

III. METHOD

These chapters concerned with setting of the research, research design, data collecting techniques, try out of data collecting techniques, research procedure, data analysis, and hypothesis testing.

3.1 Setting of the Research

The research was conducted at SMAN 5 Bandar Lampung. The writer chose this school because there was no research yet conducted here previously and the topic for testing students' Reading comprehension is appropriate for students Senior High School. The population of this research was students of the second grade. There were 10 classes of the second grade students. The students were divided into 2 groups, XI MIA and XI IIS. From those numbers of the students, the researcher chose one group that was XI MIA¹. Then, the researcher chose XI MIA² as a sample in order to find the validity, reliability, difficulty level, and discrimination power of the test item. After getting a good test items, the researcher used XI MIA¹, as the subject to collect the data. There were 30 (thirty) students as the subject to collect the data.

3.2 Research Design

This research was a quantitative research. Quantitative research was associated with social survey technique like structured interviewing and self administered questionnaires, experiments, structured observation, content analysis, and the analysis of official statistics. It implied that the application of measurement of predetermined variables, as well as to the gathering and analysis of numerical data. The design used in this research is *ex post facto design* because there was no control group and no treatment to the subject but collecting the data by seeing the correlation between cause and effect that happened. Hatch and Farhady (1982:26) said that *ex post facto design* is often used when the researcher does not have control over the selection and manipulation of the independent variable. This was a correlation research. A correlation research was a detection of the correlation between one variable and others based on the available correlation coefficient.

The data of the research were students' reading interest, students' vocabulary mastery and students' reading comprehension. In this study, the data that collected are numbers, so the research design was descriptive quantitative. This study dealt with three kinds of variables, they were reading interest as the independent variable, vocabulary mastery as the independent variable, and the achievement reading comprehension as dependent variable. The ultimate purpose of the study as determines the effect of the independent variable (interest of reading and vocabulary mastery) on the dependent variable (reading comprehension).

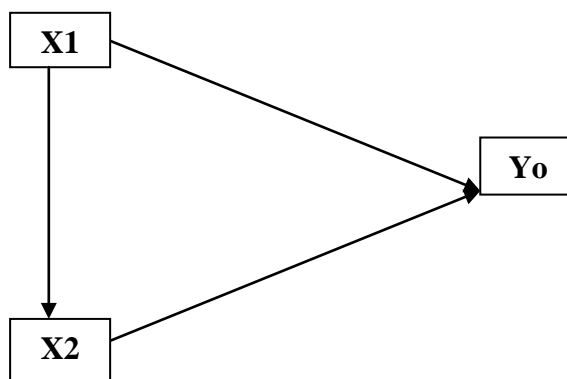
1. Reading interest (X1) and vocabulary mastery (X2) as independent

variables because it is assumed that reading interest and vocabulary mastery influence students' reading comprehension.

2. Students' reading comprehension (Y) as a dependent variable because it is assumed that reading comprehension is affected by students' reading interest and students' vocabulary mastery.

The data were correlated to find out the correlation each other. The design of the research was presented as below:

Picture 3.1 The Design of the Research



Usman, M (in Sewall Wright, 1934)

Where:

- X1 : Students' Reading Interest (Independent variable)
- X2 : Students' Vocabulary Mastery (Independent variable)
- Yo : Students' Reading Comprehension (Dependent variable)

3.3 Data Collecting Techniques

In collecting the data, the researcher used three techniques: questionnaire, written test of vocabulary, and written test of reading. So, there are 20 items of the questionnaire of reading interest and the researcher tried out 50 items of

vocabulary and 45 items of reading comprehension test. After that, the researcher analyzed those items to see their difficulty level and discrimination power. Then, only 40 items of vocabulary and 40 items of reading comprehension test were chosen by the researcher, which had the perfectness of level difficulty and the ideal of discrimination power. The following were the description of instrument, the level difficulty, discrimination power of the test items, validity and reliability.

