

CHAPTER III

RESEARCH METHOD

This chapter describes the research method; it covers research design, population, sampling and sample, variable, data and data sources, research instrument, validity and reliability testing, normality testing, homogeneity testing, data collecting method, and analyzing data.

A. Research Design

“Research is a process of steps used to collect and analyze information to increase our understanding of a topic or issue” Creswell (2012:3). In this study, the researcher use experimental research. Experimental research is one of research based on the way the research is done. Arikunto (2013:2) explain there are three ways the research is done, that are description research, operation research, and experiment. Experiment is the way to know the cause effect relationship which is increased intentionally by the researcher and know the effect because of a treatment. According to Sugiyono (2007:107) experimental research is defined as a method of research which is used to looking for certain influence toward the other on the controlled condition. While Ary *et. al.*, (2010:26) states that experimental research involves a study of the effect of the systematic manipulation of one variable(s) on another variable.

Experimental research design may also be classified according to how well they provide control of the threats to internal validity: pre-experimental, true

experimental and quasi experimental Ary *et al* (2002:302). In this study, the researcher conducting pre-experimental design in the form of one group pre test – post test design with quantitative approach. This study is classified as pre-experimental design because it has not a control variable.

In this study the researcher used an Experimental Research Design especially used **Pre-experimental Design**. The researcher uses this design because in this design there is no control group and it is the simplest form of research design; it is suitable for the researcher who has very limited time to do the research. The design of this research used "**One Group Pretest- Posttest Design**." There are three steps of this design, are:

1. Administering a pretest measuring the dependent variable (students' vocabulary) of X-MIA 3 at MAN 2 Tulungagung.
2. Applying the treatment the use of short story to the students of X-MIA 3 at MAN 2 Tulungagung.
3. Administering a posttest measuring the dependent variable (students' vocabulary) of X-MIA 3 at MAN 2 Tulungagung.

The One Group Pretest- Posttest Design as follows:

Pretest	Independent	Posttest
Y ₁	X	Y ₂

Table 3.1 Pre-experimental design with one pre-test and post-test

Notes:

Y_1 : Pretest

Y_2 : Posttest

X : Treatment on the experimental group

In the application of experimental treatment is evaluated by comparing the pretest and posttest scores. By comparing scores from the first and second administrations of the test in order to determine what difference the exposure to the teaching media has did. In this research the significant differences between vocabulary achievements before the students are taught by using short story and after the students are taught by using short story.

B. Population, Sampling and Sample

The larger group about which the generalization is made is called a population. Population is the whole subject which has certain quality and characteristics. Ary *et. al.*, (2010:148) states “A population is defined as all members of any well-defined class of people, events, or objects”. According Arikunto (2013:173) states “Population is the whole subject of research”. In this study, the population of the study included all the first grade students at MAN 2 Tulungagung in the academic year 2016-2017. The total populations were of nine classes. Each classes consists 20-40 students.

Sample is the part of population which has certain quality and characteristics. According to Ary *et. al.*, (2010:148) a sample is a portion of a population. While Arifin (2012:215) explain sample is the part of population that will be researched or sample is miniature population. Sample is a part that is assumed to represent a

population. After the researcher identified the population, the next step was selecting the sample.

Arikunto (2013:176) explain that technique to take the sample is called sampling technique. Sampling is the process of selecting a number of individuals for a study in such a way that the individuals represent the large group from which they were selected. There were some techniques that can be chosen to determine the sample. The researcher used non-probability sampling. Ary *et. al.*, (2010:155) explain in non-probability sampling, there is no assurance that every element in the population has a chance of being included. It means that this technique of sampling does not give opportunity for all members in population to be chosen. Sugiyono (2007:124) states “Purposive sampling is technique to determine sample considerately”. From the purposive sampling, the sample of this research was the students of X-MIA 3 which consist of 38 students, 8 boys and 30 girls. The students in this class were still actively learning English as one of the compulsory subject. This class is suggested by the English teacher at MAN Tulungagung 2.

C. Variable

A variable is a characteristic or attribute of an individual or an organization that (a) researchers can measure or observe and (b) varies among individuals or organizations studied. Measurement means that the researcher records information from individuals by asking them to answer questions. And when variables vary, it means that scores will assume different values depending on the type of variable being measured (Creswell, 2012:112).

