental with one-group pretest-posttest design. According to Arikunto (2010:123) there are kind of pre-experimental design, those are: one shot case study, pre-test and post-test group and static group comparison. In pre-test and post-test group of observation do two times, those are : before experiment and after experiment. The test which is

done before experiment is called pre test, and the test which is done after experiment is called post test (Arikunto 2010:124).

The procedures of pre-experimental research that use one-group pretest posttest design:

1. Administering a pretest with a purpose of measuring writing descriptive text achievement of first year students at SMPN 01 Ngantru.
2. Applying the experimental treatment teaching writing descriptive text by using *Inquiry Learning Method* to the subject first year students at SMPN 01 Ngantru.
3. Administering a posttest with a purpose of measuring writing descriptive text achievement of first year students at SMPN 01 Ngantru.

Different application of the experimental treatment are determined by comparing the pretest and posttest score. The researcher wanted to know the effect of using *Inquiry Learning Method* on the students' ability in writing descriptive text achievement by experimental research.

B. Population and Sample of Study

1. Population

Population is the whole subject of the research (Arikunto 2010:173) In the other book is explained that population is totality of whole object or individual which have a certain characteristics, clear and complete which will be observed (Hasan 2003:84) The population of the study were 294 students of the first year grade at SMPN 01 Ngantru.

2. Sample

Sample is the part of population which is observed by the researcher (Tanzeh 2009:94). The sample in this research is taken from one class from the first students of SMPN 01 Ngantru.

Sampling method is the way of data collecting which only take the part of population element or the characteristic which is any in the population (Arikunto 2010:85) In this research, the technique which is used is purposive sampling technique. According to Cohen et al., (2007) in purposive sampling technique, sample is satisfactory to specific needs. As its name suggests, the sample has been chosen for a specific purpose. In this research, a group of students who have good achievement were chosen as the sample because they had a smart phone that can expand their insight, book or other sources and ability to accept the treatment. The researcher took X C as the sample of the study since the students of this classroom use book or other sources as a supporting tool for them in daily learning. The fact supported this research since Inquiry method only can be accessed through book or sources and evolving their knowledge.

More clearly, in X C, there were 32 students consisting of 18 males and 14 females as the participants of the study. Those 32 students were given a pretest, and posttest during the research.

C. Research Instrument

Research instrument is a tool or device used by the researcher in collecting data to make her or his work become easier and get a better result, means accurate, complete and systematic in order to make the data easy to be processed (Arikunto, 2010 : 160) The research instruments that the researcher used in this study was test. The researcher used test to elicit and collect information on students' writing skill before and after giving treatment. There were two tests in this research, pre-test and post-test. The researcher ensured that the pre-test provided instructions which differ in form or wording from the pos-test, though the two test must test the same content, i.e. they were alternate forms of a test for the same groups.

Pre-test was given before teaching by using *Inquiry Learning Method*. Pre-test was done within a week before giving the treatment, exactly April 18th 2016. The treatment was given April 25th 2016 until May 2th 2016, exactly three meetings. Then, post test which was given after doing the study or after teaching by *Inquiry Learning Method, e*xactly from May 5th 2016.

At way, in this post test the students give task to make about writing descriptive text by using *Inquiry Learning Method.* Then, to assess students' writing, the researcher set up analytic scoring rubric which included the criteria such as (1) Content, (2) Text organization, (3) Tenses, (4) Structure, (5) Vocabulary.

D. Validity and Reliability Testing

Test is a process of measuring students' knowledge and ability of the students, so the writer should make a good test. A good test must fulfill and consider standardized of test itself. Measuring a good test, there are some aspects to make a good test, those are: reliability and validity.

Validity and reliability of instrument are integral parts in conducting a study since the instrument which will be used must be valid and reliable before using it to collect the data. In this study, the researcher ensured that the instrument (test) was valid and reliable by doing validity and reliability testing as follows:

1. Validity

Validity is the most important consideration in developing and evaluating mea- suring instruments. Historically, validity was defi ned as the extent to which an instrument measured what it claimed to measure. The focus of recent views of validity is not on the instrument itself but on the interpretation and meaning of the scores derived from the instrument (Ary, 2010 : 225) Before conducting the research, the researcher ascertained that the instrument had two kinds of validity as follows :

- **Content Validity**

Content validity is receiving renewed attention (Ary, 2010 : 226) The aspect of testing writing or criteria of scoring are as belows:

a. Text Organization, include what are the text developed. In the descriptive text organizations are identification and description. The objective of the test is the students be able to make writing descriptive text well and correctly. So,the students can make a writing descriptive text well by they be able to find which is identification or description part of the text.

