CHAPTER III

RESEARCH METHOD

In this chapter, the researcher discusses some important ideas in conducting study are research design, population and sample, research variable, research instrument, validity and reliability testing, normality and homogeneity testing data collecting method, and data analysis.

A. Research Design

In this study, the researcher uses quantitative approach with pre-experimental design. The experimental research is a research aims to test the hypothesis concerning the casual relationship. According to Ary (2002: 302) the experimental research design is classified into pre-experimental design, true-experimental design, and quasi-experimental design. Pre-experimental design does not have random assignment of subject to group or other strategies to control extraneous variables. True-experimental design use randomization and provide maximum control of extraneous variables. Whether quasi-experimental design lack randomization but employ other strategies to provide some control over extraneous variables.

Pre-experimental design involved one group which is pre-tested, exposed to treatment, and post-test. The reason why the researcher uses pre-experimental design is because practical. By using pre-experimental design, the researcher only uses one group or class so, the researcher easier to conduct the study and compare the result before and after being taught by using comic for the seventh grade students of SMP Al-Kamal.

B. Population and Sample

1. Population

Population is all subject included students, and many others which are being studied. Ary (2002: 148) says "population is all members of well-defined class of people, event or object". The population of this study is the students of seventh-grade at SMP Al-Kamal that consist of 4 classes. They are VIIA, VIIB, VIIC, and VIID.

a) VIIA consist of 9 female and 15 male
b) VIIB consist of 10 female and 16 male
c) VIIC consist of 10 female and 17 male
d) VIID consist of 14 female and 12 male so, the total of the seventh grade at SMP Al-Kamal are 103 students

2. Sample

Sample is part of population that is being studied. According to Gay (1992: 120) sample is a portion of the population selected for the data source. In this study, the researcher takes one of four classes of seventh grade's students of SMP Al-Kamal as the sample. The class is D class consist of 26 students.

3. Sampling

Sampling is the way to select or choose a sample. Gay (1992: 123) stated 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. In this study, the researcher uses random sampling. Random sampling is a technique to select sample randomly. As

the process of sampling, the researcher finally used D class that consists of 26 students as sample

C. Research Variable

A variable is defined as anything that has quantity or quality that varies. Santrock (2004: 47) explained that a variable is the characteristic or attribute of individual, group, or educational system that researcher is interested in. There are two types of variable are independent and dependent variable. Where, dependent variable is a variable that researcher is interested in to change or to be affected. While independent variable, is a factor that affects a dependent variable. In this study, the independent variable is a comic media and the dependent variable is students' vocabulary mastery.

D. Research Instrument

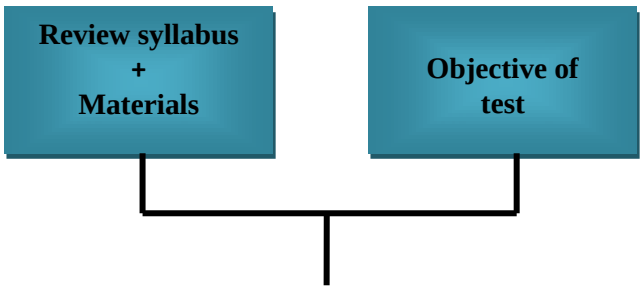
In this study, the instrument which is used by the researcher to collect the data is tests. Ary (2002: 210) stated test is a set off stimuli presented to individual in order to elicit responses on the basis of which a numerical score can be assigned. In this study, the test is administered twice are pre-test and post-test. Pre-test is administered to measure students' vocabulary achievement before being done treatment, and post-test is administered to measure students' vocabulary achievement after being done treatment.

