CHAPTER III

RESEARCH METHOD

This chapter presents research design, population and sample, research instrument, validity and reliability testing, normality and homogeneity testing, data collecting method, and data analysis.

A. Research Design

First of all, it is better to know what research is before discussing more about the topic. Research design is strategy to arrange the setting of the research in order to get valid data. Creswell (2008: 3) states that "research is a process of steps used to collect and analyze information to increase our understanding of a topic or issues." From definition above, it is clear that research method is the way to conduct a research. Therefore, research method can be defined as a method to look for and discover the scientific truth, which is done in valid and reliable work.

The design of this research is an experimental research design using quantitative approach with One-Group Pretest-Posttest. According to Ary et. al (2006: 301), an experimental design is the general plan for carrying out a study with an active independent variable. Experimental design may also be classified according to how well they provide control of the threats to internal validity they are; pre experimental design, true experimental design and quasi experimental design.

In this study, the researcher used pre experimental design (one group pre-test post-test design). This study classified as pre-experimental research design because it has little or no control of extraneous variable. Since there was no control of extraneous variable so, the researcher used one group pre-test and post-test as the research design. This design involves only one group as its subject and it involves three steps: pretest, treatments, and post test. Pretest was administered before the treatment. It was to know the students' reading comprehension before they have been taught by using RAP. Post-test was administered after the treatment. Meanwhile, during the treatment, the researcher applied RAP as the strategy for teaching reading. The design of this research can be seen at the table below:

Table 3.1 The Design of One Group Pretest-posttest which Adapted from Ary, et al. (2010: 304)

Pre-test	Independent variable	Post-test
Y1	X	Y2

Where:

Y1 = Pre-test

X = Treatment

Y2 = Post-test

Based on the table 3.1, experimental design used pre-experimental research design (*one group pretest posttest design*) that consist of pretest (Y1),

treatment (X) and posttest (Y2). The researcher uses this design because pretest (Y1) is a test which is done to measure the students' ability in the first. At the beginning, the students are given a standardized test that appears to be a good measure the score before given treatment. After conducted pretest, researcher gave treatment (X) to the students. Eventually, at the end of the treatment, the researcher is given posttest (Y2) to measure the difference score between before and after treatment.

B. Population and Sample

1. Population

"Population is a group of individuals who have the same characteristics (Creswell, 2008:151)". Population is the whole subject of research. A population is defined as all members of any well-defined class of people, events or objects (Ary, 2010: 148). Based on some of these opinions can be conclude that the population is whole the object that have certain characteristics and it becomes the source data that is used by researcher in the study.

From the some definitions given by experts above, the writer takes human population only because the problem solved related with human being. The population of this research is all of the students at first grade of SMAN 1 Rejotangan Tulungagung which consist of ten classes (A, B, C, D, E, F, G, H, I, and J). They are 306 students.

2. Sample and Sampling

Getting sample is very important in scientific research because the total number of population is usually too many because of the large number of population. The researcher took samples as the representative of the population. According to Creswell (2012: 142), sample is a subgroup of the target population that the researcher plans to study for the purpose of making generalization about the target population. Moreover in the same case, Ary (2010: 138) said "The small group that is observed is called a sample." In this research, the researcher took one class of first grade of SMAN 1 Rejotangan Tulungagung. That is class X-E. It consists of 31 students, 11 male students and 20 female students.

Technique to take sample is called sampling. Ary et al (2010:167) stated that sampling is the small group that is observed. Sampling is also as a way the researcher select number of individuals as a sample which presents the population. In this study the writer used purposive sampling. This school was chosen purposively because to apply the experimental research, the samples must not be too "good" and too "bad" in their English achievement, especially reading comprehension. It's intended to reduce the extraneous variable may appears since the design is pre-experimental research without control group, while in SMAN 1 Rejotangan the classes divided into two groups; the best class and general class. The best classes can be called smart class where places in class A and B and the general class places in class C until class J. X C until X J are relatively better in English achievement but the difficulty of reading comprehension often appears in X E rather than in other general class. So, the writer decided X E as

recommendation by the teacher who handle English lesson in SMAN 1 Rejotangan and hopes X E is the most representative ones. Based on Gay (1992: 116) states a purposive sample, also commonly called judgmental sample, is one that selected based on the knowledge of a population and the purpose of the study.

