# CHAPTER III

# RESEARCH METHOD

In this chapter, the researcher presents the research design, population, sampling and sample, instrument and instrumentation of the research, validity and reliability testing, normality and homogeneity testing technique data collection, technique of data analysis and hypothesis testing.

## A. Research Design

This research was conducted in pre-experimental design with one group pretest-posttest design because the Curriculum Deputy only give the researcher permission to conduct in one class." Therefore, this research does not have random assignment of subject to group or other strategy to control extraneous variable (Ary, 2010:203-204). Pre-experimental design has two variables is being conducted, are: independent and dependent variable. The independent variable (X) is a condition which influences other variable. While, the dependent variable (Y) is a condition which influenced by experimental. In the dependent variable before the manipulation of the independent variable X, it is usually a pretest (before the experimental group is given treatment) and after the manipulation of the independent variable X, it is usually a posttest (after the experimental group is given treatment), stated by (Donald : 2010). The two variables are:

1. Independent Variable (X): Small Group Discussion

2. Dependent Variable (Y): Reading Comprehension

That is why in this research the researcher just take one group or class and uses pre-test and post-test to see the result of the treatment. There are three steps of this design, are:

1. Administering a pretest measuring the dependent variable.

2. Applying the treatment X to the experimental group.

3. Administering a posttest measuring the dependent variable.

The One Group Pretest- Posttest Design as follows:

**Table 3.1. The One Group Pretest- Posttest Design**

| Pretest | Independent | Posttest |
|---------|-------------|----------|
| $Y_1$ | X | $Y_2$ |

Where:

$Y_1$ : Pre-test

$Y_2$ : Post-test

X : Treatment on the experimental group

This research intended to investigate the effectiveness of using Small Group Discussion technique in teaching reading comprehension at SMAN 1 Tulungagung. The use of the treatment is aimed at proving whether the increase scores possibly got by the researcher. Thus, the effectiveness of that treatment is known the significant score when the students taught using Small Group Discussion technique.

**B. Population, Sampling and Sample**

    **1. Population**

The population of this research is the whole students of the tenth grade students of SMAN 1 Tulungagung in the academic year 2016-2017 that consist of seven classes. The total population of the tenth grade that consists of 250 students. After determining the population, the researcher takes the sample to be the representative of the population.

    **2. Sampling**

Sampling is a process of selecting a number of the students who will be represent from the large group (Ary, 2010:155). To determining the sample, the researcher used purposive sampling because, it doesn't choose randomly. Purposive sampling is a type of nonprobability sampling where the researcher consciously selects subjects in a study so as to make sure that the elements will have certain characteristics pertinent to the study.

    **3. Sample**

Sample is a group of subject or participant (students) is chosen from the populations to be a representative (Fraenkel and Wallen, 2009:90). It means that a good sample must be representative of the entire as possible, so that the generalization of the sample as true as population. To take a sample the researcher use purposive sampling where the researcher choose X-5 class to be a sample that consist of 35 students, there are 14 male and 21 female at SMAN 1 Tulungagung in academic year 2016/2017 that believed that this class can give sufficient information.

## C. Instrument and Instrumentation of the Research

Instrument of research are the tools to measure something that we observe in order to obtain the data and answer the research problems (Sugiyono: 2011). The instrument used by the researcher is a reading comprehension test about narrative text which it is given before and after taught by using small group discussion technique. The instrumentation will be developed through the following steps (see diagram 3.2.)
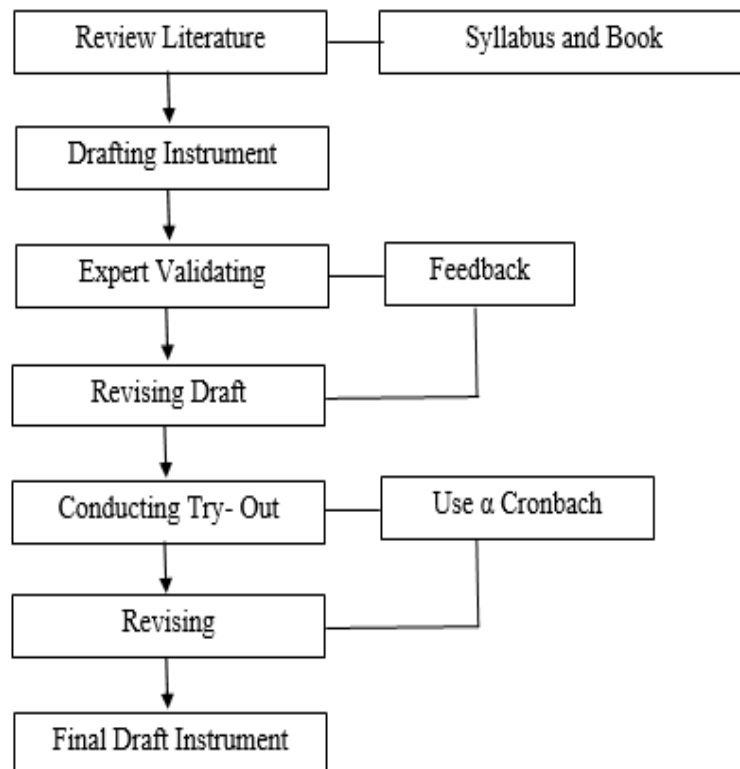


