CHAPTER III

RESEARCH METHODOLOGY

In this chapter, the present researcher describes; research type, research design, place of the study, population and sample of the study, research instrument, data collection, and data analysis.

A. Research Type

Since the writer intends to find out the the correlation between students vocabulary mastery and writing ability, this study belongs to the quantitative method. Quantitative research was explained phenomena by collecting numerical data that are analyzed using mathematically based methods.

B. Resarch Design

The research design used correlation design, this design was non experiment, which was to find out whether there was correlation, to find out the level of relationship then the clarity obtained from the theory.[1] Correlation research methods is used to assess relationship and patterns of relationship among variable in a single gruop of subject.[2] The design was used to know about the the correlation between vocabulary mastery and writing ability at the eigth grade

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[1] Sambas Ali Muhidin and Maman Abdurahman, *Analisis Korelasi, Regresi, dan Jalur dalam Penelitian*, Bandung: Pustaka Setia, 2007, p.105
[2] Donal Ari, Lucy Chesar Jacob, Chris Sorensen, Asghar Razavieh, *Introduction to Reseah In Education*, Canada:Wadsworth Cangage Learning, 2010, p. 129

students junior islamic high school 2014/2015. The purpose of correlation studies was to understand relationship among characteristic of people or other entities.[3]

In addition Donal Ary stated that correlational research produces indexes that show both the directionand the strength of relationship among variables.[4] Correlation studies are traditionally classified as relationship studies or prediction studies. In relationship studies, researcher study the relationship between measure of different variables obtained at approximately the same time. Second language researcher have made wide use of correlational techniques to explore a variety of relationships.[5]

C. Population and Sample

1. Population

Population is one of elements of research methodology. Population can be defined as follow; according to Arikunto, a population is defined as all members of any well defined class of people, events or object.[6] Other statement about population is some population or groups of subject are not capable of giving true volntary informed consent. They may lack the necessary competence or maybe indirectly coerced. Thus , population is the object of research from which the

[3] Donna M. Johnson. *Approaches to Research in Second Language*. New York: Logman, 1992).p.49.
[4] Ibid P. 350
[5] Donna M. Johnson. *Approaches to Research in Second Language*. New York:: Logman, 1992.pp.51.
[6] Wiiliam Lawrence Neuma, *Social Research Method: Quantitave and Qualitative Approach*, 1997

reseacher may collect data. Poplation provides the research with imformation or data took used to solve the research problems.

According to Arikunto, if the subject of research less than 100 subject, it is taken all subject. So the research was including the research of population.[7] The population was the eight grade students of SMP Islam Nurul Ihsan Palangka Raya.

Table 3.1 population

Class	Population
VIII –1	24
VIII –2	24
Total	48

2. Sample

In the sample of this research was all of the students of eight grade students SMP Islam Nurul Ihsan Palangka Raya it consisted of 24 students. The eigth students were devided into two classes. The number of students for each class was 24 students of VIII- 2

D. Research Instrument

The test was geared to the teach that has taken place, whereas in the leter case the teaching is often geared largely to the test. [8] The writer took the data of

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[7] Suharsimi Arikunto, *Prosedur Penenlitian Suatu Pendekatan Praktek*: Edisi Revisi v, Jakarta:PT. Rineka Cipta, 2000, p. 112
[8] J.B.Heaton,*Writing English Language Test* ,p.1

this research by using a test. The test was used to know the result of student's test and this result took gave the description where is more ability of the student comprehended between vocabulary mastery and writing ability. The test are vocabulary test and writing test. The test was in the form of guide written test, because the writer wants to measure the students' vocabulary mastery and writing ability.

1. Research Instrument

a. Multiple Choice Formatted Test (vocabulary test)

How many items for vocabulary test? There are thirtty items for vocabulary test. What kind of vocabulary test? There are five kinds of vocabulary test, such as noun, verb, adjective, antonym. The writer used test to measure two variables they are: the vocabulary mastery and writing ability. According to H Douglas Brown, a test in plain words is a method of measuring person's ability or knowledge in a given domain.[9] Multiple choice tests used to measure first variable. Muliple choice items particular have been commonly used in standardised test. A professionally produced multiple choice vocabulary test is highly reliable and distinguishes learners effectively according to their level of vocabulary knowledge.[10]

b. Writing test

[9]H Douglas Brown, *Teaching by Principles: an Interactive Approach to Language Pedagogy*, San Francisco: San Francisco State University, Addison Wesley Longman, Inc., 2001, p.384.
[10] Jhon Read, *Assesing Vocabulary*:Cambridge University Press,2000, p.2

