

CHAPTER III

RESEARCH METHOD

This chapter discusses the research method in this study. It covers discussion about research design, subject of the study, data collection method, research instrument, Validity and Reliability Testing, Normality and Homogeneity Testing, and data analysis.

A. Research Design

Research is a process which involves defining a problem, stating an objective, and formulating a hypothesis. It involves gathering information, classification, analysis, and interpretation to see to what extent the initial objective has been achieved (Nunan, 1992:2). In addition 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 issue. It is clear that research method is the way to conduct the research. Therefore a study is done accurately on investigation a problem, stating an objective about scientific to find out a new information.

The design of this research is experimental research using quantitative approach with nonrandomized control group pretest–posttest design. Experimental research involves a study of the effect of the systematic manipulation of one variable(s) on another variable (Ary, Jacobs, and Sorensen, 2006:26). Experimental designs may also be classified

according to how well they provide control of the threats to internal validity: pre experimental, true experimental, and quasi experimental designs (Ary et. Al, 2006: 302)

The present research used quasi experimental as the research design. The quasi experimental design was used because this method not randomly assigned to treatment groups (Ary et. Al, 2006: 316). This research method provide the students with pre-test, treatment, and post-test to find out the effect of PLAN strategy in teaching reading comprehension. This research was considered as nonrandomized sample which consist of two groups that is experimental and control group. The experimental group was taught by using PLAN strategy in teaching reading comprehension as a treatment. On the other hand, the control group was taught without using PLAN strategy or using demonstration strategy. The research design in this research was presented in the table below (Ary et. Al, 2006: 316):

Table 3.1 Nonrandomized Control Group, Pre-test Post-test Design

Group	Pretest	Independent Variable	Posttest
11 MIA E	Y ₁	X	Y ₂
11 IIS C	Y ₁	-	Y ₂

Where:

E : Experimental Group

C : Control Group

Y1 : Pretest for both of groups

X : Treatment for experimental group

Y2 : Posttest for both of groups

Y1 was pretest and it was given before the teaching or treatment was applied. The purpose of the pretest was to measure the students reading comprehension before they got treatment X. X was considered as the treatment, namely teaching by using PLAN strategy. Y2 was called as posttest. Which the researcher conducted after the treatment in experimental group to know the achievement of the subject in experimental and also given to control group.

In this study, the researcher measure the effect of PLAN strategy in teaching reading comprehension by experimental research. The effectiveness would be seen after knowing the significant difference between the students who were taught before using PLAN strategy and after using PLAN strategy.

B. Research Variable

Variable can be defined as a characteristics of subjects of a research which tend to be different from one individual to another of from time to time (Chojimah, 2016:4). There are two types of research variables, they are independent variable and the dependent variable.

- 1) Independent variables are variables that affect to another variable.

While dependent variable is a result of affected by another variable (Chojimah, 2016:5). Independent variables are antecedent to dependent variables and are known or are hypothesized to influence the dependent variable, which is the outcome (Ary et. Al, 2006:37). In

this research, the independent variable in this study is a PLAN strategy.

- 2) According to Creswell (2012:115) “A dependent variable is an attribute or characteristic that is dependent on or influenced by the independent variable. That is the outcome, effect, criterion, or consequence variables. Students’ achievement, test performance, or academic achievement. In this research, dependent variable is students’ reading comprehension.

C. Population and Sample

1. Population

To make the study more workable, it was important to the writer to know where the research was conducted. The research was conducted at MA Darul Huda WonodadiBlitar. This research was intended for the eleventh grade students of MA Darul Huda in the academic year 2019/2020.

The population is the group of people we want to generalise to (Muijs, 2004:15). In this research, the population was the classes of the eleventh grade students of MA Darul Huda WonodadiBlitar. The eleventh of MA Darul Huda consist of two classes that are XI MIA and XI IIS. Total of population is 37 students.

2. 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, 2006:143). In other hand, sample was the small group of students, families or electors from whom you collect the required information to estimate the average age of the class, average income or the election outcome (Kumar, 2011). So, sample was a group selected from population. In this study, the researcher used purposive sampling to take the sample. The researcher took two classes that are 11 MIA that consist of 19 students as experimental group and 11 IIS that consist 18 students as control group. The researcher choose those classes because eleventh grade of MA Darul Huda had two classes only.