1. Questionnaire

Questionnaire is a list of questions and statements to be answered by the students. The questionnaire consists of 20 items. The questionnaire was made based on the theory of factors that influence interest, they are previous experience, self concept, values, understandable subject, level of pressure involvement, and complexity of subject material. The result of questionnaire is scored based on Likert Scale. The scores range from 1-5. There are five options to answer the question in one item of questionnaires. They are strongly agree, agree, neither agree nor disagree, disagree and strongly disagree. The objective of questionnaire is to know the students' reading interest scores.

The result of questionnaire is scored based on Likert Scale. The scores range from 1-5. It provides the students with these following optional answers:

Table 3.1 Specification Scale of Score of Questionnaire

Answer Alternatives	Scale of Score
A. Sangat Setuju (Strongly Agree)	5
B. Setuju (Agree)	4
C. Ragu-ragu (Neither agree nor disagree)	3
D. Tidak Setuju (Disagree)	2
E. Sangat tidak setuju (Strongly disagree)	1

2. Vocabulary Test

The instrument used in this is in the form of a test on vocabulary is synonym and antonym vocabulary test. There are 50 questions which consists of 30 questions of synonym and 20 questions of antonym. The words are concerned on some vocabularies that is used in the narrative text of reading test from English book for second grade of senior high school. Referring to the syllabus, the writer chose narrative text, because narrative text is one of the text that to be mastered by second grade student of senior high school. Then, the students had to choose the correct word from five given words. After giving the test to the students, the researcher analyzed the appropriate test items in order to find the validity of the research. The test was conducted in 60 minutes for the tryout and 60 minutes for the test. The scoring is based on the correct answer, that is, one correct answer is scored 1; one wrong answer is scored 0. The objective of vocabulary test is to know the students' vocabulary scores.

3. Reading Comprehension Test

Reading Comprehension test is a set of questions in form of objective test used to measure the students' reading comprehension. There are 45

instruments for reading comprehension test. It is multiple choices test which one question has five options (a, b, c, d, e) with one correct answer and four distracters. The students need to read the passage first so that they can identify the main idea, specific information, reference, inference, and vocabulary of the passage. Then, they scrolled back to the relevant point in the text as the students do each question. After giving the test to the students, the researcher analyzed the appropriate test items in order to find the validity of the research. The test was conducted in 90 minutes for the tryout and 90 minutes of the test. The scoring criterion is determined around 0-100, so that if a student is able to answer all the test items, his score is 100. In scoring the students' result of the test, the formula can be seen as follow:

$$S = \frac{r}{n} \times 100$$

Where:

S = The score of the test
 r = The total of the right answer
 n = The total items

(Henning,1987)

3.4 Try Out of Data Collecting Techniques

A. Validity

The test considers as the valid one if the test measures the object to be measured and it was suitable with the criteria (Hatch and Farhady, 1982:250). According to

the Hatch and Farhady (1982:281), there are two basic types of validity, such as content validity and construct validity. Therefore, to measure whether the test has a good validity, this research used content and construct validity. The validity of the instrument was presented as follows:

1. The validity of the questionnaire

Validity is a matter of relevance; it means that the test measures what is claimed to measure. To measure whether the test has a good validity, it has to be analyzed from content of the test is sufficiently representative and comprehensive for the test to be valid measure it is supposed to measure. While construct validity focuses on the kind of the test that is used to measure the comprehension. Since the purpose of the test is to measure as well as to know students' reading interest, the researcher applied a questionnaire that she developed by using the theory about interest from Frymeir (in Crawley and Mountain, 1995).