Written test used to measure the second variable. For writing ability the writer is used writing test, kinds of writing test is used descriptive paragraph, the writer gave three topic were they students choose of them. The writer used *analytical method.* Berka states that analytical method is a method in which examiners evaluate wider range of things such as the form and style, vocabulary, grammar, ability to transmit information.[11]

E. **Instruments Try Out**

Instruments are a number of question to test vocabulary mastery and writing ability. Before instruments are used to test vocabulary mastery and writing ability, the writer took conduct try out. The porpuse is to see whether test (instruments) have fullfied characteristic of a good test. Try out is used to measure the suitable instrument and the students' vocabulary mastery and writing ability descriptive paragraph. Instrument try out is definitely important before the instrument tested to the real sample. The try out test used to validity and reliability, so the writer conducted try out before the test given to the sample to this research. The purpose of instrument try out is in order to validity and reliability of the test item. The try out were done by 10- 20 % students of the total number of the population. The writer chose 24 the eight grade students(VIII-2) Smp Islam Nurul Ihsan include nine man and fifteen women to follow the try out. The try out was conducted on Monday 12 October 2015,

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[11]Berka, Váňová *Základy testování proučitele.*Brno: Masaryk University, 2005, p. 51-53.]

8.00 pm at Smp Islam Nurul Ihsan Palangka Raya. The 24 students were done the try out of Vocabulary test. After doing try out all of item were valid and can be given as the instrument of the study. These are the procedures that in carrying out this try out as follows:

a.   Preparing the instrument

The wirter preparing the instruments vocabulary test and writing ability for the students test.

b.   Telling to the students how to do

The writer telling to the students about how many test items for vocabulary test and writing test.

c.   Giving the test items to students.

The writer giving test items, who is giving of the test? The test gave of the eight grade students junior high school. Where place of test? The place of test at Smp Islam Nurul Ihsan Palangka Raya. What did the students of test? The students correct the answer of the question vocabulary test. And for writing test the writer gave three topic. The students can choose one of them. How the students answer of the test? The students answer of the question based on their knowledge.

d.   Collecting the students' work

The writer collecting the students' work, after the students finished the answer of the question.

e. Scoring the students' work

The writer gave score the students' work use formula.

f. Calculating the result of the test using formula

The writer calculating the result of test use formula based on the book

g. Analyzing the result of the test and enter to the tabel

The witer analyzing the result of the test vocabulary and writing test and enter to the tabel.

Tabel 3.2
Specification of test Items of Vocabulary test

Vocabulary	Items test	Type of test	Description of test
a. noun b. verb c. adverb d. adjective e. Antonym	30 items	Multiple choice	8,14,16,25,13,4. 10,11,12,17,26,6 18,19,20,23,29,28 2,6,21,24,27,30, 1,3,5,7,9,22

Tabel 3.3
Speciffication of test items Writing test

Indicator	Language skill & component	Items of test	Types of test	Descriptions test items
The students are able to responds the meaning of descriptive text accurately, fluently Acceptable.	Writing	There are three topic choose one of them	Essay	Choose the topic and description about the topic based on your language

F. Instruments Validity

a measure which indicates the level of valid or te validity of research question. Validity test performed by analyzing each of the question. One of the requirements of a good instrument was the instrument must be valid. Validity provides information on the extent to which the instrument measure what was supposed to be measure. According to Heaton, briefly, the validity of a test is the extent to which it measure what it is supposed to measure and nothing else.[12]

In addition, relatted to the validity, Sugiyono states : Valid instrument means the measurument device to measure the data is valid. Validity means the instrument can be used to measure what it is supposed to measure.

a. Face Validity

Instruction of a matter should be clear, the english language must be clear. The type of face validity, if the test items look right to other testers, teachers, indicators, and test. The type of the test sitems, which will use in this research, can be suitable to the others at the same level Smp Islam Nurul Ihsan Palangka Raya.

To face validity of the test items as follows:

1. Vocabulary test

- For vocabulary .test The test took objective test in multiple choice
- Kinds of the test items consist of vocabulary test

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[12] John Brian. Heaton, *Language Testing*, York New:1987, p.153

- Language was used English.

- The test items are suitable with syllabus of English vocabulary of Smp Islam Nurul Ihsan Palangka Raya.

2. Writing test

- The proof of validity of the empirically show empirical evidence obtained from the calculation of correlation of two rows of score produced in the capture of two raters.

