CHAPTER III

RESEARCH METHOD

The research method is very important in every research as a guideline to attain the objective of the study.

This chapter describes research design, place and time of the research, data and data sources, the variable of reseach, instrument of the research and data collecting methods, trying out intrument, population and sample, method of analysing data and hypothesis testing.

A. Research Design

There are several techniques used in conducting the research which quite and enable the writer to get the valid data and solve the problem in this study. Sukmadinata (2012: 5) states that research in general defined as a process of data collection and data analysis that carried out systematically and logically to achieve the certain goal. From the definition above, it means that the research design is the method is the way to conduct a research. Therefore, to get the systematically and logically, the researcher have to follow the procedure of the research design that have been conducted.

This design of this research is an experimental research design using quantitative approach with one group pre-test and post-test. According to Ary (2010: 22), quantitative research uses objective measurement to gather numeric data that are used to answer questions or test predetermined hypotheses. It generally requires a well-controlled setting. Ary (2010: 328), classified the

experimental design into thre categorize designs as preexperimental, randomized experimental (true experimental), or quasi-experimental depending on the degree of control provided.

In this study, the purpose of the study the researcher conducted pre-experimental design (one group pre-test and post-test). This study classified as pre-experimental study, according to Ary (2010: 303) because they provide little or no control of extraneous variables. From the statement above, since there is no control variable so, in this study the researcher use one group or class and uses pre and post test. In this design only took one group as its subject and it involves administering a pretest measuring the dependent variable, applying the experimental treatment *X* to the subjects, and administering a posttest.

The design of this reasearch can be seen at the table below:

Table 3.1 One-Group Pretest–Posttest Design adapted from Ary (2010: 304)

Pre-test	Independent	Post-Test
Y1	X	Y2

Explanation:

Y1 = Pre-test

X = Treatment

Y2 = Post-test

Based on the table above, pre experimental research design (one group pre-test and post-test design) consist of pre-test (Y1), treatment (X), and post-test (Y2). The steps are: administering the pre-test before the treatment, it purpose to measure the student's reading comprehension before the students taught by Story Mapping technique. After conducting the pre-test, the researcher applied the treatment teaching reading comprehension by using Story Mapping technique to the students, and after gave the treatment in the end the researcher administered the post-test to measure the difference score between before and after getting treatment.

Differences attributed to application of the experimental treatment are then evaluated by comparing the pre-test and post-test scores. The both of the score were computed using t-test to find out if there is significant different of teaching reading comprehension by Story Mapping technique. This research intended to investigate the effectivenesss of Story Mapping technique toward students' reading comprehension of the eight grade students at SMPN 2 Sumbergempol in academic year 2015/2016. The treatment that used in this research is aimed to prove whether the increase score is possibly by the researcher. Hence, the effectiveness of the treatment be known from the significant score when the students taught by Story Mapping technique.

B. Data and Data Sources

The data are taken from eight grade. Data is result of research record in number and fact (Arikunto, 2010:91), it means that the data is number of fact is

found by researcher. For this study, the data got from score by administering pre-test and post-test.

Data source is object where the data could be acquired. There are three source of data "person, place and paper" (Arikunto, 2010: 85). The person in this research were students, the place was SMPN 2 Sumbergempol, and the papers were the test's result.

C. Population, Sample and Sampling

1. Population

According to Lodico, Spaulding and Voegtle (2005:140). A population is the wider group of individuals about which the researcher wants to make statements. A population is defined as all members of any well-defined class of people, events, or objects (Ary, 2010: 408). Based on the statement above, it can be conclude that the population is all object of the research. It is the universe/whole object that will conduct by the researcher in this study as the source data.

The population on this research is the all of the students at second grade of SMPN 2 Sumbergempol which consist of eight class (A, B, C, D, E, F, G, H). They are 171 students. Based on Encyclopedia of Educational Evaluation as a quated by Arikunto (2006:130), "A population is a set (or collection) of all elements prossessing one or more attributes of interest.

2. Sample

In scientific research sample is the important thing. Some experts assert that selection of sample is a very important step in conducting a research study. Because sample will influnce in getting the data. According to (Gay, 1992: 12), the "goodness" of the sample determines the generalizability of the result. There are many number in population, so the researcher took sample as the representative of the population. A sample is a smaller group selected from a larger populatation (in this case, a realistic population) that is representative of the larger population (Lodico, Spaulding and Voegtle 2005:143). Arikunto (2010: 174) stated that sample is a part representative of population that is observed.