D. Research Instrument

In conducting a research it is possible for the researcher used instrument as a tool to collect the data that needed. In this research, the researcher used a test as an instrument to collect the data. 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 et al, 2010:201). The researcher used objective test for instrument in types multiple choice. Multiple choice used to collect data about the students' reading comprehension. The researcher applied pre-test and post-test. The test was given before and after teaching by using PLAN strategy.

The researcher gave test for reading comprehension test. The test was given to measure the students' achievement of reading comprehension. The reading test conducted by the researcher her self and consulted to the advisor of her thesis. The material of the test is taken from English module

book at MA Darul Huda Wonodadi and other English book related to the material about explanation text of eleventh grade.

There are two kinds of reading test in this research. The data of this research were obtained from the students' score of pretest and post-test. The pre-test was given before the students were taught by using PLAN strategy as a strategy and post-test was given after the students were taught by using PLAN strategy. The researcher gave the test about explanation text and consist of 30 multiple choice test based on the text. Each items has five choices, they were A, B, C, D, and E. the time location was about 70 minutes.

To give the students' score pf reading test, the researcher used the formula to calculate the score of each students' work as follows:

$$\text{Score} = \frac{\text{Number of correct items}}{30} \times 100$$

30

1. Try Out

Before conducting pre-test and post-test, the reading test should be valid, consistent and stable. In order to reading test have all of them, the researcher tried-out the items of reading test to measure the validity and reliability. Thus, the researcher know the test is validity or not, reliable or not, and good as an instrument or not. Try out gave in another class which was not involved during the research process. Try out was conducted in another school, actually at class XI MIA 3 of SMA Islam SunanGuungJatiNgunut on 19th of February, 2019. The

participant consist of 32 students for trying out item questions for pre-test and post-test. The researcher gave the test about explanation text and consist of 50 multiple choice test based on the text. Each items has five choice, they are A, B, C, D and E. The time location was about 60 minutes. The result of try out instrument can be seen in appendix

2. Pre Test

Pre-test used to collect the data about the students' reading comprehension before getting treatment for experimental class and without treatment for control class. The pre-test was given as an objective test in multiple choice form. The number of items in the test were 30 items which have five options of answer (A, B, C, D, and E). The time location was about 70 minutes. Pre-test at class XI IIS as control class was conducted on 11th of March, 2019. There were 18 students as respondents of this research. While pre-test at XI MIA as experimental class was conducted on 14th of March, 2019. There were 19 students as subject of this research.

3. Post test

The post-test was given to the students after the treatment to find out the significant score of the students' reading comprehension after being taught trough PLAN strategy. The result of post-test was compared with the result of pre-test. The researcher gave the reading test about explanation text. The test consist of 30 items in type of multiple choice that consist of five options (A, B, C, D, and E).The

time location was about 60 minutes. The pre-test and post-test had a similarities, but all of them any differences in the text. Post-test at class XI IIS as control group was conducted on 18th March 2019. There were 18 students as subjects of this research. While in experiment class, post-test was conducted on 5th April 2019. There were 19 students as respondents of this research.

E. Validity and Reliability Testing

1. Validity

Validity is the most important consideration in developing and evaluating measuring instrument. Validity refers to the degree to which a test measures what it is supposed to measure and, consequently, permits appropriate interpretation of scores (Gay, Mills, and Airasian, 2000:160). In this research, the researcher used three kinds of validity, those are:

a. Construct Validity

According to Muijs (2004:68) construct validity is a slightly more complex issue relating to the internal structure of an instrument and the concept it is measuring. In addition, Brown (2004:24) states that construct validity is any theory, hypothesis, or model that attempts to explain observed phenomena in our universe of perceptions. It means that it was an instrument to measure an ability which is expected to measure. In this study, to know the

students' reading comprehension, the researcher tested students' reading comprehension used PLAN strategy.