In this research, there are two variables, they are:

1. Independent Variable

An independent variable is an attribute or characteristic that influences or affects an outcome or dependent variable (Creswell, 2012:116). Independent variable is the cause of other variable. Based on the definition above, the independent variable of this research was the use of short story.

2. Dependent Variable

A dependent variable is an attribute or characteristic that is dependent on or influenced by the independent variable (Creswell, 2012:115). This is the effect of independent variable. This variable was not manipulated by the researcher, but it was affected by the independent variable. The dependent variable of this research was the students' vocabulary achievement.

D. Data and Data Source

1. Data

Data are any type of information collected for use in educational research (Lodico, 2006:66). While Arifin (2012:191) explain data is group of fact about a phenomenon in the form of number or category. The data were very significant in the research because the research cannot get information without the data. The data of quantitative was in the form of number. In this research, the form of the data was number they are the students' score from pre-test and post-test.

2. Data source

Data source in the research is the subject in which the data are gotten (Arikunto, 2013:172). There are three kinds of data source: (a) person, data source in the form of person, (b) place, data source in the form of place, and (c) paper,

data source in the form of symbol. In this research, the data source was students score of X-MIA 3 at MAN 2 Tulungagung.

E. Research Instrument

Instrument had important function in the research. Instrument is a tool to collect a data needed in a research. The instrument of this research was test. According to Tanzeh (2009:65) test as a method of data collection is a series or exercise used to measure the skill, knowledge, attitude, intelligence, ability, or talent of individuals or groups.

Instrument of this research is a **test** which will be developed through the following steps: The diagram below is a process of measuring the content validity and reliability of instrument which if the instrument is valid and reliable it means that the instrument is good instrument.

The steps of instrumentation, are:

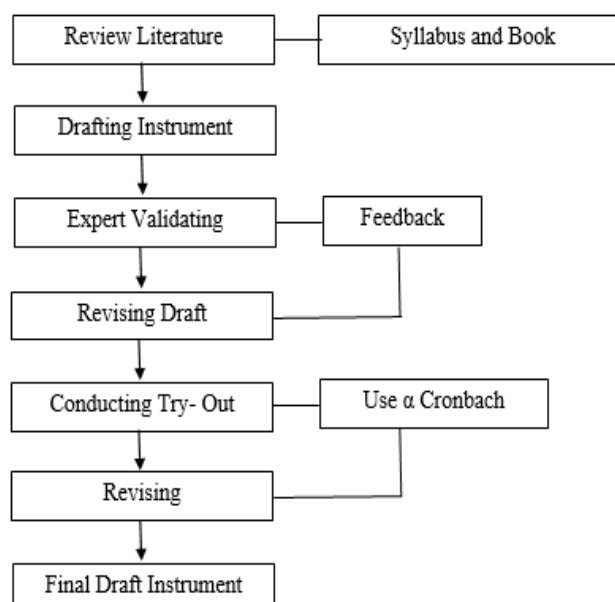


Table 3.2 Instrumentation

1. Review Literature

The first steps to get valid and reliable test is reviewing literature concerning with the vocabulary achievement especially that in SMA/MA. Therefore, the researcher reviewed some literatures from syllabus and book used in MAN 2 Tulungagung to get some important information as sources to drafting instrument that related with the materials of senior high school.

2. Drafting Instrument

After get some information from reviewing literature, the researcher started to draft instrument that appropriate with the materials of senior high school

3. Expert Validating

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

4. Revising Draft

In revising draft of the instrument, the researcher uses feedback collected from the expert validation.

5. Conducting Try- Out

After revising the draft of the instrument, the researcher conducts try the instrument out to the students of X-MIA 3 MAN 2 Tulungagung who share common characteristics with the subjects of this research. The result of try out which is analyzed using Cronbach Alpha is used to revise the draft to be the valid

instrument because the reliability and validity of the instrument can be objectively computed by using the formula of Cronbach Alpha.

6. Revising

In revising, it part to revising the instrument again based on the feedback to get the final draft instrument. So, the researcher will revise the instrument to make the questions ideal or not easy or too easy, difficult or too difficult.