According to explanation above, in this research the researcher took one class that represent the population, that is eight grade of SMPN 2 Sumbergempol. That is D class. It consists of 20 students, there are 6 male students and 14 female students.

3. Sampling

Sampling is technique to take sample. According to Arifin (2012: 216) sampling is the way that used to take the sample. The most important aspect of sampling is that the sample must represent the larger population from which it is drawn (Lodico, Spaulding and Voegtle 2005:143). In this research, the sampling was selected by random sampling technique. Gay (1992 :126) stated that

> "random sampling is the process of selecting a sample in such a way that all individuals in the defined population have an equal and independent chance of being selected for the sample. In other words, every individual has

> the same probability of being selected and selection of one individual in no way affects selection of another individual".

According to Arikunto (2010: 180), there is any some methods that use in random sampling, that are: lottery, ordinal, and use number random table.

From the explanation above, the researcher conducted random sampling through lottery. The step in lottery method is: (1) the researcher make a list all the object which to be observed, the eight grade has the eight classes. There are: A, B, C, D, E, F, G, H. (2) Then, the researcher prepare eight pieces of paper, each paper contain one class, A, B, C, D, E, F, G, H. (3) then, roll that each pieces of paper, and shake it. (4) and, put one of the roll of paper. From the lottery, the researcher got D class. So, the researcher use VIII D class of SMPN 2 Sumbergempol as a sample.

D. Reseach Variable

In this research variable is one of key terms in any research. Conceptually, variable can be defined as characteristics of subject research (Choyimah, 2014:3). Everything that will become that object of reserach or the influencing factors that will be studied. A variable is a construct or a characteristic that can take on different values or scores (Ary, 2010: 37).

The variable examined in this research are two classification:

1. Independent variable (X)

The independent variable is The manipulated variable. (Ary, 2010: 26). In this research the independent variable is story mapping technique.

2. Dependent variable (Y)

Dependent variable is the observed and measured variable (Ary, 2010: 26). In this research the dependent variable is student's reading comprehension in narrative text.

E. Research Instrument

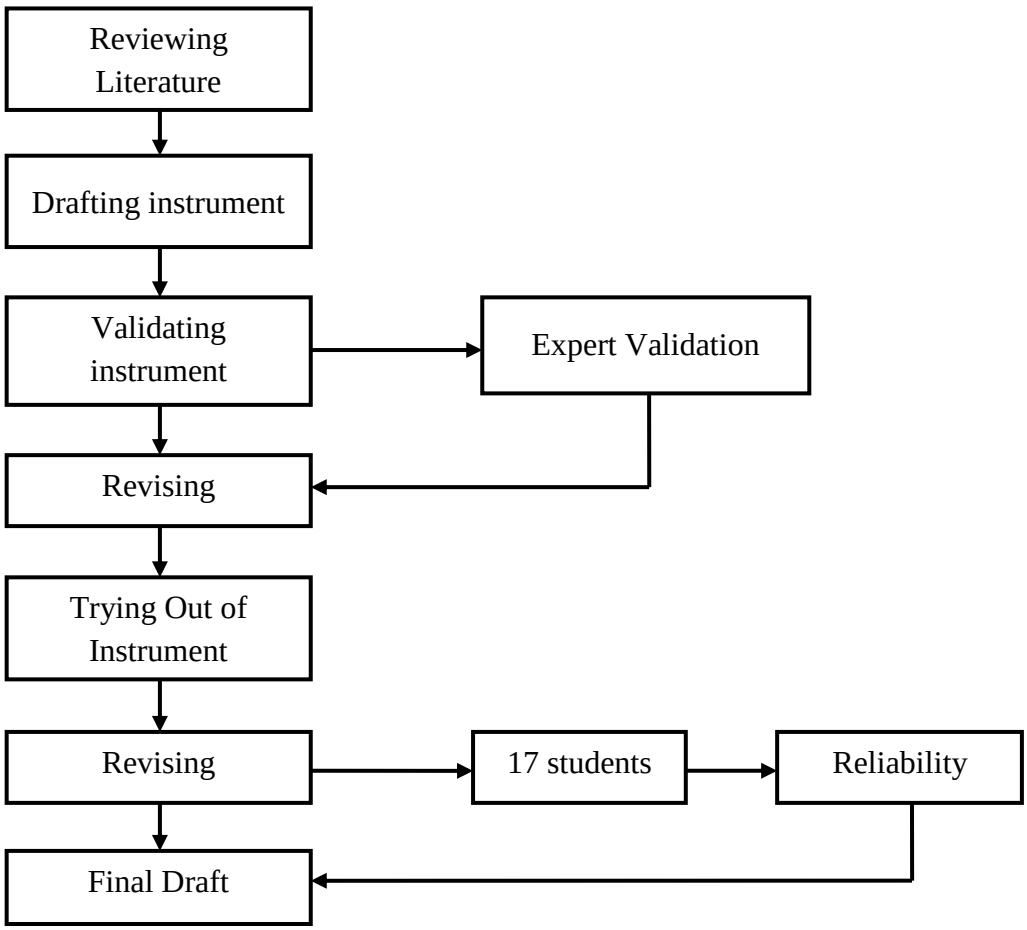
The term "instruments" is used here to refer to many of tool employed by the researcher to obtain the information. Research instrument is a tool or device used by the researcher in collecting data to make her or his work become easier and get a better result, means accurate, complete and systematic in order to make the data easy to be processed (Arikunto, 2010: 160). In collecting the required data in this research, the researcher used test as instrument.

