

## CHAPTER III

### RESEARCH METHOD

#### A. Research Design

The design of this study was experimental design. Experimental design is a plan for an experiment that specifies what independent variables will be applied, the number of levels of each, how subjects are assigned to groups, and the dependent variable.<sup>1</sup> The writer used the experimental design because the writer wanted to measure the effectiveness of using personal vocabulary notes in teaching vocabulary.

The type of this study was quasi-experimental study. Quasi-Experimental design are similar to randomized experimental designs in that they involved manipulation of an independent variable but differ in those subjects in that they involve manipulation of an independent variable but differ in that subjects are not randomly assigned to treatment groups.<sup>2</sup> The writer used quasi experiment because it was not based on random assignment of subjects to experiment and control group. The writer used quasi experiment by nonrandomized control group, pre test–post test design. There were two groups in this design; they were experiment group and control group. Pre-test was given to both groups to measure the score of students before treatment was given. Experiment group was given

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<sup>1</sup>Donal Ary, *Introduction to Research in Education (Eight edition)*, United State: Wadsworth (engage learning), 2010, p. 641.

<sup>2</sup>*Ibid* p. 316.

treatment with using personal vocabulary notes and control group was taught without using personal vocabulary notes (handout). Post-test was given to both groups to measure the score of students after treatment was given. The scheme of this design was:

**Table 3.1**  
**Design of pre-test and post-test**

<b>Group</b>	<b>Pre-test</b>	<b>Treatment</b>	<b>Post-test</b>
Experiment Group	Y I	X	Y 2
Control Group	Y 1	-	Y 2

## **B. Time and Place**

The place of study was SMP Muhammadiyah Palangka Raya. It located at RTA Milono Street Km 1, 5. In this study, the writer conducted the research for two months to collect the data. It was begun on March 28<sup>th</sup> until 14<sup>th</sup> April 2015.

## **C. Population and Sample of the Study**

### **1. Population**

A population is defined as all members of any well-defined class of people, events, or objects.<sup>3</sup> The population of this study was seventh grade students at SMP Muhammadiyah Palangka Raya, there were four classes and the number of students were:

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<sup>3</sup> *Ibid*, p. 148

**Table 3.2**  
**Population**

No	Classes	Number of students
1	VII-1	30
2	VII-2	30
3	VII-3	30
4	VII-4	30
	<b>Total</b>	120

## 2. Sample

A sample is a portion of a population.<sup>4</sup> In this study, the writer took two classes to be the sample. The first class was experiment group. This class was treatment with using personal vocabulary notes. The second class was control group. This class was taught with using handout. The sample of this study was VII-4 as experiment class and VII-2 as control class which each class consist of 30 students. The number of student was 60 students. In this study, the writer used cluster sampling because the unit chosen is not an individual but a group of individuals who are naturally together or grouped by the school.<sup>5</sup>

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<sup>4</sup> *Ibid*, p. 148

<sup>5</sup> *Ibid*, p. 154

**Table 3.3**  
**Number of Sample**

<b>NO</b>	<b>Group</b>	<b>Class of student</b>	<b>Number of student</b>
1	Experiment	VII-4	30
2	Control	VII-2	30
<b>Total</b>			60

#### **D. Research Instruments**

To get the data, the writer used test in this study. 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.<sup>6</sup> According to H Brown Douglas, test is method of measuring a person's ability or knowledge in a given domain.<sup>7</sup> To get the data, the writer did the test; it consisted of pre test and post test. The function of pre test was to know pre-ability students' vocabulary knowledge before they used personal vocabulary notes. And the function of post test was to know post-ability students' vocabulary knowledge after they used personal vocabulary notes. The test was used to see the result of students' vocabulary knowledge. The score of the test was used to measure the effectiveness of personal vocabulary notes.