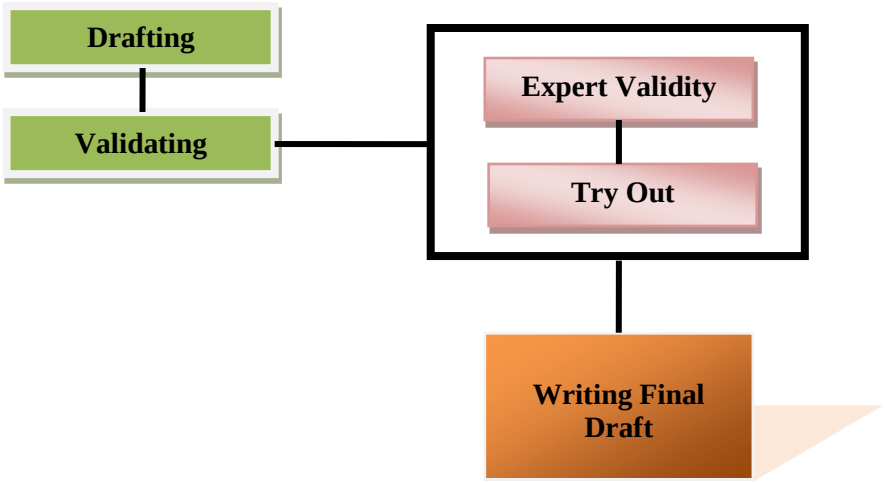
The researcher presents some steps in developing test. The first step is reviewing syllabus and material. Then, the researcher identified syllabus and material to know the standard competence, basic competence, and topic that is used in seventh grade of SMP Al-Kamal. After that, the researcher

determined the topic or material that appropriate with this study were about like and dislike something. Then, the researcher determined the objective of test is to measure the students' vocabulary achievement and followed by making drafting. In drafting the researcher designed a test such as the total number of test including pre-test and post-test were 25 numbers. The test in form of multiple choice, fill in the blank and matching.

The next step is validating. In this study, the researcher consulted the test with the English teacher of SMP Al-Kamal and the English lecturer. After validating of test finished, the researcher administered try out to know what the test is reliable. Try out was administered on April 8th, 2016 to 15 students of seventh grade that different class with the sample. And the last step in developing test is writing final draft.

Figure 3.1 Instrumentation of Developing Test





The test is made by the researcher which consists of 25 items. The kinds of the questions are 10 items in the form of multiple choices, 10 items in the form of fill in the blank and 5 items in the form of matching. The topic of this test is about like and dislike something base on the syllabus of the seventh grade students of junior high school.

In this study, the researcher gives 3 point for each items of multiple choices form, 4 point for each items of fill in the blank form, and 6 point for each items of matching form. So, if the students can answer all questions of multiple choices they will get 30, all correct answers of fill in the blank they will get 40, and 30 score for matching if the students can answer correctly. The researcher gives zero/no point for wrong or no answer.

Table 3.1 The Dates in Conducting Study

Date	Activities in Conducting Study
April, 11th 2016	Administering pre-test, then 1st treatment
April, 12th 2016	Administering 2nd treatment

April, 18th 2016	Administering 3rd treatment
April, 19th 2016	Administering 4th treatment
April, 25th 2016	Administering post-test

E. Validity and Reliability Testing

Instrument is important in research. The researcher needs consideration in developing instrument. The development of good instrument required considerable time, effort, and skill. In this study, the researcher should make a good test that can really measure the students' vocabulary mastery, not other skill or component. There are two important characteristic to measure instrument, the instrument should get validity and reliability.

1. Validity

Test validity presupposes that the writer can be explicit about what is to be tested and takes steps to ensure that the test reflects realistic use of particular ability to be measured (Weir, 1993: 19). It means that a valid test of vocabulary mastery actually have to measure vocabulary mastery, not measure other outside of vocabulary mastery.

There are some explanations of each types of validity according to Ary *et a*l. (2006: 228):

a. Face Validity

Face validity is a term sometimes used in connection with a test's content. Face validity refers to extent to which examinees believe the instrument is measuring what it is supposed to measure. In this study, the researcher ensured that the test items are valid in

term of face validity because the test is in the form objective test which was consulted by the English lecturer and the English teacher of SMP Al-Kamal. *(For more detail about the instrument, see appendix 1)*

b. Content Validity

Content validity is a degree to which a test measures an intended content area. Content validity is prime importance for achievement test. The researcher convinced that the test items are valid in term of content validity, because the test items was made base on the curriculum is KTSP, syllabus, and topic that is discussed. Moreover, the researcher used students' module as reference in choosing words which was suitable with their level. Then, the tests had been repaired base on advice from expert that validated it. So the content is relevant with the purposes of the test. It can be seen as follows:

Table 3.2 The Indicators of the Instrument.