Tests are valuable measuring instruments for educational research. A test is a set of stimuli presented to an individual in order to elicit responses on the basis of which a numerical score can be assigned (Ary 2010: 201). According to Gay (1992: 154), "a test is. . .a means of measuring the knowledge, skill, feeling, intelligence, or aptitute of an individual or group. In this study the researcher use test as instrument". From the expert explanation above, thus test is a set of some question to get the data of the students. The test is to measure the student's achievement in reading comprehension. Here the researcher used multiple choice test. The researcher uses this test because multiple choice item is one of the popular method of testing reading comprehension, and it is easy to administer and can be scored quickly. Based on the IEJEE, The effects of Reading Method on the

Comprehension Performance of Saudi EFL Students by Yousif Alshumaimeri (2014: 189), multiple choice questions are perhaps the most commonly used format in standardized reading comprehension tests. The procedure's advantages lie in the simplicity of its scoring (Koda, 2005).

According to Susanto (2005:62), the quality of data depends on the instrument that used for collecting the research data). So, the researcher has a guidance in order to get a realibility and validity test. The test in this research is especially an English test for reading comprehension in narrative text that would be valid and reliable for second grade students. The researcher do some steps in developing the test. The steps are:

Figure 3.1 Step in making the instrument



The explanation the figure of step in making instrument as follows:

1. Reviewing the literature

   The researcher make the test based on RPP, syllabus and book of Junior High School at the eight grade. In SMPN 2 Sumbergempol use KTSP.

2. Drafting instrument

   After reviewing the literature, the researcher makes the first draft test. (see appendix)

3. Validating instrument

   The researcher do validating instrument. Validating instrument is to make the content of the instrument appropriate with skill that will be tested. So, the researcher do expert validation. Here, the researcher submit the draft test to the expert English lecture, to get the correction and to be valid.

4. Revising

   The researcher revise some uncorrect question, wrong structure or grammatical style from the correction of expert English lecture. (see appendix)

5. Trying out of instrument

   After revising some correction, the researcher trying out the test to the students in VIII C class that consist of 17 students. the VIII C class have almost the same characteristic with VIII D class.

6. Revising

   After trying out the test, the researcher know the reability of the test. If the result is not reliable so the researcher revise the test again. Then the

researcher revise some correction from the expert English lecture or teacher, then try out again. After getting the score in second try out, it will know that the test is more reliable than before.

7. Fina Draft

   From the result of reliability in try out, the researcher get final draft of instrument. In this final draft, it means that the test have the validity and reliability. So, the test is ready to gain the data.

F. Validity and Reliability Testing

According to Ary (2010: 258), research is always dependent upon measurement. There are two important characteristic that every measuring istrument should passess: validity and reability.

1. Validity

Gronlund in Brwon (2004:22) as quoted by Isnawati 2014:27, the most complex criterion of an effective test and the most important principle of language testing is validity. it is the extent to which inferences made from assessment result are approriate, meaningful, and useful in term of the purpose of the assessnment. Validity means to test what should be test.