The writer made test based on the material and was appropriated with syllabus that used by the school. The form of test was multiple-choices. Reason why the items test was constructed in form of multiple choices, because multiple choices was objective test. Objective test was made just as easy or as difficult as

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<sup>6</sup> *Ibid*, p. 201.

<sup>7</sup> H Brown Douglas, *Teaching by Principles*, p. 384.

the test constructor wishes.<sup>8</sup> In this study, the students tested with multiple choices test that matching the words with suitable meaning and the students confirmed their knowledge of word by selecting suitable definition and synonym. So, the test will really measure students' vocabulary knowledge. The test was constructed in the form of multiple choices which consisted of 41 items test. 16 items test of noun, 13 items test of adjectives, and 12 items test of verb as were showed in table 3.4. The writer took these three kinds of vocabulary because they were included as four main forms of word. Four main forms of word consist of noun, verb, adjectives, and adverb.<sup>9</sup>

**Table 3.4**  
**The Content Specification of Test Items**

No	Indicators	Number
1	Noun (2, 3, 4, 6, 7, 13, 17, 18, 19, 23, 29, 30, 33, 37, 39, 41)	16 Items
2	Adjectives (1, 5, 10, 12, 14, 16, 20, 21, 26, 31, 32, 36, 40)	13 Items
3	Verb (8, 9, 11, 15, 22, 24, 25, 27, 28, 34, 35, 38)	12 Items
<b>Total</b>		41 Items

The test item was showed in appendix and adapted from some books and internet. The writer took types of test based on J L Shanker' theory, Wesche and Paribakht' theory and J B Heaton' theory.

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<sup>8</sup>J. B. Heaton, *Writing English Language Tests*, Longman, 1975, p. 12.

<sup>9</sup>Norbert Schmitt, *Researching Vocabulary: A Vocabulary Research Manual*, New York: Palgrave Macmillan, 2010, p. 21.s

## **E. Research Instrument Try Out**

The writer gave test of try out (50 items test) to seventh grade students at SMP Muhammadiyah Palangka Raya (VII-1). It was conducted on Saturday, March 28<sup>th</sup>, 2015, at 08.05 – 09.25 am; in VII-1 room with the number of student were 30 students. To get the data of try out, the writer used some procedures as follows:

- a. The writer made and prepared test of try out.
- b. The writer gave test of try out to the students
- c. The writer asked the students to do test of try out.
- d. The writer collected the student's answer.
- e. The writer calculated and gave score to the students' answer.
- f. The writer analyzed the result of try out to know valid of test try out.
- g. If the results were valid, it meant that the test items as the instrument of this study is suitable to be give.

## **F. Research Instrument Validity**

### **1. Instrument Validity**

Validity of a test is the extent to which the test measures what is intended to measure.<sup>10</sup> There were three types of validity:

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<sup>10</sup>Norman E. Gronlund, *Measurement And Evaluation In Teaching (Fifth Edition)*, New York: Macmilan Publishing Company, 1985, p. 11.

a. Face Validity

Face validity is if a test item looks right to other testers, teachers, moderators, and testes.<sup>11</sup> Descriptive Text was the learning material in the second semester at Junior High School. The face validity of the test items as follow:

1. The kind of test was Vocabulary Test.
2. The form of test items was Multiple Choices.
3. The language of items used English.
4. The test items were suitable to the Junior High School.

b. Content Validity

This kind of validity depends on a careful analysis of the language being tested and of the particular course objectives. The test should be so constructed as to contain a representative sample of the course, the relationship between the test items and the course objectives always being apparent.<sup>12</sup> In making the test, the writer tried to match each of the test items with the syllabus that used by SMP Muhammadiyah Palangka Raya. The writer made the test content (question) was related with material was taught to the students.

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<sup>11</sup> J. B. Heaton, *Writing English Language Tests*, Longman, 1975, p. 153.

<sup>12</sup> *Ibid*, p. 154.