b. Content, consists of how the students describe the picture in detail. So,the students can make a writing descriptive text well by they be able to dscribe the picture in detail.

c. Grammar / Tenses, descriptive text using simple present tense. So,the students can make a writing descriptive text well by they be able to use simple present tense.

d. Punctuation, it is an essential part of the properly constructed english sentences. It may be said that, as integral part of the written form of the language, punctuation is the reflection of the pauses and of the rising and falling intonation patterns of the spoken language. The standard marks of punctuation are based on Burks and Wishon (1980:A-28): period (.), question mark (?), exlamation point (!), comma (,), semicolon (;), colon (:), dash (-), parenthese (), brackets [], and quotation marks("...",'...'). So,the students can make a writing descriptive text well by they be able to use punctuation well and correctly (Nurpitasari, 2012 : 56)

b. Reliability

Reliability of the test is the measurement that explain the consistency of the test. Reliability is concerned with how consistently you are measuring whatever you are measuring. It is not concerned with the meaning and interpretation of the scores, which is the validity question. (Ary, 2010 : 239) Since the type of test belonged to authentic testing, the researcher ascertained that the test was reliable by doing inter-rater reliability. Inter-rater reliability is achieved when two scorers or two raters do the scoring (Isnawati, : 2014 23) To make sure that the instrument was reliable, the researcher conducted a try-out for the test to the different subject before truly conducting this research to the sample of the study. Besides, to achieve the reliability of the raters, the researcher discussed the scoring rubric which has been set up in advance and practiced scoring writing samples with the different rater.

To find out the reliability of the score obtained either from the pre-test or post-test, the researcher calculated two sets of score to get the correlation between them. The formula to find the correlation was *Pearson Product-Moment* in IBM SPSS Statistics 20. Table 3.1 shows the result of the try-out of pre-test gained from the two raters, and followed by Table 3.4 showing the statistical calculation of *Pearson Product Moment* from IBM SPSS Statistics 20.

Table 3.1 The Try-out's Result of Pre-test

No	Name	Rater 1	Rater 2
1	TYO	60	52
2	ERT	64	60
3	RSD	64	60
4	DTY	64	64
5	HYU	52	50
6	NUI	68	56
7	LOI	72	68
8	ILO	60	64
9	POU	60	56
10	PIO	60	60
11	JUI	64	52
12	DOI	68	64
13	CEI	68	60
14	ICT	64	60
15	TRY	60	52

Table 3.2 The Statistical Correlation of Pearson Product-Moment from IBM SPSS Statistics 20

Correlations

		VAR00001	VAR00002
VAR00001	Pearson Correlation	1	.635*
	Sig. (2-tailed)		.011
	N	15	15
VAR00002	Pearson Correlation	.635*	1
	Sig. (2-tailed)	.011	
	N	15	15

*. Correlation is significant at the 0.05 level (2-tailed).

Perfect correlation, either positive or negative one, is respectively denoted with +1 or -1. Thus, the closer to 1, the stronger the correlation is (Choyimah, 2014:63). If it is closer to +1, it has strong positive correlation. On the contrary, if it is closer to -1, it has strong negative correlation.

Referring to Table 3.4, it can be seen that the result of Pearson Correlation is 0.635. Thus, it indicates that the instrument had the strong positive correlation.

The same way was also conducted to check the reliability of instrument in post-test. Table 3.3 shows the result of post-test's try-out gained from the two raters, followed by Table 3.4 showing the statistical calculation of *Pearson Product Moment* from IBM SPSS Statistics 20.

Table 3.3 The Try-out's Result of Post-Test

No	Name	Rater 1	Rater 2
1	TYO	76	80
2	ERT	72	76
3	RSD	68	68
4	DTY	80	80
5	HYU	76	72
6	NUI	84	80
7	LOI	76	76
8	ILO	72	76
9	POU	76	76
10	PIO	80	76
11	JUI	76	72
12	DOI	72	72
13	CEI	80	84
14	ICT	76	72
15	TRY	76	80

Table 3.4 The statistical Correlation of Pearson Product Moment from IBM SPSS Statistics 20

Correlations

		VAR00005	VAR00006
VAR00005	Pearson Correlation	1	.668**

	Sig. (2-tailed)		.006
	N	15	15
	Pearson Correlation	.668**	1
VAR00006	Sig. (2-tailed)	.006	
	N	15	15

**. Correlation is significant at the 0.01 level (2-tailed).

As Table 3.4 shows, the results of Pearson Correlation is 0.668. Thus, it indicates that the instrument had the strong positive correlation. To sum up, based on the result of statistical correlation either from pre-test and post-test indicating that the correlation was strong respectively positive, it could be concluded that the instrument in pre-test and post-test were reliable.