**Diagram 3.1. Instrumentation**

The steps of instrumentation that do by the researcher, are:

1.  Review Literature

    The researcher reviewed some literatures from syllabus and book used in SMAN 1 Tulungagung on second year to get some important information as sources to drafting instrument that related with the materials of reading text. There are three kinds reading types that learned by students, are: Narrative, Descriptive, and News Item.

2.  Drafting Instrument

    After get some information from syllabus and book used in SMAN 1 Tulungagung, the researcher started to draft instrument which is related with Narrative text because the first reading types on second year that should be master by students is narrative text.

3.  Expert Validating

    After finishing the drafting instrument, the instrument was validated it by the expert like English teacher or lecturer where master the reading materials especially narrative text. The purpose of the expert validating is to know how much valid the instrument is either related with its construct validity, face validity, or content validity. So, in this steps the researcher will get feedback and validation guide from the expert.

4.  Revising Draft

    In revising draft of the instrument, the researcher uses feedback collected from the expert validation. The feedback is to correct the grammar and the questions should be in well organized.

5. Conducting Try- Out

After revising the draft of the instrument, the researcher conduct try the instrument out to the tenth grade students (X-1 class) of SMAN 1 Tulungagung who share common characteristics with the subjects of this research. The result of try out which is analyzed by using Alpha Cronbach is used to revise the draft to be the valid instrument because the reliability and validity of the instrument can be objectively computed by using the formula of Alpha Cronbach.

6. Revising

The researcher revise the instrument again based on the feedback from conducting try out to get the final draft instrument. So, the researcher will revising the instrument to make the questions ideal or not easy or too easy, difficult or too difficult.

7. Final Draft Instrument

The last step is final instrument means that the instrument has good or best quality where the instrument is appropriate. After it, the researcher conduct the instrument to pre-test and post-test.

In this research, the researcher applied pre-test and post-test. Pre-test was given before teaching by using small group discussion, in this pre-test students were given task during 45 minutes on January 10, 2017 and for the 45 minutes again for giving treatment to the students. The next treatment given the second meeting during 45 minutes on January 13 until 20, 2017. Post-test which was given after teaching by small group discussion, in this post-test the students

given task by using small group discussion technique during 45 minutes after the last meeting for giving treatment on January 24, 2017.

To get the data, which is X-5 class that becomes an experimental group the researcher as a teacher teaches the students during five meetings. First meeting, in the teaching learning process the teacher give pre-test in reading comprehension. Second until four meeting, the teacher teaches reading comprehension by using small group discussion technique. In the end, the teacher gives post-test in reading comprehension to the students.

## D. Validity and Reliability Testing

### 1. Validity

The validity of test as extent to which it measures what is supposed measure and nothing else (Heaton, 1989:159). To measure whether the test has a good validity, the researcher analyzed the test from content validity, face validity and construct validity.

a. Content Validity

A test is said to have content validity is its contents constitutes a representative sample of language skills, structures, its being tested. In order to judge whether or not the test has content validity, we need a specification of the skills or structure being tested. A comparison of test specification and test content is basis for judgment for content validity. The researcher made this test based on the course objective in the syllabus of second years of SMAN 1 Tulungagung. Therefore, this is valid in term of content validity.

b. Face Validity

Face validity if it looks as it measures what it is supposed measure. For example, a test which pretended to measure pronunciation ability but, which did not require the test-takers to speak might be through to lack face validity. This is true even if the test is constructing and criterion-related validity can be demonstrated. Face validity is hardly a scientific concept, yet it is very important. A test which does not have face validity may not be acceptable by test-takers, teachers, education authorities, and employers. The researcher used face validity by consulting with the advisor and teacher.

c. Construct Validity

The construct validity of test which is capable of measuring certain specific characteristic in accordance with a theory of language behavior and learning. Based on the theory above, in the test the researcher asked the students to answer the multiple choices based on narrative text to measure the student's comprehension in reading and this is fulfill the construct of reading test therefore, valid in term of construct validity.

