III. RESEARCH METHODS

This chapter is consist of research design, population and sample, variables, data collecting technique, instrument of the research, data analysis and hypothesis Testing.

3.1 Research Design

This research is intended to investigate whether there is any significant influence of students' motivation and their reading comprehension achievement. The writer used a quantitative method because it is very useful for providing factors connected with second language development. Setiady (1999:54-55) cites that quantitative research is associated with social survey technique like structural interviewing and self administered questionnaires, experiment structured observation, context analysis of official statistics it implies the application of measurement predetermined of quantitative study that can examine broader issues, in a wide geographical spread of representative sample, and is sometimes called a macro approach. It is also chosen because the problem that was solved is actual (existing on the facts) and it occurs in recent time.

The design used in this research is ex post facto research design, because the writer did not give treatment but collecting the data by seeing the influence between cause and effect that happened.

Hatch and Farhady (1982:26) stated 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 is why the researcher looks at the type and/or degree of relationship between two variables rather than at a cause-effect-relationship. The aim of this study is to find out the influence of two variables (motivation and reading comprehension achievement). The data of the research were students' motivation and their reading comprehension achievement. Students' motivation is in the form of perception based on Likert scale with the range 1-4.

Motivation is one of the language attitudes symbolized as 'X' which was measured by a questionnaire of motivation developed by Sadewo (1999) and the result was motivation data. Reading comprehension is one of the language skills which were tested by reading test and the result was students' reading comprehension achievement, symbolized as 'Y'. The research design of the study is formulated as follow:

$$X \rightleftarrows Y$$
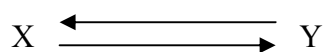
X: Students' motivation

Y: Students' reading comprehension achievement

From the design above it can be said that not only student's motivation can influence students' reading comprehension but also if students' have high score in reading, it can influence their motivation to learn English more.

3.2 Population and Sample

The population of this research was all of the students at second year of SMA N 1 Lampung Selatan in the academic year of 2010/2011 which consist of nine classes (fife Science Classes and four Social classes) and each class consist of 38 to 40 students. Because the writer assumes that the second year students had known English better than other classes and they also already have experiences of learning English at SMA N 1 Lampung Selatan. There is no such favorite class which consists of clever students only. The writer took the samples from two classes of the second year.

3.3 Variables

In this research, the writer measured the influence between two variables.

(a) Independent variable (X)

Motivation is classified as independent variable because it is assumed that motivation has an influence toward the students' reading comprehension achievement.

(b) Dependent variable (Y)

Students' reading comprehension achievement is classified as dependent variable because it is assumed that students' reading comprehension achievement is influenced by motivation.

3.4 Data Collecting Technique

In collecting the data, researcher used the following techniques:

1. a questionnaires, it is a set of question and statement to be answered by the students to measure the students' reading motivation. (Variable X).

2. reading comprehension test, it consist of some questions (items) in which the test will be taken from the teacher guideline book and students' handbook (Variable Y).

3.5 Instrument of the Research

3.5.1 Questionnaire

The writer distributed the questionnaires to the samples in order to get the information about the students' motivation and their reading comprehension achievement. The writer gave a set of close-ended questionnaires means the options are provided and there are no other alternatives. Close-ended questionnaires was used to help the researcher in selecting the data, so that the researcher would not have to waste the time for the data which are not relevant to the research problem.

The students' motivation is a score was taken after they answer the questionnaire about motivation which covers the encouragement which emergences the willingness to do the activity as a student, determine the action they want to do and the purpose achieved in the process of learning systematically, which come from intrinsic and extrinsic, those are: 1) learning duration, 2) the students' behavior in learning, 3) the frequency, 4) consistency, 5) persistency 6) loyalty, 7) vision in learning, and 8) achievement.

A set of the motivation questionnaire was taken from Sadewo (2009) in which the scores are based on the Likert Scale and the range of 1 to 4 for the positive statements and the range of 4 to 1 for the negative statements. The last scores were taken from the total answers given so that the high and the low score show the motivation range. The questionnaire is in Indonesia language in order to make easier for the students to answer it.

Table 3.1 Table of Specification of Questionnaire

Indicator	Sub Indicator	Statements		Total
		Positive (+)	Negative (-)	Number
1.Learning Duration	The duration of learning time	1, 2, 3, 4, 8	5, 6	7
2.Students' behavior in learning	The tendency of behavior: happy, doubt, unhappy	7, 9, 10, 13	11, 12	6
3.Frequency	Learning done often or not	14, 15, 16, 17,	18	5
4.Consistency	Determinations	19, 20, 22	23	4
5.Persistency	The student' ability to solve the problem	24, 25, 26, 27	28, 29	6
6.Loyalty	Devotion, the sacrifice to gain the purpose	30, 31	32	3
7.Vision in learning	Students' learning target which is creative, innovative and effective	33, 34	35, 36	4
8.Achievement	The students' aspiration or the achievement	21, 37, 38, 39	40	5
	Total Number	**28**	**12**	**40**

The reason of giving score was to facilitate and to ease the counting and giving score for each answer given by the students about their motivation and reading comprehension achievement.

