III. METHOD

This chapter includes procedures of the research design, instrument, population and sample, research instrument, research procedures, and data analysis.

3.1. Research Design

In conducting the research, the researcher applied*causal comparative study* for Vocabulary Levels Test by Nation (2001:416). Causal-comparative research attempts to determine the cause or consequences of differences that already exist between or among groups of individuals. The basic causal-comparative approach is to begin with a noted difference between two groups and then to look for possible causes for, or consequences of, this difference (Jack R Frankel, 2006). In this test,students get the score of each person at each level (the person's score profile). The result can compare these score profiles between people and between groups, to see if different people are scoring better than each other at particular levels or overall. This test can also see within people to see if, as might be expected, their scores appropriate with their origin school.

In this design, there must be a difference between the first group and and second group. The research design could be represented as follows:

G T1

G T2

Where :

G   : samples (tenth grade students of SMA Negeri 15 Bandar Lampung)

T1   : Level 1

T2   : Level 2

3.2 Population and Sample

Population is the total elements, subjects, or members that possess a specified set of one or more common characteristic that define it (Wiersma, 2000: 459). In this research, the researcher took Senior High School Number 15 Bandar Lampung as the population. There were 6class of the first grade of that school. Total of students in all class at first grade student senior high school SMA Negeri 15 Bandar Lampung was 268 students. The number of the student of each class was approximately 35 students.Their age range was around 15 to 16 years old female and male. While, sample is the subject of individuals form a given population states by Nunan (1992). Sample must represent the population, as it is part of population from generalization is taken. To take the sample, theresearcher takes at least 25 percent of the population in first grade of Senior High School Number 15 Bandar Lampung as the sample. So the researcher will take 67 students in the first grade. The samples of this research were chosen through random sampling.

3.3 Data Collecting Techniques

In collecting the data, the researcher used:

1. Vocabulary Level Test

After deciding the subject, the researcher gave the questionnaire to the subject. To find out what students vocabulary size were. There were several questions andthe student head to cross the optional.

3.4 Research Instrument

The researcher decided to administer vocabulary test.Vocabulary task was choosing as the instrument because it requires students to measure their vocabulary size. In this research, the researcher used *Word-Definition Matching Format* (WDMF) as vocabulary size test by Sutarsyah (2006). This test is almost similar with *Vocabulary Levels Test (VLT)* which was originally created by Paul Nation (1983; 1990). The format of the test is also same with VLT. Both of the tests have six option words and three definitions are used in each section but WDMF test uses the three definitions options in Bahasa Indonesia.

The vocabulary level test consists of 4 level which is derived by Bauer and Nation (1993) the first to third level are taken from list of frequency word order of General Service List (GSL). The last level is called University Word List (UWL) as the specialized vocabulary taken from 800 words of University Word List (UWL). But, in this research, the researcher was taken two levels. Each level in vocabulary size test was represented by 40 items or words in GSL and UWL. The students are asked to match the two lists, left and right. The format of the test is like the following example:

a. concrete
b. era   1. _____ bundar
c. fibre   2. _____ puncakdarigunung
d. loop   3. _____ periodewaktu yang panjang
e. plank
f. summits

After giving the test to the students, the researcher was analyzed the appropriate test items in order to find the validity of the research. The test was conducted in 90 minutes for the test.

3.5 Research Procedures

To conduct the research, the researcher used some procedures. It starts from determining the research problem to making a report and discussion of findings. The procedures of the research are as follows:

1. **Determining Research Problems**

   The research determines the research question of this research. There are two research problems in this research, have the students reached 2000 wordlist in their vocabulary sizeandis there any differences between student vocabulary size in level 1 and level 2.

2. **Determining Population and Sample**

   The population of the research was the students of Senior High School Negeri 15 Bandar Lampung. The sample was taken from every class of first grade in academic year 20015/2016. There were around 35 students every class. The subjects' age ranged between 15 and 16 years of age. There are more female than male subjects. It was taken 67 students as the sample. They were multicultural and different social economic status.

3. Determining the Research Instrument

The researcher checked the students' vocabulary size by giving vocabulary level test to the students. The vocabulary test is divide into two levels where in each levels consist of 40 items StudentsusedWord Definition Matching Format ; translation.