The validity and reliability of the test can be measured by SPSS Alpha Cronbach. If the result shows alpha > 0,05 means that the reliability is sufficient, while if the alpha < 0,05 means that the reliability is not sufficient or not reliable. Besides, the researcher tried to check the empirical validity by using SPSS 16.0 after trying out the instrument (pre-

test and post-test). In this research, the researcher used SPSS 16.0 for windows to know the validity of test instruments. It can use corrected item-total correlation formulation.

The criteria of validity of the instrument can be divided into 5 classes as follows (Ridwan, 2004:110):

1. If the *item-total correlation* score 0.00 – 0.20: less valid

2. If the *item-total correlation* score 0.21 – 0.40: rather valid

3. If the *item-total correlation* score 0.41 – 0.60: enough valid

4. If the *item-total correlation* score 0.61 - 0.80: valid

5. If the *item-total correlation* score 0.81 – 1.00: very valid

In this test the researcher, give the multiple-choice test to measure students' ability in reading comprehension. The researcher made this test based on the course objectives in the syllabus of first grade of SMAN 1 Tulungagung. Therefore, this test is valid in term of content validity. The content validity in this research can be showed as below:

**Table 3.2 Result of Content Validity**

| No | Competence | Test Item | Percentage |
|----|------------|-----------|------------|
| 1 | Students are able to do multiple choice test of narrative text | 20 | 5% |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| soal_1 | 13.50 | 9.833 | .069 | .637 |
| soal_2 | 13.10 | 10.322 | -.066 | .648 |
| soal_3 | 13.20 | 9.733 | .118 | .629 |
| soal_4 | 13.40 | 8.267 | .587 | .559 |
| soal_5 | 13.00 | 10.000 | .111 | .626 |
| soal_6 | 13.30 | 8.456 | .533 | .569 |
| soal_7 | 13.20 | 8.844 | .433 | .586 |
| soal_8 | 13.00 | 10.667 | -.215 | .653 |
| soal_9 | 13.20 | 10.178 | -.029 | .648 |
| soal_10 | 13.10 | 10.322 | -.066 | .648 |
| soal_11 | 13.50 | 7.833 | .769 | .530 |
| soal_12 | 13.40 | 8.933 | .353 | .596 |
| soal_13 | 13.20 | 9.067 | .351 | .598 |
| soal_14 | 13.30 | 9.344 | .225 | .615 |
| soal_15 | 13.30 | 8.678 | .453 | .581 |
| soal_16 | 13.20 | 8.844 | .433 | .586 |
| soal_17 | 13.10 | 9.878 | .101 | .629 |
| soal_18 | 13.10 | 10.100 | .017 | .639 |
| soal_19 | 13.00 | 10.667 | -.215 | .653 |
| soal_20 | 13.00 | 10.000 | .111 | .626 |

Based on the result of *Item Total Statistics*, from criteria of validity it shows item of questions number 1, 2, 3, 5, 8, 9, 10, 14, 17, 18, 19, and 20 was valid. While, questions number 4, 6, 7, 11, 12, 13, 15, and 16 was enough valid. It can be concluded that all item of questions was valid.

## 2. Reliability

The reliability of the test is its consistency (Horizon, 1983:10). The researcher used reliability testing to measure of accuracy, consistency, dependability or fairness of scores resulting from administration or

particular examination. Reliability is necessary characteristic of any good test: for it to be valid all, a test must first be reliable as a measuring instrument (Heaton, 1989:162). Reliability is concerned with the effect of such random errors of measurement on the consistency of scores (Ary, 2002:250).

Actually, the ideal test should be both reliable and valid. In this research, the researcher also used SPSS 16.0 for window to know the reliability of test instruments. The criteria of reliability instrument can be divided into 5 classes as follows (Ridwan, 2004:118), those are:

1. If the *alpha cronbach* score 0.00 – 0.20: less reliable

2. If the *alpha cronbach* score 0.21 – 0.40: rather reliable

3. If the *alpha cronbach* score 0.41 – 0.60: enough reliable

4. If the *alpha cronbach* score 0.61 - 0.80: reliable

5. If the *alpha cronbach* score 0.81 – 1.00: very reliable

The result of reliability testing by using SPSS 16.0 can be seen from the table:

**Table 3.3 Result of reliability**

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .628 | 20 |

To know the items is reliable or not it can be seen from Alpha Cronbach's column. The Alpha Cronbach's score = 0,628 means that it is reliable.