E. Variable

Variable is a construct or a characteristic that can take on different values or scores (Ary, 2010 : 37) The variables in this research are two, they are :

1. Independent Variable (*x*) , is variable which is manipulated by a researcher deliberately. Called independent variable if a variable is antecedent to another variable. In this research, the independent variable are :

   X = Inquiry Learning Method

2. Dependent Variable (*y*) , is variable which is measured as the effect of independent variable manipulation. But if variable is the consequence of

another variable, it is the dependent variable.In this research,its dependent variable is :

Y = Students' achievement in writing descriptive text

F. Normality

Normality test are use to determine whether a data is set well- modeled by normal distribution or not. Choyimah (2014, 24) tell that the normality of data is important because the data can be considered to represent the population when it is in normal distribution. To know the normality, the researcher use One-Sample Kolmogrov-Smilnove test with SPSS 20. The hypothesis for testing normality are :

The hypotheses for testing normality are:

a. H_0 : Data is in normal distribution

b. Ha : Data is not normal distribution

The hypotheses for normality testing explain that the data is normal distribution if H_o is accepted and the data is not in normal distribution if H_a is accepted. The H_o is accepted when the significance value is higher than 0.05 (α = 5%), while H_0 is rejected when the significance value is lower than 0.05 (α = 5%).the researcher calculated normality of test by using SPSS 16.0 and the result for normality testing can be seen as follows:

Table 3.5 The Result of Pretest and Posttest in Normality Testing

One-Sample Kolmogorov-Smirnov Test

		VAR00001	VAR00002
N		32	32
Normal Parameters[a,b]	Mean	63.2500	76.1250
	Std. Deviation	9.97739	5.70088
Most Extreme Differences	Absolute	.152	.179
	Positive	.093	.134
	Negative	-.152	-.179
Kolmogorov-Smirnov Z		.858	1.011
Asymp. Sig. (2-tailed)		.453	.258

a. Test distribution is Normal.

b. Calculated from data.

Based on the output from SPSS 20 is known that the significance value from pre-test and post-test are bigger than 0.05. It means that H_o is accepted and H_a is rejected and the data is in the Normal Distribution. So, it can be interpreted that both of data (pre-test and post-test score) are Normal Distribution.

G. Data Collecting Method

The data were collected through pretest and posttest. During the three weeks study, the students followed the research either on direct meeting. In the beginning of the study, within a week, exactly from April 18th 2016 the researcher conducted pre-test. Pre-test is used to measured students' ability before treatment. Pretest here is to measure how far the students' understanding about the course and how far they know about writing paragraph as like descriptive In pre-test the students started making the first draft without using Inquiry method to teaching in the classroom.

After gaining the score in pretest and conducting treatment, the researcher administered post-test to know how effective the treatment was. Post-test itself was conducted on May 5th 2016. The researcher ask the student to make descriptive text according the theme. Then, the researcher get the point result in the score form of the test of writing descriptive text.

H. Procedures of Treatments

The researcher giving treatment during four a three weeks, in the interval of pretest exactly on April 21th 2016. The researcher introduced Inquiry to the students added method technique from Suchman's theory. The Suchman's theory : 1) Invite the students imagine is like in the real condition 2) Identify the components in the conditions 3) Formulate the problem and make hypothesis on those condition 4) Get the data from those condition by make question and answer "yes" or "no" 5) Make the conclusion from the data gotten. The researcher explained Inquiry and its feature, students understood quickly. The researcher explained about descriptive text using inquiry method. The students do activity of inquiry during four times. Firstly, the researcher give a theme about My Idol. Then, ask the student to formulate the problems. The student formulate the problems of their writing in descriptive text by how the way to describe their Idol correctly. Second, students collect the data by observation. The student do it by reading the book or other source to get the supporter information. Collect the data as many as possible from the source or the object which is observed. Third, student analyze and present the result in the written or report. The students make the descriptive text by them selves.

I. Data Analysis

The data obtained from research result students test that were analyzed quantitatively. Quantitative was done using statistic which is called statistical analysis. This technique was used to find the significant difference on students' writing achievement before and after using inquiry method.

The data were analyzed from students' score in pre-test and post test. To know the significant difference on the students' writing achievement before and after using inquiry method, the researcher in this research using Paired Samples Test in IBM SPSS Statistics 20. If the result of t_{table} was bigger than $t_{obtained}$ at the level of significance 0.05, the null hypothesis could not be rejected indicating that outlining was not effective to increase students' writing skill in recount text. By contrast, if $t_{obtained}$ was bigger thant_{table} at the level of significance 0.05, the null hypothesis could be rejected indicating that outlining technique was effective to increase students' writing skill in descriptive text.