

## CHAPTER III

### RESEARCH METHOD

This chapter discusses about research design, population and sample of the study, research instruments, treatment, validity and reliability testing, normality testing, method of collecting data, data analysis, and hypothesis testing.

#### **A. Research Design**

This design used of this research is an experimental research design using quantitative research with one group pre-test, treatment, and post-test. According to Ary (2010: 22) quantitative research uses measurement as a way of collecting data in the form of numbers which are used to answer questions and test hypothesis that have been determined. According to Sukmadinata (2013:203); in the study, there are several types of experimental used, such as true experimental, quasi experimental and pre experimental.

In this study, the researcher conducted pre-experimental design (one group pre-test and post-test). This study classified as pre-experimental study. Pre-test and post-test are done so that researchers can find out significant difference in scores before and after being given treatment. From the statement, this in no control variable. So, this study the researcher uses one class and this researcher uses pre-test and post-test.

The characteristic of pre-experimental design is a case study where one group is treated and after that it is measured to see if there is an effect. There is no

control group for comparison. This example would be the teacher using new learning techniques for their class such as the story mapping technique. Their class can be measured at the end of the semester to see if the new learning technique is effective or not. Another type is when one group is given a pretest, is exposed to treatment, and then is given a posttest to see if treatment has an effect on the group

**Table 3.1 One-Group Pre-test and Post-test Design adapted from Ary (2010: 304)**

<b>Pre-test</b>	<b>Independent</b>	<b>Post-test</b>
Y1	X	Y2

Explanation:

Y1: Pre-test

X: Treatment

Y2: Post-test

Based on the table above, pre – experimental research design consists of pre-test (Y1), treatment (X), and post-test (Y2). The steps are: making pre-test before treatment, it purpose to measure the student’s reading skill in the narrative text before using story mapping technique. After conducting pre-test , the researcher make the treatment teaching reading narrative text using story mapping technique. After treatment finish, the researcher making post-test to measure the different between score pre test before and after treatment.

## **B. Data and Data Sources**

The data is taken from 8<sup>th</sup> grades. Data is a result of study which contains number and fact that got in during the study (Arikunto, 2010:91). The role of data is very important in helping answer a problem. In this research, the data used to get the score of reading students in the test reading about narrative text. In this study, the data got by using pre-test and post-test.

The data source is a study object which has been got from 3 sources; people, paper and place ( Arikunto, 2010: 85).

1. People : the people in the study were students in class eight grade especially students in class 8A
2. Paper : the papers in the study were the test about narrative text (pre-test and post-test)
3. Place: the place in the study was SMPN 1 SUMBERGEMPOL.

In the research, there are 2 types of data source, such as: primary data source and secondary data source. Primary data source is data taken directly in the research. Secondary data source is not taken directly in the research.

In the study, the researcher used primary data source. The researcher uses primary data source because data is obtained directly during the research process.

## **C. Population, Sample and Sampling**

### **1. Population**

A population is a more individual group to make statement in the study ( Lodico, Spaulding and Voegtle (2005: 140). According to Sugiyono (2011:80), population is not just anybody but all subjects or objects to be researched in the

study. According to Ary (2010: 408), population is all class members, events or equipments to use to administering study. The population in this study was of the students at the eighth grade of SMPN 1 SUMBERGEMPOL. They are 20 students.

**Table 3.2 Population of Eight Grade of SMPN 1 SUMBERGEMPOL**

<b>CLASS</b>	<b>N</b>
8 A	35 students
8 B	36 students
8 C	34 students
8 D	35 students
8 E	34 students
8 F	33 students
8 G	36 students
8 H	35 students
8 I	36 students
8 J	36 students
8 K	40 students
<b>TOTAL</b>	<b>390 students</b>

## **2. Sample**

In the study, sample is very important to easily research in searching data. According to Sudjana & Ibrahim (2007:85), sample is a part similar to the population in the study. According to (Lodico, Spaulding and Voegtle 2005:

143), a sample is a smaller group representing the population group (in this case, a realistic population). According to explanation above, this study using 1 class that is a class 8A as the sample of this study. It consists of 20 students of 12 female and 8 male students.

### **3. Sampling**

Sampling is a technique used in research to get samples. In a study, there are 2 kinds of sampling: probability sampling and non-probability sampling. Probability sampling is the technique in taking sample that does use the base of opportunity. Whereas non-probability sampling is the technique in taking sample that it does take as needed in the study (Sudjana & Ibrahim, 2007:85). In the study, the researcher used a non-probability sampling.

According to Arifin (2012:216), sampling is a way of research used to get the sample. According to Lodico, Spaulding and Voegtle (2005:143), in sampling, there is an important aspect that the sample must be taken from the population. In the study, the sampling method used is random sampling technique.