C. Research Instrument

Research instrument is a device used by the researcher while collecting data to make her work become easier and get a better result complete and systematic in order to make the data easy to be processed (Arikunto, 2010: 192). In collecting the required data in this study, the researcher uses test.

A test, in simple term, is method of measuring a person's ability, knowledge of performance in a given domain (Brown, 2001: 384). The test used to measure the students' achievement in reading comprehension before and after they taught by using RAP (Read-Ask-Put) strategy. There are two kinds of test. They are pre-test and post-test. Pre-test was given before the students were taught by using RAP strategy and post-test after taught by using RAP strategy. Before administered the pre-test and post-test, the researcher do tryout to the test. The researcher wants to know the item facilities, item discrimination, and distractor efficiency of the test. We can see the result of analysis on appendix 11 for pre-test and appendix 12 for post test.

D. Validity and Reliability Testing

Research is always dependent upon measurement. There are two important characteristic that every measuring instrument should possess: validity and reliability (Ary *et al*, 2002:213). In this study, the test of reading comprehension has constructed to meet the criteria of validity and reliability test.

1. Validity

The most simplistic definition of validity is that is the degree to which a test measures what is supposed to measure (Gay, 1992: 155). To measure whether the test has good validity, the researcher analyzed the test from content validity, face validity and construct validity.

a. Content validity

To measure students' reading comprehension ability so the test used was a reading test. It means that test is said to have content validity if it is represented the content of universe. Ary et al (2010:226) stated that to have a content validity, the instruments are representative of some defined universe or domain of content. It means that the items of the test must really test the domain that was reading skill. In this research, the test, pre test and post test were in the form of multiple choices. The students must answer the test related to narrative text.

In this case, the researcher made three indicators of the test, pre test and post test. They are: (a) determining the topic, main idea, organization, and the purpose of narrative text correctly, (b) Finding specific

information from narrative text correctly, (c) Inferring the meaning of the narrative text correctly.

Table 3.2 Content validity of pre-test

No.	Indicators	Items Number	Total
1.	Determining the topic, main idea, organization, and the purpose of narrative text.	5, 7	2
2.	Finding specific information from narrative text.	1, 2, 3, 4, 6, 9, 10, 11, 12, 13, 14, 15	12
3.	Inferring the meaning of the narrative text.	8	1
Total			15

Table 3.3 Content validity of post-test

No.	Indicators	Items Number	Total
1.	Determining the topic, main idea, organization, and the purpose of narrative text.	1, 9, 10	3
2.	Finding specific information from narrative text.	2, 3, 4, 5, 6, 7, 8, 11, 12, 14, 15	11
3.	Inferring the meaning of the narrative text.	13	1
Total			15

From the explanation above, it could be concluded that the test have a content validity.

b. face validity

A test is said to have validity if it looks as if it measure what is supposed to measure. Face validity is hardly a scientific concept, yet it is very important (Isnawati, 2012: 29). In this study, the item of the tests was

in the form of objective tests consists of multiples choice test. The writer ensured face validity by consulting to English teacher of SMAN 1 Rejotangan Tulungagung.

c. Construct validity

The construct validity of test is test which is capable of measuring certain specific characteristics in accordance with a theory of language behavior and learning (Heaton, 1975: 159). Construct validity is one kind of validity that is measures the ability which is supposed to measure. Based on theory above, in the test, the researcher asked the students to answer the multiple choice based on narrative text to measure the students' comprehension in reading and this fulfill the construct of reading test and therefore valid in term of construct validity.