Moreover, the researcher also used Pearson Product Moment Correlation by using SPSS 23 version to know the validity of test items. However, the researcher had to find the degree of freedom first in order to know the r_{table} for the measurement. Then, the degree of freedom could be found by using the formula is as stated by Ary et.al (2010:173) below:

$$df = n - 2$$

where:

df = degree of freedom

n = number of students

In this research, the researcher gave the test to 19 students. When it was counted by using the formula above, the degree of freedom is 17. According to critical values of the Pearson Product Moment correlation coefficient in Ary (2010:630), r_{table} of degree of freedom 17 and level of significant 0.05 is 0.4555. The determination of testing is if the result of r_{count} is higher than r_{table} , it means that the test items are valid. Therefore, the test items can be valid if $r_{table} < r_{count}$. Table 3.2 shows the list of r_{count} of the test items below:

Table 3.2 List of r_{count} of the Test Items

Item Number	r_{table}	r_{count}
1	0.4555	0.546
2	0.4555	0.760
3	0.4555	0.465
4	0.4555	0.633
5	0.4555	0.593
6	0.4555	0.465
7	0.4555	0.529
8	0.4555	0.547
9	0.4555	0.612
10	0.4555	0.547
11	0.4555	0.584
12	0.4555	0.546
13	0.4555	0.535
14	0.4555	0.520
15	0.4555	0.535
16	0.4555	0.464
17	0.4555	0.591
18	0.4555	0.612
19	0.4555	0.546
20	0.4555	0.546
21	0.4555	0.547
22	0.4555	0.678
23	0.4555	0.678
24	0.4555	0.636
25	0.4555	0.589
26	0.4555	0.485
27	0.4555	0.546
28	0.4555	0.546
29	0.4555	0.732
30	0.4555	0.546

b. Content Validity

The content validity ensure that an instrument that will be used had fulfill a whole of the content or the test. Muijs (2004:66) who states that content validity refers to whether or not the content of the manifest variables (e.g. items of a test or questions of a questionnaire) is right to measure the latent concept (self-esteem, achievement, attitude) that we are trying to measure. In order to ensure the test whether or not has content validity, the test used based on the standard competency and basic competency of the school based on curriculum grade XI of English subject.

The content validity based on the curriculum that has been applied. The content of the test in this research is used explanation text. In this research, the researcher asked the students to answer the question that consist of 30 multiple choices. The researcher made the test based on the course objectives in the syllabus of eleventh grade on 2nd semester at MA Darul Huda WonodadiBlitar. Thus, this test is valid in term of content validity. The core competence and basic competence in K 13 curriculum and also content validity of pre-test and post-test as follow:

Table 3.3 Core Competence and Basic Competence in K 13 Curriculum

Core Competence	Basic Competence
3. Memahami, menerapkan, dan menganalisis pengetahuan faktual, konseptual, prosedural, dan metakognitif berdasarkan rasa ingin tahunya tentang ilmu pengetahuan, teknologi, seni, budaya, dan humaniora dengan wawasan kemanusiaan, kebangsaan, kenegaraan, dan peradaban terkait penyebab fenomena dan kejadian, serta menerapkan pengetahuan prosedural pada bidang kajian yang spesifik sesuai dengan bakat dan minatnya untuk memecahkan masalah.	3.8 Membedakan fungsi sosial, struktur teks, dan unsur kebahasaan beberapa teks explanation lisan dan tulis dengan memberi dan meminta informasi terkait gejala alam atau sosial yang tercakup dalam mata pelajaran lain di kelas XI, sesuai dengan konteks penggunaannya.
4. Mengolah, menalar, dan menyaji dalam ranah konkret dan ranah abstrak terkait dengan pengembangan dari yang dipelajarinya di sekolah secara mandiri, bertindak secara efektif dan kreatif, serta mampu menggunakan metoda sesuai kaidah keilmuan	4.8 menangkap makna secara kontekstual terkait fungsi sosial, struktur teks, dan unsur kebahasaan teks explanation lisan dan tulis, terkait gejala alam atau sosial yang tercakup dalam mata pelajaran lain di kelas XI