To investigate the validity of the questionnaire items, the researcher used *interrater validity* developed by Setiyadi (2006). It referred to the method of judging the level of the validity by three reviewers in topics discussed and having strong backgrounds of either Teaching English as Foreign Language or research. There were three majors point on where the questionnaire was going to be validated. There were Face validity, Content Validity, and Construct Validity. In the questionnaire, Face Validity referred to how well the questionnaire was comprehended by the respondents. Then, Content Validity represented the level of representativeness of each item proposed in the questionnaire. It also

represented the level of the appropriateness of the questionnaire toward students in their level of comprehension. On the other hand, Construct Validity referred to the formation of the questionnaire proposed. It also made students easier to understand each items orderly arranged in their reading interest investigated.

The content validity of this questionnaire can be seen as follow:

Table 3.2 Table of Reading Interest Questionnaire Specification

No	Factors that influence students reading interests.	Item Number of Questionnaire
1.	Previous Experience	1, 12
2.	Self Concept	2, 3, 13, 14, 16
3.	Values	15, 19
4.	Understandable Subject	4, 5, 6, 8, 10, 11
5.	The Level of Pressure Involvement	7, 17, 18
6.	The Complexity of Subject Material	9, 20

Besides that the researcher used *inter-rater* to prove that the content, face, and construct were suitable with the questionnaire items. The reviewers were lecturers of University of Lampung and an two English teachers of SMAN 5 Bandar Lampung. The reviewers were asked to rate the 20 survey items on a 2-point rating scale ranging from 1 (important) to 2 (not important); to internally validated and examined the item assembled and its relevance to the research literature. Based on the result of validity judgement, the item questionnaires were modified according to the feedback acknowledged by the experts to make the items simpler and shorter in order to make the research participants to comprehend well. For examples, the researcher added some directions in the direction “*Kuesioner ini bertujuan untuk mengetahui minat membaca anda dalam bahasa inggris.*”

Jawablah dengan jujur seberapa benar pernyataan tersebut mendeskripsikan anda. Jangan menjawab apa yang anda pikir harus anda jawab, atau apa yang orang lain jawab. Tidak ada jawaban yang benar dan salah pada pernyataan ini". After that, the reviewers agree if the questionnaire has good contain validity. The containts were already related to the purpose of the questionnaire. Overall, there were not any deleted items. It assumes that the questionnaire test is valid.

2. The validity of Reading Test

Content Validity

In relation to the content validity, it is intended to see whether or not the tests are a good representation of the materials that to be tested. The ways to find out this kind of validity are formulating the questions based on the aim of teaching reading for the second grade of senior high school students and choosing the topics of the texts concern on the narrative text that is provided in English book for second grade of senior high school.

The content of the test is represented in the table of specification below:

Table 3.3 Table of Reading Comprehension Test Specification

No.	Skills of Reading	Item Number	Percentage of Item
1.	Identify the main idea	1, 5, 10, 14, 19, 24, 28, 36	20%
2.	Specific information	2, 6, 11, 15, 20, 25, 29, 33, 37	22,5 %
3.	Reference	3, 7, 12, 16, 21, 26, 30, 34, 38	22,5 %
4.	Inference	4, 8, 17, 22, 31, 35, 39	17,5 %
5.	Vocabulary	9, 13, 18, 23, 27, 32, 40	17,5 %

Construct Validity

Construct validity was concerned whether the test is actually in line with the theory of what reading comprehension means (Hatch and Farhady,

1982). To make sure the test reflects the theory in reading comprehension, the researcher examined whether the test questions actually reflect the meaning of reading comprehension or not.

3. The validity of Vocabulary Mastery Test

Content Validity

In vocabulary mastery test, the content validity was concerned on choosing some vocabularies that was used in the narrative text of reading test for second grade student senior high school from English book for second grade of senior high school.