From the explanation above, the random sampling technique is a technique that uses lottery. The step in method: the researcher makes a list of 8A students, the researcher prepare the paper which each paper is given number 1 and 2, the paper is rolled up then the students are asked to select and afterwards the student's name in the list 2 group. Of the lottery, in 1 class created 2 groups. So, the researcher used 20 students divided into 2 groups in class 8A of SMPN 1 SUMBERGEMPOL.

#### **D. Research Variable**

In this research variable is key early before conducting a study. According to Choyimah (2014:30), Variable can explain the character of the subject to be study. The variable in the study is divided into 2 types: independent variable (X) and dependent variable (Y) (Ary, 2010: 37). The independent variable in the study is story mapping technique. Story Mapping becomes an independent variable because it influences changes in dependent variables, namely student's reading skill in narrative text. And then, the dependent variable in the study is student's reading skill in narrative text. Student's reading skill in narrative text becomes dependent variable because it is influenced by independent variables, namely story mapping.

#### **E. Research Instrument**

In this study, the instrument used to collect the data. According to Arikunto (2010: 160), the instrument is the tool which researchers use in the process of facilitating the collecting of data in the time of the research. In this study, researcher used test reading as instrument.

According to Ary (2010: 201), the test is a set of stimuli for an individual to get them a numerical score. From the expert explanation above, test is a set of questions used to get student value data in reading skill. The researcher used the objective tests that are divided to pre-test and post test.

##### **1. Pre –test**

The researcher gave pre-test to the experimental student to measure the reading skill before treatment. Tests are given to know the previous knowledge

they knew before the researchers did the treatment. Test scores in the analysis to ensure the pre-test score and post-test score in the research conducted. The researcher gave the multiple choice test. The researcher developed this pre-test by making 10 multiple choice questions which each 5 questions contained different narrative texts. Students are asked to do the test in accordance with the narrative text learning techniques that they have been learned before.

## **2. Post – test**

The researcher gives a post-test to the experimental student to measure the reading skill after the treatment. Test is given to know the student's reading skill before and after treatment. The researcher developed this pre-test by making 10 multiple choice questions which each 5 questions contained different narrative texts. Students are asked to do the test using a treatment that has been taught using the Story Mapping Technique.

Pre-test was conducted before the treatment and Post-test was conducted after the treatment. The researcher gives a post-test to the experimental student to measure the reading skill after the treatment. Test is given to know the student's reading skill before and after treatment. The test was conducted on the same day, on May 18<sup>th</sup> 2018 which was followed by 20 students.

Here, the researcher used the test method of multiple choices. Researchers use this method because multiple choice method is a popular method of testing reading skill narrative text and easy in the assessment process.

## **F. Validity and Reliability Testing**

According to Ary (2010: 258), there are 2 important characteristics in the research instrument. They are: Validity and Reliability.

### **1. Validity**

According to Gronlund in Brown (2004:22) as quoted by Isnawati (2014:27), a test that has an important criterion of language testing is validity. By doing validity we can understand correctly the purpose of the assessment in the study. According to Sukardi (2007:121), in a simple sense validity is a test that contains material that must be measured in research. This is done to know the validity of the instrument. Researchers in this study using content validity, face validity and construct validity. This explanation about content, face and construct validity:

#### **a. Content Validity**

According to Lodico et al. (2006:93), content validity has 2 items of validity: sampling validity and item validity in the research. Sampling validity and item validity has the ability to check the items used in the instrument. According to Gay (1992:156), content validity is a test which in its content can measure according to what is researched. Test can be declared to have content validity if it has sample representative of some language structure being tested.

in this case, content validity must be in accordance with "Kurikulum Tingkat Satuan Pendidikan (KTSP)." In accordance with syllabus KTSP, the eighth grade of Junior High School is able to understand the meaning of simple essay in the form of narrative text used in everyday life. Thus, students are



expected to read simple text in the form of narrative text. In the study, the researcher used narrative text by the item content in testing. It fitted with syllabus for the eighth grade students of SMPN 1 SUMBERGEMPOL.

**Table 3.3 Content Validity**

Standard Competence	1.1 Memahami makna dalam esai sederhana yang berbentuk narrative text yang digunakan untuk kehidupan sehari-hari.
Basic Competence	11.1 Membaca nyaring yang bermakna teks fungsional dan esai sederhana yang berbentuk narrative text dengan ucapan, tekanan, dan intonasi yang sesuai dengan kehidupan sehari-hari.
Indicator	<ul style="list-style-type: none"> <li>- Siswa mampu membaca nyaring teks dan mengetahui makna teks esai berupa pilihan ganda yang berbentuk narrative text</li> <li>- Siswa mampu mengidentifikasi berbagai macam makna narrative text</li> <li>- Siswa mampu mengidentifikasi tujuan komunikasi dalam narrative text</li> <li>- Siswa mampu mengidentifikasi langkah retorika dan ciri kebahasaan dalam narrative text</li> </ul>
Technique	Reading test