In this study, the material which is used by the researcher is explanation text. It was a suitable material because explanation text

is one of the texts that has to be mastered by the second grade of Senior High School based on the K-13 curriculum. Before contributing the test to the subject of the research, the researcher also consulted the instrument related to the questions with some teachers who expert in teaching English, especially in reading. In this case, the researcher made five indicators in the blueprint of the test as follow:

Table 3.4 Content Validity

No	Indicators	Test Item	
		Pre-test	Post-test
1.	Finding topic, main idea, and purpose of the text	1, 2, 5, 8, 11, 13, 15, 19, 25, 28,	1, 3, 7, 12, 16, 20, 22, 25, 28
2.	Finding specific information of the text	3, 4, 7, 9, 10, 12, 14, 17, 20, 21, 26, 27, 29,	2, 4, 5, 8, 9, 11, 13, 15, 17, 24, 29, 30
3.	Finding the meaning of words or phrases and word reference in the text	6, 18, 22, 23,	10, 14, 18, 19, 23, 26, 27
4.	inferring meaning of the text	16,	6, 21
5.	Finding the grammatical structure	24, 30	29
Total		30	30

c. Face Validity

According to Ary et al (2010:228) who states that face validity refers to the extent to which examinees believe the instrument is measuring what it is supposed to measure. Face validity refers to the degree to which a test looks right, and appears

to measure the knowledge or abilities it claims to measure, based on the subjective judgment of the examinees who take it, the administrative personnel who decide on its use, and other psychometrically unsophisticated observers (Mousavi, 2002 cited in Brown, 2004). The test in this study was design to measure students' reading comprehension. So, the researcher provide the students an instructions in order to the students understand what they had been read to achieve the face validity. The researcher used faced validity by consulting with the advisor in validating the test.

2. Reliability

Reliability is performed to determine the constant of instrument. The instrument can be reliable it shows a fixed result even though it is used to test anytime and anywhere. L.R. Gay (2000) estimate that internal consistency reliability by determining how all items on a test relate to all other test items and to the total test. In addition, to Ary et al (2010:236) states that the reliability of a measuring instrument is the degree of consistency with which it measures whatever it is measuring. Reliability refers to whether an instrument that used to get a data can be trusted as a device to collect the data. Reliability means that scores from an instrument are stable and consistent. Scores should be nearly the same when researchers administer the instrument multiple times at different times. Also, scores need to be consistent. When an individual answers certain questions one way, the individual should consistently

answer closely related questions in the same way (Creswell, 2012:159).

According to Cohen et, Al.(2007:506), the criteria of reliability instrument can be divided into 5 classes, those are very highly reliable, highly reliable, reliable, marginally/minimally reliable, unacceptably low reliability. The criteria of reliability can be shown as follow:

Table 3.5 Criteria of Reliability

Cronbach's Alpha	Interpretation
>0.90	very highly reliable
0.80–0.90	highly reliable
0.70–0.79	reliable
0.60–0.69	marginally/minimally reliable
<0.60	unacceptably low reliability

In this case, before the researcher conduct research in the class, the researcher made a test consist of 50 questions of multiple choice, then the researcher tried out the test to 32 students to know how far the reliability and validity of the instrument. After that, because the result of the first try out less than what the researcher want, so the researcher conduct the second try out. And the result of the try out show there are 30 questions was reliable. The researcher analyzed the reliability by using Cronbach's Alpha. The researcher used SPSS 23 version for windows to account the data collected. Then, the researcher eliminated the questions, and need only 30 questions to pre-test. In the result, the

researcher knows whether this test is reliability or not. The reliability is based on as follows:

1. If Sig > 0.05 so, the test items are reliable.
2. If Sig < 0.05 so, the test items are not variable.

The result of computing can be seen below:

Table 3.6 Try out Reliability Coefficient

Cronbach's Alpha	N of Items
.729	51

The table 3.5 showed that the Cronbach's Alpha reliability. Try out reliability is 0.729. It means that the try out instrument is reliable, because the score is between 0.70–0.79. Based on the criteria of reliability if instrument cronbach's alpha score is between 0.70–0.79, it called reliable. So, it can be used as research instrument.