Table 3.4 Specification of Vocabulary Test

No	Word	Items numbers of the test	Percentage
1.	Verb	2, 10, 13, 15, 21, 24, 25, 29, 30, 33, 37, 40	30 %
2.	Noun	3, 6, 9, 16, 17, 18, 19, 20	20 %
3.	Adjective	4, 7, 12, 14, 22, 23, 26, 27, 28, 34, 38, 39	30 %
4.	Adverb	1, 5, 8, 11, 31, 32, 35, 36	20 %
	Total	Numbers 40	

Construct Validity

Construct validity examines whether or not the test actually is in line with the theory of what it means to know. A test can be considered valid in its construction if the tests item measure every aspect that suitable with the specific objective of the instruction, the first instruction is to find the closest meaning for the underlined words and the second instruction is to find the opposite meaning for the underlined words. In this case, the test is designed by nature and the concept of vocabulary.

B. Reliability

1. Reliability of Questionnaire

Reliability refers to whether the test gives us an indication of how accurate the test score were (Shohamy, 1985: 70). However, every item in reading interest questionnaire was analyzed to make sure that the items consisted of good unity. To find whether the test was reliable or not, the writer used Cronbach Alpha. Cronbach Alpha is used to find the reliability of the questionnaire; it is because Cronbach coefficient alpha is the most common method of estimating the reliability of treatment outcome questionnaires. Chronbach's coefficient alpha estimates the consistency of items included in a questionnaire. The alpha ranges between 0 and 1. The higher the alpha, the more reliable the questionnaire would be (Setiyadi, 2006:167). And for knowing the classification of reliability, the following scale was used:

Between 0.800 to 1.00 = very high reliability

Between 0.600 to 0.800= high reliability

Between 0.400 to 0.600= moderate reliability

Between 0.200 to 0.400= low reliability

Between 0.000 to 0.200= very low reliability

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.831	.834	20

The reliability coefficient questionnaire can be found by using Cronbach Alpha. The data showed that the reliability coefficient of the questionnaire was $r = .831$. It means that the questionnaire had high reliability. It indicates that the questionnaire that was used in this research was reliable and applicable instrument to measure both students' reading interest and its correlation toward students' vocabulary mastery and students' reading comprehension. There were no items dropped in order to maintain the number of items.

2. Reliability of the Instruments

Shohamy (1985) states that reliability refers to the extent to which the test is consistent in its score. It can also give an indication of how accurate the test score. The researcher used split-half method to estimate the reliability of the test, since the formula is simple. It is because (1) it avoids troublesome correlation and (2) in addition to the number of item in the test, it involves only the test, mean, and standard deviation, both of which are normally calculated anyhow as a matter of routine. To measure the coefficient of the reliability between odd and even group, the research uses the Pearson Product Moment formula as follows:

$$r_{xy} = \frac{\sum XY}{\sqrt{[\sum X^2][\sum Y^2]}}$$

Shohamy (1985)

In which,

r_{xy} : coefficient of reliability between the first half and the second half items

X : the total numbers of odd items (variable)

Y : the total numbers even items (variable)

X^2 : square of X

Y^2 : square of Y

(Lado, 1997)

Before getting the final data, the researcher gave the tryout of vocabulary and reading comprehension test. Then, the researcher used the formula to calculate the reliability of the vocabulary and reading comprehension test in order to know the items in the test show the consistency in its score. The test items are reliable when the value closes to 1.

The criterion of reliability as follow:

- 0.90-1.00 : high
- 0.50-0.89 : moderate
- 0.0-0.49 : low

To know the coefficient correlation of whole items, the researcher used Spearman Brown's Prophecy Formula (Hatch and Farhady, 1982). The formula is as follows:

$$rk = \frac{2 r_{xy}}{1 + r_{xy}}$$

In which,

rk : the reliability of the test

r_{xy} : coefficient of reliability between the first half and the second half items

The researcher found that the reliability of reading comprehension and vocabulary mastery try out test were high reliability, 0.98 (on reading comprehension), 0.97 (on vocabulary mastery). (See Appendices 11 and 16).