**Table 3.5**  
**Specification of Content Validity**

No	Contents	Type of test	Items
1	“Descriptive Text”	Multiple Choice	41

c. Construct Validity

If a test has construct validity, it is capable of measuring certain specific characteristics in accordance with a theory of language behavior and learning.<sup>13</sup>

Type of test was vocabulary test; the form of test was multiple choices, and the test was written test.

To measure the validity of the instrument, the writer used the formulation of product moment by Pearson as follows:<sup>14</sup>

$$r_{xy} = \frac{N(\sum XY) - (\sum X)(\sum Y)}{\sqrt{\{N \cdot \sum X^2 - (\sum X)^2\}\{N \cdot \sum Y^2 - (\sum Y)^2\}}}$$

Where:

$r_{xy}$  : Numeral of index correlation ‘r’ product moment

N : Total of sample

$\sum XY$  : Amount of the product between X score and Y score

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<sup>13</sup> *Ibid*, p. 154.

<sup>14</sup> Riduwan, *Metode dan Teknik Menyusun Proposal Penelitian*, Bandung: Alfaberta, 2010. p. 75.



$\sum X$  : Amount of the x score

$\sum Y$  : Amount of the y score

Furthermore, it was calculated using test t calculation as follow:

$$t \text{ observe} = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

Where:

t : The value of t observed

r : The coefficient of correlation of the result of r observed

n : Number of students

The distribution of t table at alpha 5% and degree of freedom (n-2) with the measurement of validity using these criteria:

t observed > t table = valid

t observed < t table = invalid

To know the validity level of the instrument, the result of the test was interpreted to the criteria below:<sup>15</sup>

0,800 - 1000 = very high validity

0,600 - 0,799 = high validity

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<sup>15</sup>*Ibid*, p. 76.

0,400 - 0,599 = fair validity

0,200 - 0,399 = poor validity

0,00 - 0,199 = very poor validity

From the measurement of validity of the try out that was consisted 50 items was known that there were 41 valid items (item 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 31, 32, 33, 34, 35, 37, 38, 39, 40, 41, 42, 43, 44, 46, and 50), and there were 9 invalid items (item 1, 19, 29, 30, 36, 45, 47, 48, and 49). For the detail explanation, it could be seen at appendix 8 for the measurement of validity of the try out.

d. Index difficulty

The index of difficulty (or the facility value) of an item simply shows how easy or difficulty the particular item proved in the test. The index of difficulty (F.V) is generally expressed as the fraction (or percentage) of the students who answered the item correctly. It was calculated by using the formula: <sup>16</sup>

$$F.V = \frac{R}{N}$$

Where:

F.V : Facility Value.

R : Represents the number of correct answer.

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<sup>16</sup>J. B. Heaton, *Writing English Language Test*, Longman, 1975, p. 172.

N : The number of students taking the test.

The result of the test was interpreted to the criteria below:<sup>17</sup>

0,00 – 0,30 = Difficult

0,31 – 0,70 = Fair

0,71 – 1,00 = Easy

The result of index difficulty measurement of the try out showed that there were 14 difficult items (item 2, 7, 10, 14, 15, 17, 19, 22, 28, 29, 34, 36, 39, and 41), there were 14 easy items (item 4, 8, 13, 21, 26, 30, 33, 37, 38, 42, 46, 47, 49, and 50), and there were 22 fair items (item 1, 3, 5, 6, 9, 11, 12, 16, 18, 20, 23, 24, 25, 27, 31, 32, 35, 40, 43, 44, 45, and 48). For the detail explanation, it could be seen at appendix 10 for the calculation of index difficulty.

### **G. Research Instrument Reliability**

Reliability also means the consistency with which a test measures the same thing all the time. Reliability of a test refers to its consistency with which it yields the same rank for an individual taking the test several times.<sup>18</sup> The reliability of the whole test can be estimated by using the formula:<sup>19</sup>

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<sup>17</sup>Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendektan Praktek*, Jakarta: Rineka Cipta, 1999, p. 210.