- This validity is obtained as a result of comparing the result of the test with the result of some criterion measure such as: an existing test, known or believed to be valid and given at the same time. The teacher's ratings or any other such form of independent assessment given at same time. And the last, the teacher's rating or any other such form of independent assessment given later.[13]

a. Content Validity

The content of test item must be in accodance with what was taught so, the writer constructed the instruments based on syllabus. According to Ary Donald states :"Content validity is essentially and of necessity based on the judgment, and such judgment must be made separately for each situation. The question of an instrument's validity is always specific to the particular

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[13] J.B. Heaton, Writing English Language Test, Longman Handbook for Language Teachers:United States of America, 1975, p.161

situation and to the particular purpose for which it was being used. A test that has validity in one situation may not be valid in a different situation".[14]

b. Constuct validity

The item test was constructed based on the material given in classroom namely English writing and vocabulary. And also the objective of the test were made to be precise based on attainment in indicator of syllabus. The instrument measures certain specific of the English text; it means how the instrument ability can cover the indicators of English writing.[15]

to calculate the validity of instrument of each item the writer used the product-moment formula:

$$r_{xy} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{[N \sum X^2 - (\sum X)^2][N \sum Y^2 - (\sum Y)^2]}} \qquad \dots$$

Where:

r_{xy} = Coefficient of correlation between x and y variable or validity of each item

N   = The number of students/subjects participating in the test

Σ_x = The sum of score in each item

Σ_x^2 = The sum of the square score in each item

Σ_y = The sum of total score from each students

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[14] Donal Ary, Lucy Chesar Jacob, Chris Sorensen, Asghar Razavieh. *Introduction to Research in Education, (Eighth Edition),* Canada: Wadsworth Cangage Learning, 2010).p. 214
[15]Donald Ary and friends.. *Introduction to Research in Education.* Canada: simullataneousli.1972.P.123

$\Sigma_y{}^2$ = The sum of square total score from each students

Σ_{xy} = The sum of multiple of score from each student with the total score

in each item.

Furthermore, it was calculate using Test-t calculation below:

$$t_{observed} = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

Where:

t = the value of $t_{observed}$

r = the coefficient of the result of $t_{observed}$

n = number of students.[16]

To know the level of validity of instrument, the value of was

interpreted based on the qualification of validity as follows:

$t_{xy} > t_{table}$ = **Valid**
$t_{xy} < t_{table}$ = **Not Valid**

Table 3.4
Criteria of Validity Analysis

Interval	Criteria
$0,80 < r_{xy} \leq 1,00$	Good
$0,60 < r_{xy} \leq 0,80$	Moderate
$0,40 < r_{xy} \leq 0,60$	Low

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[16]Riduan. 2004. *Metode dan Teknik Menyusun Tesis*, Bandung: Alfaberta, p. 100.

$0,20 < r_{xy} \leq 0,40$	Low and less
$0,00 < r_{xy} \leq 0,20$	Negligible
$r_{xy} \leq 0,00$	Invalid

Based on the explanation above, in making the test the researcher tried to match each of the items test with the curriculum that was used by Smp Islam Nurul Ihsan Palangka Raya. The purpose was made the test was appropriate with the lesson that the students accepted in the moment when the research was done.

G. Instruments Reliability

The instrument reliability was determined the level of provision of each item test. A test was said be reliable if score was generated completely thurtwothy and changed markedly. Reliable only expressed emperically by using statistic.

The good instrument in a study was not only the instrument valid but also reliable to measure what suppose to be measure. The instrument is the degree of consistency which it measure what ever its measuring. This quality was essential in any kind of measurument.[17] For writng test the researcher was used inter rater

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[17] Ibid 35 p. 236

method (test of reliability). Inter-rater reliability was the consistency of the judgment of several raters on how they see a phenomenon or interpret the responses of the subjects. In this case, the two raters employed the score students' writing. The two raters are the writer and the English teachers who have lot of experience in teaching English language in senior high school. One important thing in using the inter rater method in rating process was focused with the training of the raters. It can maximize the accuracy of the writing assessment. This mades the raters be consistent in scoring and avoid subjectivity of the raters in scoring. For this purpose, the training was done to get inter rater agreement in order to give reliable scores to students' writing product.

Relevant to this, Nunan states that the acceptance reliability on composition score was possible to get through careful training of raters.[18] In addition to validity test to measurement the reliability for vocabulary test of the whole test can be estimated by using the formula of Kuder and

$$r_{11=\frac{k}{k-1}}\left[1-\frac{M(k-M)}{k.S^2}\right]$$

Richardson. Here the reliability calculations of vocabulary the writer will use K-R. 21.[19]

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[18]M. Soenardi Djiwandono, Tes Bahasa, Indonesia:PT Jaya Cemerlang,2008, p. 186-187.