7. Final Draft Instrument

The last step is final instrument means that the instrument has good or best quality where the instrument is appropriate.

To get the data, which is X- 3 MIA class that becomes an experimental group the researcher as a teacher teaches the students during three meetings. First meeting, in the teaching learning process the teacher give pre-test in vocabulary. Second meeting, the teacher teaches vocabulary by using short story. In the end, the teacher gives post-test in vocabulary to the students.

In this study, the researcher applied pre-test and posttest. The test in the form of descriptive text and the kinds of test are 20 gaps filling (missing word) and 10 (find the meaning) matching the words. Pre-test was given before teaching by using short story, in this pre-test students were given task during 45 minutes on January 14, 2017 and for the 45 minutes again for giving treatment to the students. The next treatment was given in the second meeting during 45 minutes on January 21, 2017. Post-test which was given after teaching by small group discussion, in this post-test the students given task by using short story during 45 minutes after the last meeting for giving treatment on January 28, 2017.

F. Validity and Reliability Testing

In this research, to collect the data the researcher use instrument. The instrument of this study is a test. Brown (2000:384) states “A test is a method of measuring persons” ability or knowledge in a given domain”. The data were correct or not was depend on the instrument of collecting method that was test. A good instrument should fulfill two important requirements they were validity and reliability.

1. Validity

Validity of instrument is the test measure what will be measured. Brown (2000:387) states “Validity is the degree to which the test actually measures what it is intended to measure”. An instrument is called valid if the instrument is able to measure what will be measured. According to Isnawati (2015:27) there are four types of validation: content validity, criterion-related validity, face validity, and construct validity.

In this research, the researcher used content validity.

a. Content validity

Content validity is a kind of validity which depends on careful analysis of the language being tested and of the particular test. A test is said to have content validity if its contents constitutes a representative sample of the language skill, structures, etc. Content validity is the correspondence between curriculum objectives and the objectives being assessed (O’Malley and Pierce, 1996:25). The type of the instrument was test. The content validity of the test can be done by

comparing the content of test and the material that will be learned. The researcher made a test based on standard competence and basic competence in syllabus, the researcher made test specification before making a test, especially vocabulary testing. After knowing the standard competence, the researcher made indicator of the test based on the standard competence in syllabus. The content validity in this research (vocabulary test specification on pre-test and post-test) can be seen in the appendix 2.

b. Face Validity

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

c. Construct Validity

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

comprehension in reading and this is fulfill the construct of reading test therefore, valid in term of construct validity.

The validity and reliability of the test can be measured by SPSS Alpha Cronbach. The process of using SPSS, are: Click analyze > scale > reliability analysis, then enter all of variable x to items (Alpha model) and click OK. If the result shows alpha > 0,05 it mean that the reliability is sufficient, while if the alpha > 0,0 it mean that all of items are consistent and reliable. In this case, the researcher gave the students vocabulary test by using short story.

Besides, the researcher tried to check the empirical validity by using SPSS 16.0 after trying out the instrument (pre-test and post-test). In this research, the researcher used SPSS 16.0 for windows to know the validity of test instruments. It can use corrected item-total correlation formulation. the criteria of validity of the instrumen can be divided into 5 classess as follows (Ridwan: 2004) :

1. If the *item-total correlation* score 0.00 – 0.20: less valid
2. If the *item-total correlation* score 0.21 – 0.40: rather valid
3. If the *item-total correlation* score 0.41 – 0.60: enough valid
4. If the *item-total correlation* score 0.61 - 0.80: valid
5. If the *item-total correlation* score 0.81 – 1.00: very valid

The result of validity in this research can be showed as below:

Table 3.3 the result of validity in pre-test

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
soal_1	19.80	23.956	-.129	.744
soal_2	19.80	21.956	.371	.717
soal_3	19.90	22.100	.279	.722
soal_4	20.00	23.333	.000	.740
soal_5	20.00	20.222	.670	.694
soal_6	19.90	22.767	.130	.731
soal_7	19.90	22.767	.130	.731
soal_8	19.80	21.289	.548	.707
soal_9	19.90	21.433	.432	.712
soal_10	19.80	21.289	.548	.707
soal_11	19.90	22.767	.130	.731
soal_12	19.90	22.767	.130	.731
soal_13	19.90	21.433	.432	.712
soal_14	20.10	22.767	.110	.733
soal_15	20.00	21.333	.419	.712
soal_16	20.10	24.322	-.192	.752
soal_17	19.90	22.100	.279	.722
soal_18	20.00	20.222	.670	.694
soal_19	20.00	23.556	-.044	.743
soal_20	19.90	23.433	-.014	.740
soal_21	19.80	21.956	.371	.717
soal_22	19.90	22.767	.130	.731

soal_23	19.90	22.100	.279	.722
soal_24	19.90	22.100	.279	.722
soal_25	19.80	21.956	.371	.717
soal_26	20.00	20.889	.518	.705
soal_27	19.80	21.956	.371	.717
soal_28	19.90	25.878	-.511	.768
soal_29	20.00	20.222	.670	.694
soal_30	19.90	22.100	.279	.722

The table above shows that the instrument of the research is enough valid because the majority of the test in the range 0.41 – 0.60.

Table 3.4 result of validity in post test

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
soal_1	21.00	16.000	.264	.626
soal_2	21.00	16.667	.065	.642
soal_3	21.10	15.878	.248	.626
soal_4	21.10	16.100	.189	.632
soal_5	21.00	15.556	.401	.614
soal_6	21.10	16.100	.189	.632
soal_7	21.20	15.733	.260	.625
soal_8	21.10	16.544	.074	.643
soal_9	21.10	14.767	.557	.595
soal_10	21.00	16.222	.196	.631

soal_11	21.10	16.544	.074	.643
soal_12	21.00	15.556	.401	.614
soal_13	21.10	15.878	.248	.626
soal_14	21.10	15.433	.369	.614
soal_15	21.00	17.556	-.189	.662
soal_16	21.10	16.767	.017	.648
soal_17	21.10	14.767	.557	.595
soal_18	21.10	16.544	.074	.643
soal_19	21.10	16.100	.189	.632
soal_20	21.10	16.544	.074	.643
soal_21	21.10	16.767	.017	.648
soal_22	21.10	18.100	-.308	.676
soal_23	21.10	14.544	.621	.589
soal_24	21.10	15.878	.248	.626
soal_25	21.00	14.667	.688	.588
soal_26	21.20	15.956	.205	.630
soal_27	21.00	15.556	.401	.614
soal_28	21.00	17.556	-.189	.662
soal_29	21.10	15.878	.248	.626
soal_30	21.00	18.222	-.370	.676

The table above shows that the instrument of the research is enough valid because the majority of the test in the range 0.41 – 0.60.

2. Reliability

Reliability is consistency. The research instrument has high reliability if it can produce consistent result. Brown (2000:386) states “A reliable test is consistent

and dependable”. According to Singarimbun in Tanzeh (2009:55) reliability is an index that indicates the extent to which a measuring device used to measure two times the same phenomenon and the result of measurements obtained relatively consistent, then they called reliable. In other words, reliability shows a measure of consistency in measuring the same phenomenon.

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

1. If the *alpha cronbach* score 0.00 – 0.20: less reliable
2. If the *alpha cronbach* score 0.21 – 0.40: rather reliable
3. If the *alpha cronbach* score 0.41 – 0.60: enough reliable
4. If the *alpha cronbach* score 0.61 - 0.80: reliable
5. If the *alpha cronbach* score 0.81 – 1.00: very reliable

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

Table 3.5 result of reliabity in pre-test

Reliability Statistics

Cronbach's Alpha	N of Items
.731	30

Table 3.6 result of reliability in post-test

Reliability Statistics

Cronbach's Alpha	N of Items
.640	30

To know the items is reliable or not it can be seen from Alpha Cronbach's column. The Alpha Cronbach's score of pre-test is = 0,731 it means that it is reliable. The Alpha Cronbach's score of post-test is = 0,640 it means that it is reliable.