<sup>18</sup>Norman E. Gronlund, *Measurement And Evaluation In Teaching (Fifth Edition)*, New York: Macmilan Publishing Company, 1985, p. 14.

<sup>19</sup>Riduwan, *Metode dan Teknik Menyusun Tesis*, Bandung: Alfaberta, 2010. p. 119.

$$r_{11} = \left( \frac{k}{k-1} \right) \left( \frac{s^2 - \sum pq}{s^2} \right)$$

Where:

k : Number of items

s : Standard Deviation

$\sum pq$  : Result of square between p and q

The qualification of reliability as follows:<sup>20</sup>

0,800 - 1,000 = very high validity

0,600 - 0,799 = high validity

0,400 – 0,599 = fair validity

0,200 – 0,399 = poor validity

0,00 – 0,199 = very poor validity

From the measurement of reliability of the try out was found that  $r_{11} = 0.98 > r_{table} = 0.35$ . For the detail explanation, it could be seen at appendix 9 for the measurement of reliability of the try out.

## H. Data Collection Procedure

To get the data, the writer used some procedures as follows:

1. The writer chose the place of the study.
2. The writer determined two groups, the first group was experiment group and the second group was control group.
3. The writer gave pre test to both classes (experiment group and control group).
4. The writer checked the result of pre test.

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<sup>20</sup> *Ibid*, p. 110

5. The writer gave treatment (teaching) to the experiment group using personal vocabulary notes and the writer taught the control group using handout.

**Table 3.6**

**Model of Personal Vocabulary Note**

Vocabulary:			
No	Words	Meaning	Forms
1.	Friendly	Behaving kind.	Adjective
2.	Belt	Strip of leather worn around the waist.	Noun
3.	Sell	Give goods to exchange for money.	Verb
4.	Shop	Building where goods are sold.	Noun
5.	Big	Large in size.	Adjective

We have a neighbor. His name is Mr iqbal. He is a friendly person. He has a big shop. We always go shopping there. He sells equipments of school like tie, hat, belt, bag, book, shoes, ruler, rubber, glue, etc. Beside, He also sells clothes, food and drink, etc.

6. The writer gave post test to both classes.
7. The writer checked the result of post test.
8. The writer gave score to students' answer (pre test and post test).

**I. Data Analysis procedure**

To analyze the data has been collected; the writer used some procedures in this study:

1. The writer gave test to the students of the seventh grade students at SMP Muhammadiyah Palangka Raya.
2. The writer collected the data of the students' test result.
3. The writer gave score the students' test result by using the formula:

$$\text{Score} = \frac{B}{N} \times 100^{21}$$

Where:

B : Frequency of the correct answer

N : Number of test items

4. The writer tabulated the data into the distribution of frequency of score table, then looking for the mean, median, modus, standard deviation, and standard error of experiment group and control group.

Formula of mean, median and modus:<sup>22</sup>

- a. Mean

$$Mx = \frac{\sum fx}{N}$$

Where:

Mx : Mean

Fx : Total result product between each score with frequency

N : Number of case

- b. Median

$$Mdn = u - \frac{\frac{1}{2}N - fka}{fi} \times i$$

Where:

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<sup>21</sup>Anas Sudijono, *Pengantar Evaluasi Pendidikan*, Jakarta: Rajagrafindo

<sup>22</sup>Hartono, *Statistik Untuk Penelitian*, Yogyakarta: Pustaka Belajar, 2011, p. 33.