F. Normality and Homogeneity Testing

1. Normality Test

Normality testing is done to prove the normality of data. A data can be normal if it has a normal distribution. The purpose of normality test is to know the data distributed normally or not. Normality distribution test is a test to measure whether our data has a normal distribution, so it can use a parametric statistic. Normality testing in this research is done to pretest score in both experimental and control

group. The researcher used Kolmogorov-Smirnov test by using SPSS 23 version to know the normality. The determination of testing is if the normality or Asymp. Sig. (2-tailed) higher than level of significant or 0.05, it means that the distribution is normal. The result of normality computed by SPSS 23 can be seen in the table below:

Table 3.7 Normality One Sample Kolmogrov Smirnov

		Tests of Normality					
		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Class		Statistic	df	Sig.	Statistic	df	Sig.
Students' score	Pre-Test Experimental	.089	18	.200*	.978	18	.931
	Pre-Test Control	.142	18	.200*	.951	18	.448

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on the table 3.6, it shows that the test given to experimental class that consist of 18 students, it also shows that the value of Asymp.Sig (2-tailed) was 0.931 and then the significant value in control class that consist of 18 students, it was 0.448. It means that the score of significant value more than of significant level (0.05). So, based on the data above, it can be conclude that the result of normality test has normal distribution.

2. Homogeneity Test

Homogeneity testing is intended to prove that sample taken from the population have the same variance and show no significant difference. Homogeneity test is done to know the variance in

population of research homogeneity or not. To know the homogeneity of the test, the researcher used One Way Anova by using SPSS 23 version. If the significance value is bigger than level of significant or 0.05, it means that the data of pre-test have homogeneity of variance. The result of homogeneity testing in the table below:

Table 3.8 Homogeneity Testing of Pre-test (Experimental and Control Class)

Test of Homogeneity of Variances

Students' score of Pre-test

Levene Statistic	df1	df2	Sig.
.112	1	34	.740

ANOVA

Students' score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1056.250	1	1056.250	6.299	.017
Within Groups	5701.389	34	167.688		
Total	6757.639	35			

Based on the table 3.7 above, the result of homogeneity testing of pre-test (Experimental and Control Class) is higher than level of significant ($0.740 > 0.05$). It can be interpreted that the data is homogeneity.

G. Data Collecting Method

Data collecting method is the method to obtain the data in the research. The purpose of the data collecting in conducting scientific research is to get the data which needed in this research. In this research,

the researcher used test as a method of collecting data. The researcher used an achievement test. The data of this research was collected by administering test. It used to find out students' achievement before and after taught by using PLAN strategy in measuring reading comprehension. The test here which consists of pre-test and post-test. The function of pre-test is to know the students' reading comprehension before getting the different treatment. While pot-test is used to know the students' reading comprehension after being taught the different treatment. The table below explained the pre-test and post-test was done:

Table 3.9 The Schedule of Conducting the Research

No	Group	Class	Date	Activity
1.	Control	XI IIS	11 March 2019	Pre-test
2.	Experimental	XI MIA	14 March 2019	Pre-test
3.	Control	XI IIS	18 March 2019	Conventional teaching and Post-test
4.	Experimental	XI MIA	21 March 2019	Treatment 1 and Treatment 2
5.	Experimental	XI MIA	05 April 2019	Post-test

H. Data Analysis

Data analysis is the technique of data analyzed by the researcher. The purpose of the data analysis is to know the effect and the significant different between before and after the students taught by using PLAN strategy. The collected data was processed by comparing with the pre-test and post-test to know whether there is any significant difference or not

after giving the treatment. The quantitative data of this research in analyzing used statistical computation.

In this research, the researcher used independent sample t-test at SPSS 23 for windows because it was parametric test. The t-test is used to determine whether two groups of scores are significantly different at a selected probability level (Gay, Mills, and Airasian, 2012:351). The purpose of the test is to determine whether there is statistical evidence that the mean difference between paired observations on a particular outcome is significantly different. The researcher used paired t-test to know the significant difference effect before and after taught by using PLAN strategy on students' reading comprehension.