## E. Normality and Homogeneity Testing

### 1. Normality Testing

Normality testing is conducted by the researcher to determine whether the gotten data is normal distribution or not. The computation of normality testing in this research using SPSS.16. *One- Sample Kolmogorov-Smirnove test* by the value of significance ($\alpha$) = 0.05 rules as follow:

a. $H_0$ : If the value of significance > 0.05, means data is normal distribution

b. $H_1$ : If the value of significance < 0.05, means the distribution data is not normal distribution

### 2. Homogeneity Testing

Homogeneity testing is conducted by the researcher to know whether the gotten data has a homogeneous variance or not. The computation of homogeneity testing using SPSS Statistics 16 is *Test of Homogeneity of Variances* by the value of significance ($\alpha$) = 0.05. Before doing homogeneity testing, the researcher decides hypothesis in this homogeneity as follow:

a. $H_0$ : If the value of significance > 0.05, means data is homogeny

b. $H_1$ : If the value of significance < 0.05, means data is not homogeny

## F. Technique of Data Collection

Data collection is all of process to collecting data in the research (Fraenkel and Wallen, 2009:293), by observing a situation, setting or interaction using the constructed instrument (Muijs, 2004:22). To collect the data, the researcher were collected by administering pre-test, treatment, and post-test. To know more the details of the test accomplished, as follows:

1. Pre-Test

    A pre-test provides a measure on some attribute or characteristic that you assess for participant in an experimental before they receive treatment (Creswell: 2003). This test can be called as the pre-test before the treatment of this research. The pretest is aimed is to know the students' reading comprehension before the treatment carried out. In the testing process, the students have to answer the pre-test. There were 20 items of multiple choices questions. The score per item was 5.0 for correct answer. Students would get 100 point if they could answer correctly to all of the question. This result of the test became the evaluation before using Small Group Discussion as technique in teaching reading comprehension is applied in the class.

2. Treatment

    After conducting pretest, the researcher gave the treatment as much as three times to the students by using Small Group Discussion technique in teaching reading comprehension. In teaching reading comprehension by using SGD technique are providing a topic, forming

groups, providing text and students do prediction about the text, encouraging students to discuss in group, reporting group discussion result to the other group, explaining the materials that was learnt, and answering questions which was prepared.

3. Post-Test

Post-test is done after the students get treatments is taught by using Small Group Discussion Technique in teaching reading comprehension. As like pre-test, post-test also contained of 20 items of multiple choices questions. The score per item was 5.0 for correct answer. From the score of this test, the researcher is intended to find out the effectiveness of using Small Group Discussion as technique in teaching reading comprehension. The result of the scoring then is compared with pre-test. In this case, the researcher knows how far is the effectiveness of using Small Group Discussion as technique in teaching reading comprehension.

## G. Technique of Data Analysis

Data analysis is a time - consuming and difficult process, because typically the researcher faces massive amounts of field notes, interview transcripts, reflections, and information from documents to examine and interpret (Ary, 2010:465). The data obtained from research result is the results of student's test that were analyzed quantitatively. Quantitative analysis was done using statistics which is called statistical analysis or inferential statistics. The quantitative data of this research in analyzed using statistical computation.

This technique was used by researcher to find the significant difference on the students' reading comprehension after being taught by using small group discussion technique. There are two types of T-test are: Independent Sample T-test and Paired Sample T-test. This research used Paired Sample T-test because only used One Group Pretest and Posttest (Ary, 2010:177) with the following formulation manually and by using SPSS Windows 16.0.

Formulation of Paired Sample T-test manually:

$$t = \frac{MD}{\sqrt{\dfrac{\sum D^2 - \dfrac{(\sum D)^2}{N}}{N(N-1)}}}$$

Where:

    t      : the value of $T_{count}$

    MD   : average difference

    $\sum D^2$  : different score squared then summed

    $(\sum D)^2$ : different score summed then squared

    N     : number of samples

The researcher used the formula of T-test above because, it help the researcher to counting the value of $T_{count}$ where it is higher or smaller than $T_{table}$. To know the T-test by using SPSS Windows 16.0 the steps can be seen in appendix 12. The technique of data analysis which is used by the resracher belonged to quantitative data analysis and the data were analyzed statistically by using T-test.