Instrument of Test	<ul style="list-style-type: none"> <li>- Pre-test</li> <li>- Post-test</li> </ul>
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**Table 3.4 Content Validity of Test**

Competence Indicators	Test items	
	Pre-test	Post-test
1. Siswa mampu membaca nyaring teks dan mengetahui makna teks essai berupa pilihan ganda yang berbentuk narrative text	1,2,4,5,6,8,9,10	1,2,3,4,5,7,9,10
2. Siswa mampu mengidentifikasi berbagai macam makna narrative text	1,2,3,4,5,6,8,9,10,11,12,13,15,17,18,19,20,22,24	1,2,3,4,5,6,7,9,10,11,13,14,15,16,19,20,21,23
3. Siswa mampu mengidentifikasi tujuan komunikasti dalam narrative text	14,21	17,24

4. Siswa mampu mengidentifikasi langkah retorika dan ciri kebahasaan dalam narrative text	7, 13,23	8,12,24
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From the table above, the instrument of the test is valid which in accordance with in syllabus that is standard competence, basic competence, and indicator.

#### **b. Face Validity**

The test can be called having face validity if the test is visible to measure as measured in the study. If in this study using multiple choice tests, the researcher should consult with English lecturer of IAIN TULUNGAGUNG.

#### **c. Construct Validity**

According to Brown (2004: 25), Construct is a theory or model that explains a phenomenon with our own perceptions. A test can be said to have construct validity if the test can prove only measure with the ability under study (Isnawati, 2014: 29). Based on that opinion, the researcher made a matter of multiple choices to test in narrative text learning. Therefore, this multiple-choice test is valid in this validity.

### **5. Reliability**

Reliability proves that the instrument can be used to get and collect data. Reliability proves that the instrument can be trusted to collect and get data because the instrument has a very good quality in data collection (Arikunto, 2010:

221). According to Lodico et al. (2006:87), Reliability focuses on the consistency of score, but the ability of the instrument to estimate the same judgments in different assessments. In the research, there is several ways reliability to get reliability coefficient. There are test-retest method, alternate forms method, split half method, kuder-richardson reliability and rater reliability.

The computation of this reliability, the researcher used IBM SPSS Statistics 16 which is used to analyze reliability. The criteria of reliability's ranting score can be seen from the table below, while the test and instrument results can be seen in appendix 1 and 2.

According to Vansickle (2015: 4), the classification of reliability test:

**Table 3.5 The Classification of Reliability Test**

<b>Reliability Test Coefficient</b>	<b>Classification</b>
0,00-0,20	Poor
0,20-0,40	Fair
0,40-0,60	Moderate
0,60-0,80	Good
0,80-1,00	Very Good

Based on Table 3.5 above it can be explained that, if the reliability test coefficient is 0.00-0.20 then the classification score is poor, reliability test coefficient is 0.20-0.40 then the classification score is fair, reliability test coefficient is 0.40-0,60 then the classification score is moderate, reliability test

coefficient is 0,60-0,80, the classification score is good, and if the highest reliability test coefficient is 0,80-1,00 then the classification score got is very good.

In this study, researchers used SPSS 16.0 for reliability assessment after pre-test and post-test. In performing the instrument, the researcher got the result of the KR-20 score for the pre-test was 0.528 and the KR-20 score for post-test was 0.568. This were not reliable, therefore the researcher revised the previous items to be reliable. For pre-test, the researcher revised 7 items and for post-test, the researcher revised 5 items.

After revising the test item, it showed the KR-20 score for pre-test was 0.784 and the KR-20 score for post-test was 0.796. According to Vansickle reliability test, the results of pre-test and post-test were included in reliable test.

### **G. Normality Testing**

Normality testing is conducted to determine whether the data results of research conducted normal or not. In this study, the researcher conducted normality testing on the results of pre-test score in reading test. In normality testing, the researcher used One-Sample Kolmogorov-Smirnov formula from SPSS program 16.0 version. The hypotheses for normality testing are:

- a.  $H_0$  : Data is in normal distribution
- b.  $H_a$  : Data is not in normal distribution

To do Normality testing using the rules of Asymp. Sig (2 tailed) or p. Asymp. Sig (2 tailed) or  $p > 0.05$ . So, with this it can be concluded the test

distribution is normal. In this study, this researcher used normality testing only for pre-test students' scores in the experimental group.

**Table 3.6 Normality Testing of Experimental Group**

		<b>Pre-test</b>
N		20
Normal Parameters	Mean	12.85
	Std. Deviation	3.990
Most Extreme Differences	Absolute	.135
	Positive	.134
	Negative	-.135
Kolmogorov-Smirnov Z		.604
Asymp. Sig. (2-tailed)		.859
a. Test distribution is Normal		

Based on the results of the above research calculations using SPSS program 16.0 version, the researcher can conclude the test distribution of Experimental Group was normal.