The Research Instrumentthat was used in this research is called vocabulary level test. The test belongs to the type of *breadth* vocabulary test. The vocabulary level test is called *word definition matching format*(Sutarsyah. 2006).The vocabulary test consists offour levels whose level consists of 40 items as a sample. This level is derived from Bauer&Nation(1993)word level (1st 1000 words, 2nd 1000 words, 3rd 1000 words which is basically derived from the list of frequency word order of *General Service List* (GSL) and 800 words of University Word List (UWL). Thus, up to the 3rd level word levels consists of1000 base words and for UWL consists of 800 base words.

In other words, each level is represented by 40 items or words. The students are to match the two lists, left and right, as shown in the example below:

A   original

B   private   1._____ lengkap

C   royal   2._____ pertama

D   slow   3._____ pribadi/tidak umum

E   sorry

F   total

Nation's vocabulary levels testuse the *General Service List*(GSL) (Bauer&

Nation 1993) on the words in the table above. The sample is taken from all pages

of the*General Service List*(GSL) in which theeachlevelofthe fourlevels

intheGSLintake40 wordsto thefrequencyof eachword40timesto25for

retrievalsof1000 words.

4. **Analyzing the data.**

   After scoring the students testthe researcher was analyzed the result of

   vocabulary size test by using SPSS.

3.6 Criteria of good test

There are four criteria of good test namely, validity, reliability, level of

difficulty, and discrimnination power.

3.6.1 Validity

Validity refers to the extent to which the test measures and to what is

intended to measure. There are two basic types of validity; content validity and

construct validity (Hatch and Farhady, 1982:250).A test can be considered to be

valid if it can precisely measure the quality of the test.

There are four kinds of validity that are:

1. Face validity, concerns with the lay out of the test;

2. Content validity, depends on a careful analysis of the language being stated;

3. Construct validity, measures certain specific characteristic in accordance with

   a theory of language learning;

4. Criterion-related validity, concerns with measuring the success in the future as in replacement test.

According to the types of validity above, the writer used content and construct validity. Both of them are explained as follows:

    a. Content Validity

        Content validity is intended to know whether the test items are good reflection of what will be covered or not. The test items which are adapted from the materials that have been taught to the students should be constructed as to contain a representative sample of the course (Heaton, 1988). Content validity essentially concerns with the systematic examination of the content of the test. The test should cover a representative sample of the behavior domain to be measured (Jafarpur, 1987) . WDMF was prepared with a balance proportion of the levels that were going to be used.

3.7. Data Analysis

        In order to know the students' vocabulary size in vocabulary levels test and the students' score are computed by doing three activities:

    1. Scoring the vocabulary test

    2. Calculating the result of the vocabulary test

$$SS = \frac{\sum s}{\text{SMPL}} \text{ x } 1000$$

SMPL =Subject's Vocabulary size at a given level

SS = a subject's score on the Levels Test at the relevant level

$\sum s$ = Total students' vocabulary score

For example if a student can answer 30 items correctly in the first level (1st 1000 words), this means he or she estimated to have vocabulary of 750 words in the first level. That is by calculating the correct answer divided by 40 (sample), then multiply by 1000 (30/40 x 1000), etc.

A students' total Vocabulary size is the sum of those two SMPL. That can of course be assessed against various estimates of the number of words needed to be known to read authentic general English texts or academic texts successfully (Nation 2001:146).

3. Drawing conclusion from the calculated results of the test given, thats by statistically analyzing the data using statictical vocabulary size scoring.

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

Notes :

M   = mean (average score)

$\sum x$ = the total students' score

N   = total of students

(Hatch and Farhady:1982)

The table below is the ilustration how to count students' vocabulary size.

Student	Level 1		Level 2		Total
Name	Score	Ss	Score	Ss	
1					
20					
39					
40					
Mean					
Lowest					
Higher					

Figure 2. Data of Vocabulary size from each level and each sample SHS.

3.8 Hypothesis Testing

Hypothesis test was a kind of test to check whether researcher's hypothesis was accepted or not according to the data that was collected. To test his hypothesis, researcher used *T-test* that was conducted at the significant level of 0.05 (P<0.05). The hypotheses are:

Ho : There are no significant differences in vocabulary sizebetween level 1 and level 2.

Hi : There are significant differences in vocabulary sizebetween level 1and level 2

(Hatch and Farhady, 1982:111)

The criteria for accepting the hypothesis were as follows:

1. $H_o$is accepted if the T-value is lower than T-table.

   It means that there are no significant differences in vocabulary sizebetween level 1 and level 2.

2. H_0 is rejected if the T-value is higher than T-table.

   It means that there are significant differences in vocabulary sizebetween level 1and level 2.