[19] Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktek*,PT Rineka Cipta, Edisi v, Jakarta, 2002, p.164

Γ_{11} = Reliability of instrument

k   = the number of items

M   = the mean score for all the test

S   = the standard deviation of the test score

$$\Gamma_{11} > \Gamma_{table} = \text{Reliable}$$

$$\Gamma_{11} < \quad \Gamma_{table} = \text{Not Reliable}$$

To know the level of reliability of instrument, the value of Γ_{11} was interpreted based on the qualification of reliability as follows:

Table 3.5

Criteria Reliability

Reliability	Interpretation
0.800-1.000	Very High Reliability
0.600-0.799	High Reliability
0.400-0.599	Fair Reliability
0.200-0.399	Poor Reliability
0.000-0.199	Very Poor Reliability

From the measurement of instrument try out reliability it was known that the whole numbers of test items are reliable and can be used as the instrument of the study.

1. **Difficulty Level**

   Index Difficulty

   The index difficulty (or facility value) of an item simply shows how easy or difficult the particular item proved test. To know the level of difficult of test, the writer took used formula as follows:

$$FV = \frac{R}{N}$$

F.V   = Index of the difficulties

R   = The number of correct answer

N   = The total of the students

F.V $0,00 - 0,30 = $ Difficult

       $0,30 - 0,70 = $ fair

       $0,70 - 100 = $ easy

H. Data Collection Procdure

Procedure of collecting data is very crucial in a research. It consists of many ways or steps to get the data needed. Firstly, the writer prepared the instrument of

this research of variables. Secondly, the writer gave test to some students to examine the validity of the instrument. After the validity of the instrument has been known, the writer chose 24 students of the eight grade Smp Islam Nurul Ihsan using sampling technique. Then, the writer gave them test, the test consists of vocabulary test held on manday November 2, 2015 The students should answer 30 questions and writing test 24 students of the eight grade Smp Islam Nurul Ihsan Palangka Raya on Monday October 26, 2015 and for writing test item they have to write descriptive paragraph based on the topic.

I. Data Analysis procedure

The writer does some ways in the data analysis procedures, they are as follows:

a. To find out average score of the students vocabulary mastery, it is used

$$S = \frac{n}{N} \text{ x } 100$$

Where:

S   = Students' score

n   = Number of true answer

N   = Number of test items[20]

b. The Average Score of Students' Writing test

To find the average score of students' vocabulary mastery , the writer used formula as follow:

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[20] Depdikbud, Kurikulum pedoman Khusus Bahasa Inggris, Jakarta, Direktorat Jendral Agama islam, 2004.

$$M = \frac{\sum X}{N}$$

Where:

M = Mean

X = The sum of score

N = Total number of students

c. To find out the correlation coeficient of the vocabulary mastery and writing ability, the writer took the product moment formula is as follows :.

$$r_{xy} = \frac{N\sum xy - (\sum x)(\sum y)}{\sqrt{\{N\sum x^2 - (\sum x)2\}\{N\sum y^2 - (\sum y)2\}}}$$

Where :

r_{xy} = the correlation coeficient between x variable and y variable

$\sum xy$ = multiplication result between score X dan Y

$\sum x$ = total value of score X (Vocabulary Mastery)

$\sum y$ = total value of score Y (Writing Ability)

N = the number of subjec.

Table 3.6

Interpretation Orientation

The amount of "r" product moment	Interpretation

00,0-0.20	There is correlation between variable vocabulary and writing, yet is very low so that it is regarded there is no correlation.
0,20-0,40	There is low correlation between variable vocabulary and writing.
0,40-0.70	There is average correlation between variable vocabulary and writing.
0,70-0,90	There is high / strong correlation between variable vocabulary and writing.
0,90-1,00	There is very high /strong between variable vocabulary and writing.

consulting the result of index correlation number "r" product moment toward the table of "r" product of result with seeking the degree of freedom (df) with the formula as follows:

$$df = N - nr$$

df = degrees of freedoms

N   =   Number of cases

Nr =   the amount of variable[21]

Next, the writer checked the table of product moment index that created by Pearson to find the degree of freedom significance level. It was used to decide which one hypothesis was accepted, and which one is refused. If *"r"* observe value was higher than *"r"* product moment index, H_a is accepted. Mean while, if the *"r"* observe is lower than *"r"* product moment index, H_o was accepted.

To know contribution variable X to variable Y, the writer used the following formula;

$$KP = r^2 \text{ x } 100\%$$

Where:

KP = determinant coefficient score

r^2 = correlation coefficient score.[22]

[21] Anas Sudijono, *Pengantar Statistic Pendidikan*, Jakarta:PT.Raja Grafindo Presada,2005, p.103.
[22] Riduan. 2004. *Metode dan Teknik Menyusun Tesis…*, p. 138.