#### **H. Methods of Collecting Data**

Data is an important object needed in the study. Methods of collecting data in research purposes to get a method of data in accordance with the research studied. In the study, the research used test. In here, the researcher uses objective

test. The objective test is the way the scoring is objective, in the sense, it is clear which answer is right and what is wrong and only one correct answer.

Here, the researcher uses the objective test in the form of multiple choices in collecting data. Test is used to collect the student's skill on reading narrative text.

In the study, the researcher used pre-test and post-test.

**a. Pre-test**

Pre-test conducted before the researchers give treatment. The research gave pre-test to the students in this research to answer of the multiple choices test of reading test on narrative text without using story mapping. This multiple choice test consists of 10 items.

**b. Post-test**

Post-test is a test given after the researchers provide treatment to students. Post-test is given to students to measure students' reading skill of narrative text after they got reading narrative text learning using story mapping in experimental group.

In this research, there are several stages used:

**1) Before Experimental Stage**

Before Experimental Stage, in this stage the researcher looked for the sample in the experimental class by using lottery. After getting the sample, the researcher gave the objective test that is pre-test. Pre-test is given to know the

skills of students in reading narrative texts before they learn to read narrative text using the treatment of story mapping.

## **2) Experimental Stage**

After getting the sample, the researcher gave pre-test to the experimental group after the pre-test is done. The next stage, the researcher provided treatment to the experimental group by using the teaching of Story Mapping. Treatment is done by including "Story Mapping", students and researcher.

There are stages in the implementation of treatment:

### **(a) Experimental Group**

The researcher in the teaching and learning in reading narrative text, experimental group in this study taught to read narrative text using "story mapping". The researcher explains to students about story mapping in reading narrative text. After the teaching, the researcher asked students to try to read narrative text by using "story mapping". For details, see the lesson plan

## **3) After Experimental Stage**

This stage is the last stage in the study. After the experimental group was given treatment, the researcher gave the objective test that is post-test, the post-test with the same discussion as the pre-test. Post-test is given to know the difference between students' reading skill ability in reading narrative text after the researcher gives treatment about "story mapping". In the last stage of this study, the researcher compared the test results of pre-test and post-test, whether the results increased the same or decreased.



**Table 3.7 The Schedule of Conducting The Research**

<b>No</b>	<b>Group</b>	<b>Class</b>	<b>Date</b>	<b>Activity</b>
1	Experimental	VIII A	May 18 <sup>th</sup> 2018	Pre-test
2	Experimental	VIII A	May 18 <sup>th</sup> 2018	Treatment (Story Mapping)
3	Experimental	VIII A	May 18 <sup>th</sup> 2018	Post-test

### **I. Data Analysis**

Data analysis is the process of data processing after obtaining the test results used to find out how the interpretation of data, then the researcher analyzed data from the results of the previous test results (Prasetyo & Jannah, 2005: 184).

The result of the data is the result of comparison between pre-test and post-test to prove whether there is difference before and after given treatment. The result of data is the result of the test that is analyzed with quantitative, that is using statistic. In the quantitative research, there are several formulas for analyzing the correlation of 2 different intervals. In this study, researchers used T-test at SPSS 16.0. T-test is used to distinguish the achievement of students' reading skill when using story mapping and not using story mapping.

According Ary at al (2010: 177) the formulation of t-test:

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

Explanation:

t = t ratio

$\bar{D}$  = average difference

$\sum D^2$  = different scores squared, then summed

$(\sum D)^2$  = difference scores summed then squared

N = number of pairs

Before the researcher finds the t-score, the researcher identifies the mean, with the formula:

$$d = \frac{\sum d}{n}$$

Explanation:

d = average difference

$\sum d$  = different scores

$n$  = number of pairs

According to (Priyatno, 2009:77) the next method in analyzing data is:

1. Formulating the hypotheses. The hypotheses are in the form of Alternative Hypothesis ( $H_a$ ) and Null Hypothesis ( $H_0$ )
2. Determining the value of  $t_{count}$ . It can be seen on the output of SPSS analysis
3. Determining the value of  $t_{count}$ . The value of  $t_{table}$  can be seen from in significance level 0.05 and significance two tailed test is 0.00 with degree of freedom ( $df$ ) is  $n-1$  ( $20-1=19$ )
4. Determining hypothesis testing. Simply, the hypotheses testing are:
  - a. If  $-t_{table} \leq t_{count} \leq t_{table}$  and  $Sig > 0.05$  so  $H_a$  was rejected and  $H_0$  was accepted
  - b. If  $-t_{count} < -t_{table}$  or  $t_{count} > t_{table}$  and  $Sig < 0.05$  so  $H_a$  was accepted and  $H_0$  was rejected