Mdn : Median

N : Number of case

Fkb : Cumulative frequency located in under interval contain median

Fi : Authentic frequency (frequency of score contain median)

i : Interval class

c. Modus

$$Mo = u - \frac{fb}{fa + fb} \times i$$

Where:

Mo : Modus

Fa : frequency located in above interval contain modus

Fb : frequency located in under interval contain modus

i : Interval class

Formula of standard deviation and standard error:<sup>23</sup>

d. Standard Deviation

$$SD = \sqrt{\frac{\sum fx^2}{N}}$$

Where:

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<sup>23</sup>Ibid, p. 60

SD : Standard Deviation

i : Interval

N : Number of students

e. Standard Error

$$Sem = \frac{sd}{\sqrt{n-1}}$$

Where:

Sem : Standard Error

Sd : Standard Deviation

N : Number of students

5. The writer calculated normality and homogeneity.

a. Normality

It was used to know the normality of the data that is going to be analyzed whether both groups have normal distribution or not. Chi square was used here:<sup>24</sup>

$$\chi^2 = \sum \left[ \frac{(f_o - f_h)^2}{f_h} \right]$$

Where:

$\chi^2$  = Chi square

$f_o$  = frequency from observation

$f_h$  = expected frequency

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<sup>24</sup>Sudjana, *Metode Statistika*, Bandung: Tarsito, 1996, p. 273.



Calculation result of  $\chi^2$  was compared with x table by 5% degree of significance. If  $\chi^2$  was lower than x table, so the distribution list was normal.

b. Homogeneity

It was used to know whether experimental group and control group, that are decided, come from population that has relatively same variant or not. The formula is:<sup>25</sup>

$$F = \frac{\text{Bigger Variant}}{\text{Smaller Variant}}$$

Where:

F : Frequence

The hypotheses in homogeneity:

$F_{\text{value}} \leq F_{\text{table}}$ , means both of variants are homogeneity.

$F_{\text{value}} > F_{\text{table}}$ , both of variants are homogeneity.

If calculation result of F was lower than F table by 5% degree of significance so  $H_0$  was accepted, it meant both groups have same variant.

6. The writer calculated the data by using t-test to examine the hypothesis of the study. To examine the hypothesis, the writer used t-test formula as follows:<sup>26</sup>

$$t_o = \frac{M1 - M2}{SEm1 - m2}$$

Where:

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<sup>25</sup>*Ibid*, p. 280

<sup>26</sup>Anas Sugiono, *Pengantar Statistik Pendidikan*, Jakarta: Rajawali Press, 1978, p. 372

$M1-M2$  : The difference of two mean.

$SE_{m1-m2}$  : The standard error of difference between two mean.

To know the hypothesis was accepted or rejected using the criterion:

If  $t\text{-test} \geq t_{\text{table}}$ , it meant  $H_a$  was accepted and  $H_o$  was rejected.

If  $t\text{-test} \leq t_{\text{table}}$ , it meant  $H_a$  was rejected and  $H_o$  was accepted.

7. The writer interpreted the result of t-test. The writer accounted degree of freedom (df) with the formula as follows:<sup>27</sup>

$$df = (N1 + N2 - 2)$$

Where:

df : Degree of freedom

$N1$  : Number of subject group 1

$N2$  : Number of subject group 2

2 : Number of variable

8. The writer discussed and concluded the result of data analysis.

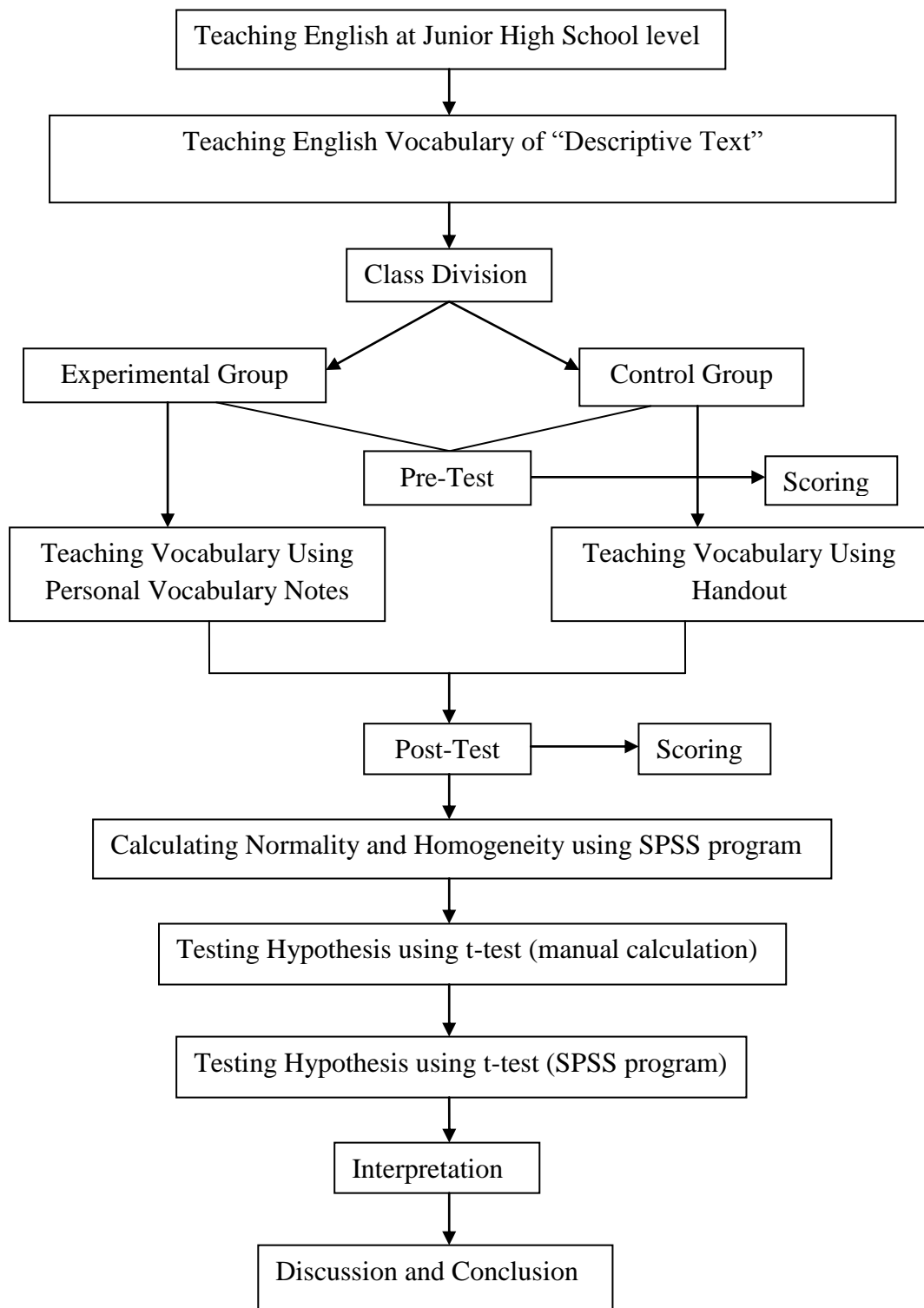
## **J. Summary**

To sum up, the steps in collecting, analyzing, and testing hypothesis could be described below. In the first step, the writer chose the place of the study. Second step, the writer gave test of try out (Try out class). Third step, the writer divided subjects into two groups; experimental group and control group. Fourth step, the writer gave pre-test to the students and the writer gave score (experimental group and control group). Fifth step, the writer gave treatment using personal vocabulary notes for experiment group and the writer taught using handout for control group.

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<sup>27</sup> *Ibid*, p. 284

Sixth step, the writer gave post-test and the writer gave score (experimental group and control group). Seventh step, before testing the hypothesis, the writer calculated normality and homogeneity test using SPSS program. Eighth step, the writer tested hypothesis to answer the research problem using t-test formula with manual calculation. Lastly, discussion on the results was made to clarify the finding, as described in figure below:



**Figure 3.1 Steps of collecting, data analysis procedure and testing hypothesis**