According to Gay (1992: 155) “the most simplistic definition of validity is that it is the degree to which a test measure what it is supposed to measure. To know the validity of the instrument, the researcher used content validity, face validity and construct validity, as follows:

a. Content validity

Gay (1992: 156) "content validity is the degree to which a test measures an intended content area. The test was said to have content validity if its content constitutes a representative sample of the language skills, structure etc, being tested (Isnawati, 2014: 27). It means that the test have content validity if there any relevancy of the objective of the test and the content of the test item. In other words, the content of the instrument have to match or relevant with skill that will be tested. The rsearcher made this test based on the curriculum and the course objective on the syllabus of eight grade of SMPN 2 Sumbergempol. The content validity in this research can be showed as follow:

Table 3.2 Content Validity of the objective of syllabus

Standar Competence	11. Memahami makna dalam esei pendek sederhana berbentuk *recount*, dan *narrative* untuk berinteraksi dengan lingkungan sekitar
Basic Competence	11.1 Membaca nyaring bermakna teks fungsional dan essai pendek sederhana berbentuk *recount* dan *narrative* dengan ucapan, tekanan dan intonasi yang berterima yang berkaitan dengan lingkungan sekitar
Indikator	• Membaca nyaring dan bermakna teks essai berbentuk *narrative / recount* • Mengidentifikasi berbagai makna teks *narrative / recount* • Mengidentifikasi tujuan komunikatif teks *narrative / recount* • Mengidentifikasi langkah retorika dan ciri kebahasaan teks *narrative / recount*

Technique	Reading Test
Instrument of Test	Pretest Posttest

Table 3.3. Content Validity of Test item

Competence Indicator	Test Items	
	Pretest	Posttest
1. Membaca nyaring dan bermakna teks esai berbentuk narrative		
2. Mengidentifikasi berbagai makna teks narrative	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 16, 17, 18, 19, 21, 22, 23, 24	1, 2, 3, 4, 5 ,7, 8, 9, 10, 11, 12, 13, 14, 15, 18, 19, 20, 21, 22, 23
3. Mengidentifikasi tujuan komunikatif teks narrative	14, 20	16, 25
4. Mengidentifikasi langkah retorika dan ciri kebahasaan teks narrative	12, 13, 25	6, 17, 24

From the table above, it could be conclude that the test is valid in term of content validity.

b. Face validity

A test is said to have face validity if it looks as if it measure what it is supposed to measure (Isnawati, 2014: 29). In this research, te item if the test was

in the form of objective test consist of multiple choice test. The researcher do face validity of the test item by consulting the to English lecture of IAIN Tulungagung.

c. Construct Validity

Ary (2010: 272) stated, "construct validity is the validity of the inferences about psychological constructs involved in the subjects, settings, treatments, and observations used in the experiment". According to Isnawati (2014: 29), a test is said to have construct validity if it can be demonstrated that it measures just the ability which is supposed to measure. Based on the opinion above, the researcher administered a mutiple choice to test reading in narrativ text, the researcher observed the comprehension in reading the narrative text. Thus, this test is valid in term of construct validity.

2. Reliability

Reliability show whether an instrument is can be used as a device to collect the data. According to Arikunto (2010: 221), "reliability shows to the definition that instrument is sufficient to be trusted to collect the data because those instrument is already good". Gay (1998: 161) stated that

> "basically, reliability is the degree to which a test consistently measures whatever it measures. The more reliable a test, is the more confidence we can have that scores obtained from the administration of the test are essentially the same scores that would be obtained if the test were readministered".

Based on same statements above, it means reliability is the conssitency. The research instrument has high reliability if the test which is made by the researcher has result which consistent on measuring what will be measured. There are some ways to get reliability coeficient. There are test – retest method,

alternate forms method, split half method, kuder – richardson realibility and rater reliability.

In this test, the researcher used KR-20 Formula because the test admisintering the test only once. If one correct answer is given one point, while incorrect answer is given zero point. It is appropriate to measure the reliability of the test in the form of mulitiple choice. The researcher used KR-20 Formula by calculating the data using Microsoft Excel.

The test consist of 25 multiple choice, and the researcher try out the pre-test and post-test in once. The data of student's score after finishing of try out can be seen in table 3.4 below.

Table 3.4 The Student's Score in Try Out 1

No	Name	Pre-Test	Post-Test
1	AFH	48	52
2	APS	72	60
3	AI	84	56
4	CE	84	40
5	IBN	72	52
6	IKW	64	60
7	MRF	64	64
8	MKB	64	56
9	MWS	68	52
10	MZA	72	52
11	NAA	56	32
12	NAN	68	56
13	RV	72	64
14	SNA	68	56
15	SSW	80	48

16	STA	76	40
17	WPR	64	64

From the answer of students' response in try-out test the researcher then analyze reliability by using Micrososft Excel to calculated Kuder Richardson Formula or called KR-20. According to Ary (2010: 245) the Kuder–Richardson formula 20 (K–R 20), which is based on the proportion of correct and incorrect responses to each of the items on a test and the variance of the total scores.