Kompetensi Dasar	**Indicators**	**Pretest and Posttest**
Mengungkapkan makna dalam percakapan transaksional *(to get things done)* dan	Students are able completing sentence/ transactional conversation about *verb*	Pretest: 1, 2, 3, 5, 13, 18, 19, 20 Posttest: 1, 4, 11, 12, 16, 20, 30

interpersonal (bersosialisasi) sangat sederhana dengan menggunakan ragam bahasa lisan secara akurat, lancar, dan berterima untuk berinteraksi dengan lingkungan terdekat yang melibatkan tindak tutur: meminta dan memberi pendapat, menyatakan suka dan tidak suka, meminta klarifikasi, merespon secara interpersonal.	Students are able completing sentence/ transactional conversation about *noun*	Pretest: 5, 10, 12, 17 Posttest: 5, 10, 13, 14
	Students are able completing sentence/ transactional conversation about *adjective*	Pretest: 3, 4, 8, 11, 15, 16. Posttest: 2, 8, 15, 17, 18, 19
	Students are able to mention the similar/opposite meaning of word.	Pretest: 4, 6, 7, 9. Posttest: 2, 6, 7, 9
	Students are able to explain the definition of word related.	Pretest: 21, 22, 23, 24, 25 Posttest: 21, 22, 23, 24, 25

c. Construct Validity

Construct validity is the degree to which a test measures an intended hypothetical construct. Brown (2004: 45) stated that a construct is any theory, hypothesis, or model that attempts to explain observed phenomena in our universe or perception. Test can be said construct validity if the test just measures ability which wants to be measured. The researcher certified that the test items are valid in term of construct validity. It was showed with the test just measure vocabulary achievement includes the meaning, synonym, and antonym. The researcher didn't develop the test in the form of writing paragraph grammatically.

2. Reliability

Reliability is expressed numerically, usually as a coefficient, a high coefficient indicates high reliable. If a test is perfectly reliable, the coefficient will be 1.00, this means that the students' score perfectly reflects her or his true status with respect to the variable being measured. However, no test is perfectly reliable (Allison, 1999: 85).

In this study, the researcher conducted test as try out before conducting pre-test and post-test to the students. The researcher administered the try out test to 15 students who have different class with the sample as volunteers. The try out test consist of 30 items for pre-test and 30 items for post-test. Try out was administered to know whether the test reliable or not.

To get reliability coefficient the researcher used Kuder Richardson Reliability, where the researcher administered the test only once. After that the result of scores are calculated for the correlation by using KR-20 formula. The formula showed as the following.

$$\boldsymbol{r_{11} = \left[\frac{n}{n-1}\right]\left[\frac{s_t^2 - \sum p1q1}{s_t^2}\right]}$$

Where,

r_{11} = reliability coefficient

n = number of test items

s_t^2 = standard deviation

p_1 = the right response

q_1 = the wrong response

a. Pre test

$r_{11} = \left[\frac{n}{n-1}\right]\left[\frac{S_t^2 - \sum p1q1}{S_t^2}\right]$

$r_{11} = \left[\frac{30}{30-1}\right]\left[\frac{56{,}89 - 6{,}8850794}{56{,}89}\right]$

$r_{11} = \left[\frac{30}{29}\right]\left[\frac{50}{56{,}89}\right]$

$r_{11} = [1{,}034483][0{,}8788891]$

$r_{11} = 0{,}837964$

b. Post test

$r_{11} = \left[\frac{n}{n-1}\right]\left[\frac{S_t^2 - \sum p1q1}{S_t^2}\right]$