C. The Difficulty Level of the Test Items

Difficulty level relates to how easy or difficult the item is from the point of view of the students who take the test. It is important since the items, which are too easy (that students get right) can tell us nothing about differences within the test population. To see the level of difficulty, the research used the formula as follows:

$$LD = \frac{U+L}{N}$$

in which:

LD : level of difficulty

U : the number of upper group who answer correctly

L : the number of lower group who answer correctly

N : total number of students

The criteria are:

- Less than 0.30 = difficult
- 0.30-0.70 = middle (good item)
- More than 0.70-1.00 = easy

(Shohamy, 1985: 79)

Based on the statements above, it is clear that all the test items should be based on the criteria above and the items which do not fulfill the requirements should be omitted or revised.

The researcher found out that there were 2 items (4.4%) were difficult, 41 items (91.1%) were average, and 2 items (4.4%) were easy in reading comprehension test and 3 items (6%) were difficult, 45 items (90%) were average, and 2 items (4%) were easy in vocabulary mastery test. However, the researcher omitted all the difficult and easy items to get good items test. (See Appendices 12 and 17).

D. Discrimination Power

Discrimination power refers to “the extent to which the item differentiates between high and low level students on the test. A good item according to this criterion is “one in which good students did well, and bad students failed” (Shohamy, 1985: 81). To calculate the discrimination power (DP) of the test items, the researcher uses the following formula:

$$DP = \frac{U - L}{\frac{1}{2} N}$$

In which,

DP: Discrimination Power

U: the total of correct answer of the higher group

L: the total of correct answer of the lower group

N: total number of students

(Shohamy, 1985)

The criteria are:

0.00- 0.20 = Poor

0.21- 0.40 = Satisfactory

0.41- 0.70 = Good

0.70- 1.00 = Excellent (should be omitted)

The criteria are:

1. If the value is positive discrimination – a large number or more knowledgeable students than poor students get the item correct. If the value is zero, it means that there is no discrimination.
2. If the value is negative, it means that more low students than high level students get the item correct.
3. In general, the higher, the discrimination index, the better. In classroom situation most items should be higher than 0.20 indexes.

(Shohamy, 1985)

Based on the criteria of the try out test that analyzed by the researcher (See Appendices 12 and 17), the researcher concluded that 5 items (11.1%) were poor and 40 items (88.8%) were good or positive discrimination in reading comprehension test, 10 items (20%) were poor and 40 items (80%) were good in vocabulary mastery test.

After counting the level difficulty and discrimination power of each items, the researcher found that 5 of 45 items of reading comprehension test, 10 of 50 items of vocabulary mastery test could not get good test items and should be dropped.

3.5 Research Procedure

In conducting the research, the writer used the steps as follows:

a) Determining the problem

In order to determine the problem, the writer read some books that relate to the topic.

b) Determining the instrument

In this research, the writer used appropriate instrument in order to be able to be interpreted. The instruments are:

1. The Reading Comprehension test
2. The Reading Interest questionnaire
3. The Vocabulary test

c) Finding the sample

The sample of this research was XI Mia 1 students of SMA N 5 Way Halim Bandar Lampung.

d) Trying out the instrument

Before distributing the instruments, the researcher tried out them first in order to guarantee the result to be more valid. Trying of three kinds of the instruments (reading interest questionnaire, test of vocabulary and reading comprehension) in order to check its validity, reliability, difficulty level and discrimination power.

e) Identifying the instruments

Identifying the instruments test items that appropriate for getting the data (see from the difficulty level and discrimination power).

f) Distributing the instrument

Three of the instruments were distributed to the students. Giving those tests to the students in order to identify their reading interest, vocabulary mastery and reading comprehension score.

g) Scoring the data

The researcher counted the score of questionnaire, vocabulary test, and also reading comprehension test in order to find how far the students can answer all the test items.

h) Analyzing the data

After the researcher got all the data, the researcher analyzed the data by using SPSS and Path analysis to see the cause and effect of each variable.

i) Making the conclusion

The last, the researcher made the discussions and conclusions of this research.