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

Table 3.5 The the Classification of Reliability Test

Reliability Test Coefficient	Classification
Less than 0.20	Poor
0.20 to 0.40	Fair
0.40 to 0.60	Moderate
0.60 to 0.80	Good
0.80 to 1.00	Very Dood

From the computation in Microsoft Excel by using KR-20. The researcher got value of coefficient reliability of pre-test was 0.55594 and the value of coefficient reliability of post-test was 0.47198. Based on the of coefficient correlation (see table 3.5), the researcher can be conclude that both instrument in pre-test and post-test was sufficient reliable but they did not have same reliability. The coefficient reliability of post test is lower, so it make the score in post test become lower. From the calculation by KR-20 in the first try out on post-test (see appendix 3), the researcher analized the test item. There is any comparison

between pre-test and post-test. In pre-test, there is any six difficult test item. In post-test there is any nine difficult test item. It can be seen from the total answer by the students. Therefore, the researcher revise the test item on post-test to make it have the similarity difficult test item. The researcher changed and correct the test item on post test. Then, the researcher trying out the post test again.

Table 3.6 The Student's Score in Try Out 2

No	Name	Post-test
1	AFH	48
2	APS	68
3	AI	84
4	CE	80
5	IBN	76
6	IKW	68
7	MRF	64
8	MKB	60
9	MWS	68
10	MZA	80
11	NAA	60
12	NAN	72
13	RV	68
14	SNA	68
15	SSW	52
16	STA	88
17	WPR	56

From the second try out only in post test then the researcer calculate in Microsoft Excel by using KR-20. The researcher got value of coefficient reliability of post-test was 0.51934. Based on the of coefficient correlation (see

table 3.5), the researcher could be conclude that both instrument in pre-test and post-test was sufficient reliable and have the same reliability. Hence, it can be used as appropriate instrument to measure students' reading comprehension in narrative text.

G. Normality Testing

Normality test are used to determine whether a data set is well-modeled by a normal distribution or not. Normality test is intended to show that the sample data come from a normally distributed population. To know the normality, the researcher used One-Sample Kolmogrov-Smirnove test with SPSS 16.0. The hypotheses for testing normality are:

a. H_0 : Data is in normal ditribution
b. Ha: Data is not in normal distribution

The hypotheses for normality testing explain that the data is normal distribution if H_0 is accepted and the data is not in normal distribution if Ha is accepted. The H_0 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 result for normality testing can be seen the table (3.8) as follows:

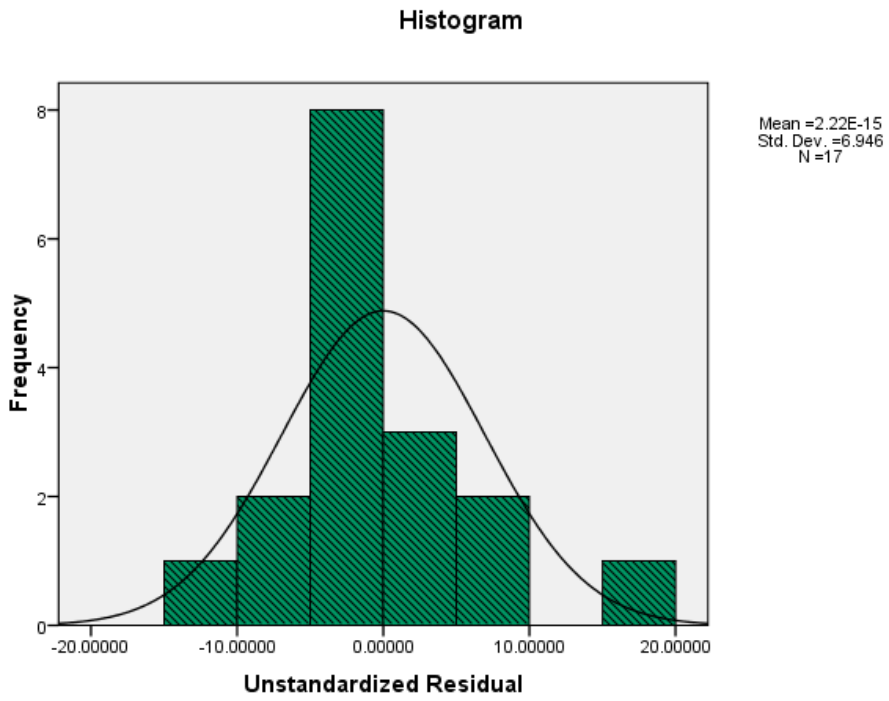
Table 3.7 One-Sample Kolmogorov-Smirnov Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		17
Normal Parameters[a]	Mean	.0000000
	Std. Deviation	6.94568814
Most Extreme Differences	Absolute	.184
	Positive	.184
	Negative	-.116
Kolmogorov-Smirnov Z		.758
Asymp. Sig. (2-tailed)		.614
a. Test distribution is Normal.		