A. 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 test that is used to measure the ability. Since the purpose of the test is to measure as well as to know students' motivation, the researcher applied a questionnaire that dealt with motivation developed by Sadewo (2009).

B. Reliability of the Questionnaire

The researcher gained the data by using quantitative description. First of all, the result of questionnaires were scored based on Likert scale, the score ranges 1 to 4. To measure the consistency of items of the questionnaires the researcher used Cronbach Alpha Coefficient since it is the most common used to measure the consistency among the indicators of the questionnaire.

The alpha ranges between 0 and 1. The higher the alpha, the more reliable the questionnaire will be (Setiyadi, 2006:167).

Arikunto (1986:106) explains the way to examine the reliability level or questionnaire reliability by using an Alpha Formula, as follow:

$$r_{11} = \left(\frac{n}{(n-1)}\right)\left(\frac{1-\sum \sigma_i^2}{\sigma_i^2}\right)$$

Explanation:

r_{11} = Reliability

n = the number of items

$\sum \sigma_i^2$ = Total variance of all items

σ_i^2 = The total of variance

To find the variance, the researcher uses the formula as follow:

$$\sigma^2 = \frac{\sum X^2 - \frac{(\sum X)^2}{N}}{N}$$

Explanation:

σ^2 = Variants

$\sum X^2$ = The number of date quadrate

$(\sum X)^2$ = The number of date being quadrate

N = The number of data

And for knowing the classification of reliability are as follows:

a. Between 0,800 to 1,00 = Very high reliability

b. Between 0,600 to 0,800 = High reliability

c. Between 0,400 to 0,600 = Moderate reliability

d. Between 0,200 to 0,400 = Low reliability

e. Between 0,00 to 0,200 = Very low reliability

The researcher administers the questionnaire for the purpose of estimating the students' motivation and their reading comprehension achievement. The questionnaire that was used in this research consists of 40 items; those questionnaires items measure about students' motivation. The questionnaire used by the researcher was taken from Sadewo (2009).

The researcher analyzed the reliability to know whether or not the questionnaire was reliable. The questionnaire was considered reliable if it has good level of reliability. A reliable measure is one that provides consistent and stable indication of the characteristic. To measure the reliability of the questionnaire, the researcher used alpha formula after she has found the variance of all items.

3.5.2 Reading Comprehension Test

Alderson (200) states that there is no best method for testing reading. There are many kinds of reading assessment such as multiple choice items, written and oral recall, cloze, sentences completion items, open-ended question, true/false, matching activity, checklist and fill the blank. It is important to note, that different assessment task may not test the same ability. Individual assessment task provides limited representation of reading comprehension; however, many reading researchers continue to use only task to measure comprehension.

In this research, the researcher uses multiple-choice items in assessing the students' reading comprehension. The multiple-choice item was created based on two criteria made by Wolf (1993): (a) All items are passage dependent, and (b) some of the items require the reader to make inference.

In addition, correct responses could not be determined by looking at the other question on the page. For each multiple-choice question, there were four possible responses, one correct response and three distracters. All distracters in the multiple-choice question are possible (Wolf, 1993), and multiple-choice questions could not be answered correctly by the students without having read and understood relevant parts of the passages. In order to fulfill the criteria, the sort of reading that are tested are shown in the table of specification below:

Table 3.2 Table of specification of reading Try out test

No	Reading Specification	Items	Percentage
1.	Determining main idea	4, 19, 21, 26	12%
2.	Inference	8, 9, 11, 16, 14, 25	24%
3.	Reference	5, 18, 20, 22, 24	16%
4.	Finding detail information	1, 2, 13, 15, 28	16%
5.	Vocabulary	3, 10, 17, 23, 27	16%
6.	Generic Structure	6, 7, 12, 29, 30	16%
	Total	**30 items**	**100 %**

The researcher used quantitative research in analyzing all data gathered from the reading test.

A. Validity of the test

A good test can be seen from its validity. "Validity is refers to the extent to which the result of the procedure serve the uses for which they were intended" (Hatch & Farhady, 1982:250). Content validity was used in this research. The validity of the test was seen from the content validity.

The content validity emphasizes on the equivalent between the material has been given and the items tested.Simply, the items in the test must represent the material that has been taught in the school.

While construct validity is concerned with whether the test is actually in line with the theory of what it means to know the language (Shomamy, 1985:74). In this research, the researcher used reading comprehension test that is supposed to be able to be comprehend by the grade XI students of senior high school. The materials were based on the curriculum used in senior high school nowadays; it is KTSP (Kurikulum Tingkat Satuan Pendidikan) 2006.