$r_{11} = \left[\frac{30}{30-1}\right]\left[\frac{9{,}9 - 6{,}22}{9{,}9}\right]$

$r_{11} = \left[\frac{30}{29}\right]\left[\frac{3{,}68}{9{,}9}\right]$

$r_{11} = [1{,}034483][0{,}871717]$

$r_{11} = 0{,}864535$

After calculating the reliability of the test items, the researcher classified the reliability coefficient which taken from Sudjiono (1996: 209-230), as follows:

Table 3.3 The Classification of Reliability Test

Reliability Test Coefficient	Classification

0.99-1.00	More highly
0.70-0.89	High
0.50-0.69	Fair
0.30-0.49	Low

From the calculation of the reliability coefficient, the result showed that reliability coefficient of pretest is 0.83 and posttest is 0.86. Base on table 3.3, the result of 0.70-0.89 have high classification. It means that the both of pretest and posttest are reliable. *(For more detail about the try out analyzing, see appendix 2)*

F. Normality and Homogeneity Testing

1. Normality testing

Normality tests are used to determine whether a data set is well-modeled by a normal distribution or no, or to compute how likely an underlying random variable is to be normally distributed population. According Sujianto (2009: 77) normality distribution test is a test to measure whether our data have a normal distribution. In this study, the researcher used Kolmogorov-Smirove test with SPSS 16.0. The hypotheses for testing normality are:

a) H_a: Data is in normal distribution

b) $H_{0:}$ Data is not in normal distribution.

Critic area is in which H_a is rejected when the significant value lower than 0.05 (α= 5%). The analysis is as follows:

Table 3.4 The Output of One-Sample Kolmogorov-Smirnov Test of Pretest and Posttest

		Pretest	Posttest
N		15	15
Normal Parameters[a]	Mean	70.67	72.33
	Std. Deviation	6.444	5.827
Most Extreme Differences	Absolute	.104	.124
	Positive	.099	.124
	Negative	-.104	-.106
Kolmogorov-Smirnov Z		.402	.479
Asymp. Sig. (2-tailed)		.997	.976

a. Test distribution is Normal.

Base on the output of SPSS 16.0 was known that the significant value (2-tailed) is 0.997 and 0.976. As explanation above, that H_a is rejected if the significant value lower than 0.05 (α= 5%). Because the significant value (2 tailed) was bigger than α that were (0.997>0.05) and (0.976>0.05), It meant that H_a was accepted and H_0 was rejected. So, it could be interpreted that the scores of both pretest and posttest were normal distribution.

2. Homogeneity Testing

Homogeneity test is purposed to show that two or more groups of data samples come from population having the same variance. To test variance of homogeneity the researcher used One Way Anova with SPSS 16.0 as follows:

Test of Homogeneity of Variances

VAR00005

Levene Statistic	df1	df2	Sig.
.146	1	28	.705

ANOVA

VAR00005					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	20.833	1	20.833	.552	.464
Within Groups	1056.667	28	37.738		
Total	1077.500	29			

Base on the output above, was known the significance value was 0.705. Because the significance value was bigger than α (0.705>0.05), could be concluded that the data both pretest and posttest having homogeneity of variances. If the Levene Statistic value is lower, it means that the homogeneity is higher.

G. Data Collecting Method

Data collecting method is the technique to collect the data is needed by the researcher. In this study, the technique that is used by the researcher is administering test. The tests are pretest and posttest where the kind of the test are written test. The test is conducted two times, before being taught using comic on April 11th 2016 as pretest and after being taught using comic on April 25th 2016 as posttest.

The researcher conducted this study in 5 meeting. The first meeting is administering pretest continued by giving treatment, the second meeting up to fourth meeting is administering treatment and the last meeting for administering posttest. After administering pretest and posttest, the result of

both tests will be compared to know is there significant different of students' score before and after being taught using comic media for the seventh grade students of SMP Al-Kamal.

H. Data Analysis

In this study, the researcher used T-test technique of data analysis. T-test is used to test the hypothesis that whether there is or no any significant difference of students' score before and after being taught using comic as a media. To know the result, the researcher used paired sample t-test that was calculated by SPSS 16.0 version.