3.6 Data analysis

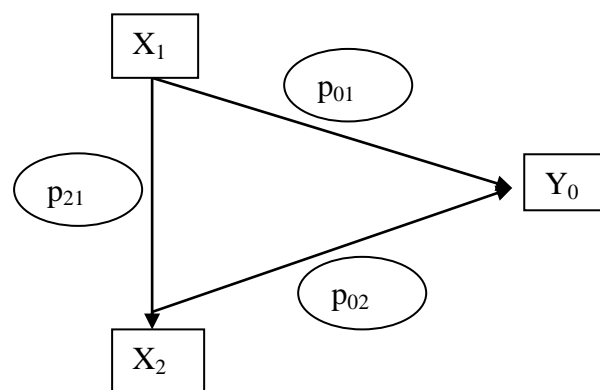
The researcher analyzed the data by using Path analysis, it was because Path analysis is a widely used technique for modeling plausible sets of causal relations among three or more observed variables. Path analysis was a statistical method used to examine hypothesized (causal) relationships between two or more variables. Path Analysis was developed by Wright, S (1934) as a method for studying direct and indirect effects. Path analysis is a method for studying direct and indirect effect of variables hypothesized as causes of variables treated as effects. It is important to stress from the outset that, being a method, path analysis is

intended not to discover causes but to shed light on the tenability of causal models a researcher formulates based on knowledge and theoretical considerations.

Direct effect means the effect of a variable directly to another variable. Meanwhile, indirect effect means the effect of a variable on another variable through the mediation of one or more intervening variables. In Path analysis also there is Path coefficient, it is a standardized regression coefficient (p) showing the direct effect of an independent variable in the path model.

The analysis of this research can be seeing in the following picture:

Picture 3.2 Design of the research



Usman, M (in Sewall Wright, 1934)

Where:

- X_1 : Students' Reading Interest (Independent variable)
- X_2 : Students' Vocabulary Mastery (Independent variable)
- Y_0 : Students' Reading Comprehension (Dependent variable)
- p_{01} : Path coefficient of X_1 to Y_0
- p_{02} : Path coefficient of X_2 to Y_0
- p_{21} : Path coefficient of X_1 to X_2
- ϵ : Error

Equation 1

$$Y_o = P_{01}X_1 + P_{02}X_2 + \epsilon_2$$

Hypotheses

Hypothesis is the temporary answer in a research until the end of a research. In this research, the writer found out the correlation of student's reading interest, their vocabulary mastery toward their reading comprehension. There were three variables that is analyzed in this research, namely: Dependent variable (Y_o) is student's reading comprehension, independent variable (X_2) is student's vocabulary mastery and (X_1) student's reading interest.

1. $X_1, X_2 \longrightarrow Y_o$ = there is a direct effect X_1, X_2 to Y_o

3.7 Hypotheses Testing

Based on the description above, the researcher has three hypotheses as follows:

1. H_0 : There is no direct effect of students' reading interest on their reading comprehension of the second grade at SMA Negeri 5 Bandar Lampung in the 2014/2015 academic year.

H_1 : There is a direct effect between students' reading interest on their reading comprehension of the second grade at SMA Negeri 5 Bandar Lampung in the 2014/2015 academic year.

2. H_0 : There is no direct effect of students' vocabulary mastery on their reading comprehension of the second grade at SMA Negeri 5 Bandar Lampung in the 2014/2015 academic year.

H_1 : There is a direct effect of students' vocabulary mastery on their reading comprehension of the second grade at SMA Negeri 5 Bandar Lampung in the 2014/2015 academic year.

3. H_0 : There is no direct effect of students' reading interest and students' vocabulary mastery on their reading comprehension of the second grade at SMA Negeri 5 Bandar Lampung in the 2014/2015 academic year.

H_1 :There is a direct effect between students' reading interest and students' vocabulary mastery on their reading comprehension of the second grade at SMA Negeri 5 Bandar Lampung in the 2014/2015 academic year.