G. Normality Testing and Homogeneity Testing**1. Normality Testing**

Normality test was one of requirements in analyze the data, it means that before conduct the real analysis, the data of the research should be tested normality of distribution. Good data was the data in the normal distribution. Moreover the researcher uses the students' score of pre-test and post-test to calculate normality and homogeneity. According Sujianto (2009:77) normality distribution test is a test to measure whether our data has a normal distribution or not. Raharjo (2014) explain the basis for a decision in the normality test is: If the significance value is more than 0.05, the data is normally distributed. While, if the significance value is less than 0.05, the data are not normally distributed. To know the normality, the researcher used One-Sample Kolmogorov-Smirnov test with SPSS 16.00. The hypotheses for testing normality are:

Table 3.7 Normality testing

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		38
Normal Parameters ^a	Mean	.0000000
	Std. Deviation	6.83945700
Most Extreme Differences	Absolute	.141
	Positive	.141
	Negative	-.082
Kolmogorov-Smirnov Z		.868
Asymp. Sig. (2-tailed)		.438
a. Test distribution is Normal.		

The Hypothesis for testing normality are:

- a. H_0 : Data is in normal distribution
- b. H_1 : Data is not in normal distribution.

Critic area is in which H_0 is rejected when the significance value is lower than 0.05 ($\alpha = 5\%$). The analysis is as follows:

Based on the output from SPSS above is known that the significance value from pre-test is 0.868 ($0.868 > 0.05$). It means that H_0 is accepted and H_1 is rejected and the data is in normal distribution. So, it can be interpreted that data in normal distribution.

2. Homogeneity Testing

Homogeneity testing is intended to make sure that the collected manipulation data in analysis is truly taken from population which is too different each other. Especially in a correlative study which is predictive, the model which is used must be appropriate with the composition and its distribution. To know the homogeneity, the researcher used ANOVA with SPSS.16. The result can be seen below:

Table 3.8 Homogeneity Testing

Test of Homogeneity of Variances

post_test

Levene Statistic	df1	df2	Sig.
.517	5	31	.761

The test called homogeneity if the significant score more than 0.050. Based on the table above, the test is homogeneity because $0.761 > 0.050$.

H. Data Collecting Method

The data collecting method is the method to obtain the data in the research. The aim of the data collecting in conducting scientific research was to get material that needed by the research. Data of this study was collected by administering test. Arikunto (2013:266) explain that instrument which is in the form of test can be used to measure basic ability and achievement. In this research, the data was collected by administering test they were pre-test and post-test.

The pre-test and post-test were about vocabulary. Both pre-test and post-test consist of some questions related to the vocabulary, the total of the question were 30 questions in the form of gaps filling (20 questions) and (find the meaning) matching (10 questions). The researcher collected the data by administered pre-test, gave treatment, and administered post-test to the students. The researcher did try out the test in the other students who also on tenth grade to know the validity and reliability of the test before conduct research.

Tanzeh (2009:66) states that achievement test is a test that is used to measure the process that students making after learn something. This test used to measure students' achievement in vocabulary before and after they taught using short story.

The technique of collecting data was clarified as follow.

a. Pre-Test

This test can be called as the pre-test before the treatment of this research. The pretest is aimed is to know the students' vocabulary mastery before the treatments carried out. In the testing process, the students have to answer the pretest. This result of the test became the evaluation before using short story in teaching vocabulary is applied in the class.

b. Post-Test

Posttest is done after the students get treatments is taught by using short story. From the score of this test, the writer is intended to find out the effectiveness of using short story as the medium in

teaching vocabulary. The result of the scoring then is compared with pre-test. In this case, the researcher knows how far is the effectiveness of using short story as the medium in teaching vocabulary.

I. Analyzing Data

Data analysis is a technique to analyze the data to know the result of a research. In analyzing the data, the researcher used quantitative data by using statistical program SPSS 16.0. The quantitative data analysis was used to know the significant differences on students' vocabulary achievement before and after being taught by using short story as the media.

The data that was obtained from pre-test and post-test would be analyzed statistically by using *Paired Sample T-Test* through SPSS 16.0. The steps of analyzing data are as follows:

1. The researcher opened the program SPSS 16.0.
2. The researcher computed the students' vocabulary score of pre-test and post-test and analyzed by click *Analyze > Compare Means > Paired Sample T-Test*.
3. The researcher chose option to decide confidence interval percentage 95%.
4. After that click OK to get the result of computation.