The researcher also gave elaborate histogram in normal curve as follows:

Figure 3.2 Curve in Normal Distribution



Based on the output from SPSS 16.0 is known that the result of normality test, the test is normal, because the significant value is 0.614 more than 0.05. It means that H_0 is accepted, and also can be interpreted that both of data (pre-test and post-test score) that the researcher tried out is in normal distribution.

H. Methods of Collecting Data

Data is the important role in scientific research. The data of collecting method is the method to obtain the data in the research. The purpose of conducting the method of collecting data in scientific research is to get the result of the result. There are some methods in collecting the data. In this study the researcher uses test as the method of collecting data. In here, the researcher used pre-test and post-test.

The researcher administered both pre-test and post –test. The researcher administered pre-test before treatment. And post-test was administerd by the researcher after doing treatment. Then, the researcher compare the result of pre-test and post-test. The method of collecting dat was clarified as follow:

1. Pre-test

Pre-test administered to measure their ability before giving treament by Story Mapping technique, this test given to know the students basic competence in reading comprehension in narrative text and to know they earlier knowledge before they get treatment. The test comprised 25 items, in the form of multiple choice items.

2. Post-test

Posttest is the test that given after doing treatment determine what the students have learned. This test was conducted to get reading comprehension score of students after doing treatment. It is done to know the final score and to know the students difference achievement before and after they get treatment.

I. Research Procedures

Here the procedures of pre-experimental research that use one group pre-test and post-test design:

1. The researcher administered pre-test on March 01th, 2016 to know students' reading comprehension ability before being taught by using Story Mapping technique.

2. After conducting the pre-test, the researcher gave treatment for the students. The treatment conducted four times. The first treatment conducted on March 02th, 2016, the second on March 08th, 2016, the third on March 15th, 2016, and fourth treatment on March 16th, 2016. The treatment is applying Story Mapping technique in teaching reading comprehension in narrative text which the students fiinding the key elements of the story (character, problem/conflict, sequence of event, resolution, and coda). The materials taken from syllabus and LKS of eight grade.

In this research, there are some steps to conduct a treatment in the classroom. Those are:

a. The fisrt, the researher explain about the narative text, the definition, communicative purpose, generic stucture and the example of narative text.

b. Second, the researcher introduce what is the Story Mapping to the students in order to make them interested in the Story Mapping technique.
c. Then, the researcher asked them to read the narrative story but before they read the resercher had prepared story map worksheet. There are many kinds of Sory Map worksheet. The teacher can modify them based on the students' interests.
d. After that, the researcher gave a guiding question to make them easily be able to identify the key elements in the story. They filled the map to visualize the story.
e. And the last, the students filled out the map by answering the guiding question. Hence, they could understand what is the content of the story.

3. After conducting the treatment to the students. the researcher give administered the post-test on March 23th, 2016. It was given to them to know their reading comprehension after the treatment. The researcher wanted to know whether there is any significant difference in the students' reading comprehension after they gave the treatment by using Story Mapping technique.

J. Data Analysis

The data collected (data result) was processed by comparing with the first data (pre test) and the second data (post test) to see wheather there will be significant difference after and before give by treatment. the data obtained from research result is the results of stdents test that were analyzes quantitatively. Quantitative analysis was done using statistic which is called statictical analysis. There are many kinds of the formula of data anlysis technique in quantitative

research,i.e.: correlation product moment which is usually used to analyze the correlation between two intervals, and the other is t-test (experimental research). T-test was used to find the significant difference on the student's reading comprehension before and after eing taught by using Story Mapping technique.

The researcher used t-test according to Ary at al (2010: 177) with following formulation

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

where:

t = t ratio

$\bar{D}$ = average difference

ΣD^2 = different scores squared, then summed

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

N = number of pairs

But, before find t score the researcher must identify the mean first, the formulation is:

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

Where:

$\bar{d}$ = average difference

Σd = different scores

n = number of pairs