2. Reliability

Reliability show whether an instrument is reliable and can be used as a device to collect the data with the stability of test scores. A good test must be valid and reliable. Besides the index of validity, the researcher also calculated the reliability. Ary (2002: 250) states that reliability is concerned with the effect of such random errors of measurement on the consistency of scores.

In this study, the researcher used SPSS 16.0 for windows to know the reability of test instruments. The researcher used Alpha Cronbach formulation.

According to Riduwan (2004: 118), the criteria of reliability instrument can be divided into 5 classes as follows:

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

Table 3.4. Reliability Test

Reliability Statistics

Cronbach's Alpha	N of Items
.819	2

The table 3.2 shows that the reliability of Conbrach's Alpha is 0.819. It means that the reliability is very strong because the value is between 0, 81 – 1.00. From the evidence above, it was found that the test is very reliable.

E. Normality and Homogeneity Testing

1. Normality test

Normality test is used to determine whether a data set is well-modeled by a normal distribution or not, or to compute how likely an underlying random variable is to be normally distributed. Normally test is intended to show that the sample data come from a normally distributed population.

To know the normality, the researcher used *kolmogorov-smirnove test* with SPSS. 16. *Kolmogorov-Smirnov D test* is a test of normality

for large samples. If the result are significant, then the null hypothesis of no difference between the observed data distribution.

A normal distribution is rejected. Simply put a value less than 0.05 indicated that the data are non-normal. The result can be seen in the table below:

Table 3.5. Normality Test

	VAR00002	Kolmogorov-Smirnov[a]		
		Statistic	df	Sig.
VAR00001	58	.307	4	.
	64	.183	6	.200*
	70	.209	11	.195
	76	.160	7	.200*

The result of normality test, the test is normal, because significant is more than 0.05 (0.200 > 0.05; 0.195 > 0.05; 0.200 > 0.05).

2. Homogeneity test

Homogeneity test is intended to show that two or more groups of data samples come from populations having the same variance. To know the homogeneity, the researcher used one way anova with SPSS. The result can be seen in the table below:

Table 3.6. Homogeneity Test

ANOVA

VAR00001					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1058.135	4	264.534	6.452	.001
Within Groups	1025.065	25	41.003		
Total	2083.200	29			

Based on the result, F is 6.452 with sig 0.001 the test is homogeny because the significant show 6.452 > 0.001, so Ho is rejected.

F. Data Collecting Method

Data have very important role in a research, because without data, it is impossible to get result of the result of the research. To obtain the data, the research has to use instruments of collecting data. Creswell (2012: 14) said, "An instrument is a tool for measuring, observing, or documenting quantitative data. It contains specific questions and response possibilities that you establish or developing advance of the study." In this study the researcher uses test as data collecting method and also the instruments.

The researcher administered both pre test and post test based on the planning as follow:

a. Pre test

Pre-test was given before giving treatment in experimental research study or before teaching by using RAP strategy. The pre-test have done to get the reading comprehension score of the students before doing treatment. The pre-test was conducted on April 27th, 2015. The test comprised 15 items, in the form of multiples choice items. The researcher use this test because multiple choice items is one of the popular method of testing reading comprehension, and it is easy to administer and can be scored quickly. The pre-test is consist of 3 literal comprehension test and 12 inferential comprehension test. The post-test is consist of 5 literal comprehension test and 10 inferential comprehension test. It indicated that the test can be used to measure the students' proficiency on reading comprehension. Because the test consist more the inferential comprehension test. Inferential comprehension test is more challenging and difficult than literal comprehension test. Test items on literal comprehension were easier for students than those on inferential or evaluative comprehension, they can also be more challenging, more inferential or evaluative comprehension is better (Deni Basaraba, 2013: 350). The text for the test is get from student's English book for first grade of senior high school which published by Erlangga.

b. Treatment

After giving a pre-test, the researcher gives the treatment to the students. The treatment was conducted six times. The first treatment was conducted on May 4th, 2015, the second on May 8th, 2015, the third on May 11th, 2015, the fourth on May 15th, 2015, the fifth on May 18th, 2015 and the sixth treatment was conducted on May 22nd, 2015. The researcher applied the strategy or treatment using RAP strategy. The researcher gave explanation about how to use RAP strategy. Here the steps of treatment.