B. Reliability of the test

A test is called reliable if the score gained by the examinees is constant whenever and by whomever the test is conducted. A test will not be a good parameter unless the test is stable or constant. To measure the reliability of the test, the researcher used Spearman Brown formula. The formula is as follows:

$$rk = \frac{2.\,rl}{1 + rl}$$

rk   : The reliability of the test

rl   : The reliability of half the test

And for knowing the classification of reliability are as follow:

a.   Between 0,800 to 1,00   = Very high reliability

b.   Between 0,600 to 0,790 = High reliability

c.   Between 0,400 to 0,590 = Average reliability

d. Between 0,200 to 0,390 = Low reliability

e. Between 0,00 to 0,190 = Very low reliability

C. Level of Difficulty

Level of difficulty relates to "how easy or difficult the item is for the point of view of the students who took the test. It is important since test items which were too easy (that all students get right) can tell us nothing about differences within the test population" (Shohamy, 1985:79). Level of difficulty is calculated by using the following formula:

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

LD   = level of difficulty

R   = number of students who answer it right

N   = total number of students

The criteria are:

LD < 0,30   = difficult

LD = 0,31 – 0,70   = satisfied

LD > 0,71 – 1,00   = easy

        (Arikunto, 1997: 214)

D. Discrimination Power of the Test

Discrimination power refers to "the extent to which the item differentiates between high and low level students on that test. A good item according to this criterion, is one in which good students did well, and bad students failed" (Shohamy, 1985:81).

The formula is used:

$$DP = \frac{\text{Upper} - \text{Lower}}{\frac{1}{2}(N)}$$

DP   = discrimination power

Upper = proportion of "high group" students getting the item correct

Lower = proportion of "low group" students getting the item correct

N   = total number of students

The criteria are as follows:

DP   = 0.00 – 0.20 = poor

DP   = 0.21 – 0.40 = satisfactory

DP   = 0.41 – 0.70 = good

DP   = 0.71 – 1.00 = excellent

    (Arikunto, 1977:223)

E. Scoring System

In scoring the students' result of the test, the writer used Arikunto's formula (1989:271). The highest score will be 100.

$$S = \frac{R}{N} \; x \; 100$$

Where:

S   = the score of the test

R   = the right answer

N   = the total of the items

3.6 Data Analysis

In analyzing the data, the result of students' motivation and the result of reading comprehension achievement used in order to find the coefficient correlation between them. The technique which was used to find out the correlation was by using Pearson Product Moment Correlation Coefficient. The writer used this technique to find out whether there is any influence of students' motivation and students' reading comprehension achievement. The formula of Product Moment Correlation Technique by Pearson is:

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

Explanation:

r   = Correlation coefficient in each variable

x   = Students' reading motivation score

y   = Reading comprehension achievement score

$\sum X$ = The sum of scores in X distribution

$\sum Y$ = The sum of scores in Y distribution

$\sum XY$ = The sum of products paired X and Y distribution

$\sum X^2$ = The sum of squared scores in X distribution

$\sum Y^2$ = The sum of squared score in Y distribution

N   = The number of paired X and Y scores (subject)

The coefficient is between -1,00 + 1,00. The negative coefficient shows the contrary relation, while the positive coefficient shows that there is a correlation. In other words the more positive the coefficient, the more valid the questionnaire will be. Below is the interpretation of the correlation coefficient (r):

a. between 0,800 to 1,00   = Very high correlation

b. between 0,600 to 0,800 = High correlation

c. between 0,400 to 0,600 = Moderate correlation

d. between 0,200 to 0,400 = Low correlation

e. between 0,00 to 0,200   = Very low correlation

Setiyadi (2006:167)

And to know how is the influence value between the variables; we need to know the value of coefficient influence (Pij). This coefficient influence value is important to see the contribution of influence toward the correlation. To analyze the data of the correlation and the influence, the writer used the SPSS (Statistical Program for Social Science) computer program and correlation and regression formula.

3.7 Hypothesis Testing

In order to prove the hypothesis, regression linear is used. Regression was used to predict the influence of dependent variable and independent variable. Regression linear can not be separated with correlation analysis. Coefficient that we get based on correlation analysis was squared to look for the regression value (r^2). The criteria for the hypotheses are:

Accept Ho if Pij < 0.05, and accept Hi if Pij>0.05

Coefficient Influence Value	Influence Interpretation
0.05 – 0.09	Weak
0.10 – 0.29	Moderate
0.30 – up	Strong

(Suwarno, 1983; 49)

Ho = There is no influence of students' motivation toward their reading

comprehension achievement at the second year students of SMA N 1

Lampung Selatan at first semester in the year 2010-2011

Hi = There is influence of students' motivation toward their reading

comprehension achievement at the second year students of SMA N 1

Lampung Selatan at first semester in the year 2010-2011