Table 3.7 Teaching Procedure of RAP strategy

No.	Steps	Teaching Activities	Students Activities
1.	Opening	Greeting	Answer greeting
2.	Main teaching	• Introducing the material about narrative text • Giving explanation about narrative text • Give examples of narrative text	Pay attention
		• Give narrative text to the students • Before read the text the teacher ask the students to look important information from questions under the text first. • Then, the teacher asks the students to read the text paragraph by paragraph. • Ask the students to think what the main idea and supporting detail in each paragraph. • Ask the students to paraphrase the main idea into their own	• Read the question and look for important information • Read the text paragraph by paragraph • Think what the main idea and supporting detail in each paragraph • Paraphrase the

		word. • Ask some students to read aloud their task. • Ask the student to answer the questions under the text.	main idea into own word. • read aloud the task • answer the questions under the text
3.	Closing	• Give the conclusion about the lesson today. • Giving evaluation (homework) as the exercise.	

c. Post Test

Post-test was given after doing an experimental study or after given the treatment. It was conducted to get reading comprehension score of students after doing RAP strategy as the treatment. The post-test was conducted on May 25th, 2015. The post-test comprised also 15 items, in the form of multiple choice items. The questions of post-test are different from pre-test.

G. Data Analysis

In this research, the researcher used statistical data analysis technique to know the difference between the students' scores before and after being taught by using RAP strategy in reading comprehension. There are many kinds of the formula of data analysis 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 is used to test for significance. T test is used to analyze experiment data which use pretest and posttest.

In the hypothesis testing, we as researcher always referred to the null hypothesis. The null hypothesis is a statistical hypothesis, because it states that there is no relationship between the variables in the population. The null hypothesis could be directly tested by statistical procedures. Based on the Ary, et. Al (2002: 109) stated hypothesis testing involved the following steps:

1. State, in operational terms, the relationship that should be observed if the research hypothesis is true.
2. State the null hypothesis.
3. Select a research method that will enable the hypothesized relationship to be observed if it is there.
4. Gather the empirical data and calculate appropriate descriptive statistics for these data.
5. Calculate inferential statistics to determine the probability that you're obtained results could have occurred by chance when the null hypothesis is true.
6. If the probability of the observed findings being due to chance is very small, one would have sufficient evidence to reject the null hypothesis.

In this research, the researcher also use Paired Sample T-Test stated by SPSS 16.0 for windows to compute the statistical data. By using

the paired t-test through SPSS program, the researcher expected that any significant differences in the one group pretest and posttest as merely the effect of the treatment. The analysis of the data would use SPSS program with the following stages:

1. The researcher opened the SPSS program.
2. Then, the researcher computed the mean of data with got into the pretest and posttest data to be analyzed through compare means with chosen paired samples t-test.
3. Thus, those data got again into paired variables columns.
4. Before getting the result, the researcher would choose option to decide confidence interval percentages 95%.
5. After those processing, the researcher clicked "ok" to get the result.
6. After finishing, the researcher looked up in the degrees of freedom. The number of degrees of freedom (df) was he number of observations free to vary around a constant. The formula is

   $df = N - 1$

   Where:

   df : Degrees of freedom

   N : Number of pairs
7. The t value has to greater than the significance levels two-tailed 5%, because this showed if this research could be accepted or rejected the null hypothesis (Ho).

The criteria for accepting or rejecting the null hypothesis as follows; Ho is rejected if significant value <0.05 and Ho is not rejected if significant value >0.05