III. RESEARCH METHOD

3.1 Research Design

This was a quantitative research. In conducting the research, the researcher applied one group pretest-posttest, pre-experimental design. The researcher used one class where the students received pretest before three-time treatments and they received posttest after the treatments. The pretest was used to find out the students' preliminary ability and the posttest was used to see how far the increase of the students' vocabulary mastery after the treatments. The treatments were given to the students by applying picture sequences. The research was intended find out whether:

1. There was a significant increase of the students' vocabulary mastery at the first year of SMPN 12 Bandar Lampung after being taught through picture sequences.
2. There was a significant increase of the students' vocabulary mastery through picture sequence at the first year of SMPN 12 Bandar lampung

The research design was described as follows:

T1 X T2

Where:

T1 : pretest

T2 : posttest

X : treatments (picture sequence)

(Setiyadi, 2006: 131)

3.2 Population and Sample

The subject of the research was the first year students of SMPN 12 Bandar Lampung. There were six classes of the first year (VII A-VII F), and each class has the same opportunity to be chosen as the subject. In relation to the design, one class was taken to conduct the research that was VII B. there were 34 students in this class.

3.3 Data Collecting Technique

The data of this research was the ability of the student's vocabulary mastery of daily activities, before and after the treatments.

The instrument of this research was test; the test was objective vocabulary test in the form of multiple choice items. The pretest and posttest was given to the subjects in order to evaluate, to measure their vocabulary mastery of daily activities related to content words (Nouns, Verbs, and Adjectives).

In collecting the data, the researcher uses the following steps:

3.3.1 Pretest

The pretest conducted before the treatment. It was use to know how far the students have mastered the vocabulary before treatment is given. The test used by the researcher was an objective test in the form of multiple choices.

In this research; the researcher applied picture sequence, and picture sequence was applied which focused on vocabulary that the students has already mastered. Vocabulary can generally be included in an objective test that a subjective test. The researcher assumed that in measuring their ability in mastering vocabulary, the proper or the suitable test used is objective test. The number of the items in the test is 30 in which each item has four options of answer (A, B, C, D). One was the correct answer and the rests are the distracters. The aspects of vocabulary which were tested concerned about the meaning and use.

3.3.2 Posttest

The posttest conducted after the researcher conducts the treatments. It was use to know how far the students have master English vocabulary after being taught through picture sequences. Similar to the pretest, the researcher used a test in the form of multiple choice tests. The questions were the same as the pretest. But, the researcher changed the order of the questions from those in the pretest in order that the students not only memorize or remember the order of the test consist of 30 questions. This test has the same difficulty as the pretest.

In this research, the researcher chose content words (noun, verb, adjective) because all of them are the things that the students find in their daily life, so it is very important to know the English of those things. Based on Educational Unit Level Curriculum (Depdiknas, 2006:4), Junior High School Students are supposed to master vocabulary around the students' texts. The material is about daily activities. The material is selected from English book for grade VII students of Junior High School.

3.4 Conducting Try out Test

After choosing the subject, the try out of test items was carried out. This was multiple choice tests. The number of the test items were 40 with four options of answer for each (A, B, C, D), one as the correct answer and the rests were distracters. The aim of try out was to measure the quality of the test used as the instrument of the research, and determine which item should be revised for the pretest and posttest.

The result of the try out test was used to measure the level of difficulty and discrimination power, to find out the validity and reliability to prove whether the test has good validity, reliability, level of difficulty, and discrimination power.

3.4.1 Validity

The validity of the test was the extent to which it measures what it was supposed to measure and nothing else (Heaton, 1991:159). In order to measure whether the test

has a good validity, the researcher analyzes the test from content, construct, and face validity.

- Content validity is concerned whether the test was sufficiently representative and comprehensive for the test. In the content validity, the materials given were appropriate with the curriculum. In this case, the researcher uses the vocabulary that was supposed to be comprehended by the first year of students; it was based on KTSP of English for Junior High School. To fulfill this validity, the researcher should see all the indicators of the instrument and analyze them whether the measuring instrument has represented the material that was measured or not. In this research, the researcher arranged the instrument based on the material which has been given about vocabulary of daily activities and the instrument was made related to vocabulary which was content words (noun, verb, adjective). If the measuring instrument has represented all the ideas that connected with the material that would be measured, that measuring instrument has fulfilled the aspect of content validity. To know whether the test has a good validity, the items of the test are discussed with the expert (advisors) and the colleagues the writer's classmate and the English teacher of SMPN 12 Bandar Lampung. Content validity, can be examined from table of specification. If the table represent the material that the testers wants to test. Then it is a valid test from point of view (Sohamy, 1985:74). The content validity was constructed by including vocabulary material presented in training they are verb, noun and adjective.

In this case, the writer used vocabulary that supposed to be comprehended by the first year students based on curriculum. To know the whether the test has good validity,

the tem of test was discussed with the expert (advisors) and the colleagues (the writer's classmate and the English teacher of SMPN 12 Bandar Lampung)

- Construct Validity examines whether the test actually in line with the theory, it means that whether the test is in line with the school curriculum. In this research, the researcher used the vocabulary that is supposed to be comprehended by the first year students of Junior High School. The material was under topic of daily activity which was representative of vocabulary material based on the curriculum used in Junior high school ; KTSP(Kurikulum Satuan Tingkat pendidikan 2006)

- Face validity means that the test has good typing and clear instruction that will not make the students get confused (Arikunto, 1997: 173). In this research, the researcher made the questionnaire (see the appendix page 96 and 97). The questionnaire is based on the instrument. The questionnaire consists of some questions related to the test which was given in order to know whether the instrument of the test has been fulfill face validity or not. In this research the face validity of the vocabulary test will be checked and examined by giving questionnaire to some English teachers at SMPN 12 Bandar Lampung. Based on the questionnaire, it can be concluded that the test which is in the form of multiple choice looked right and understandable to others testers, teachers, and testees.

3.4.2 Reliability

Hatch and Farhady (1982: 243) state that reliability of a test can be defined as the extent to which a test produces consistent result when administered under similar conditions. In order to estimate the reliability of the test, this research will use split-half technique and to measure the coefficient of the reliability between odd and even group, this research uses "The Pearson Product Moment Formula" as follows:

$$\text{rl} = \frac{\sum xy}{\sqrt{\left(\sum x^2\right)\left(\sum y^2\right)}}$$

Where:

rl : coefficient of reliability between odd and even numbers items

x : odd number

y : even number

$\sum X^2$: total score of odd number items

$\sum y^2$: total score of even number items

$\sum XY$: total number of odd and even number

(Lado : 1961 in Hughes, 1991: 32)

The criteria of reliability are:

0.80 – 1.00 : very high

0.50 – 0.79 : moderate

0.00 – 049 : low

(Hatch and Farhady, 1985: 247)

Then this research uses “Spearmen Brown Formula” to know the coefficient correlation of whole items.

The formula is as follows:

$$r\text{k} = \frac{2rl}{1+rl}$$

Where:

*r*k : reliability of a full test

rl : reliability of half test

The criteria of the reliability are:

0.90 – 1.00 = high

0.50 – 0.89 = moderate

0.00 – 0.49 = low

(Hatch & Farhady, 1985: 247)

3.4.3 Level of Difficulty

A good test is the one which is not too easy or too difficult. In order to find out the level difficulty, this research uses the following formula:

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

Where:

LD : level of difficulty

R : number of students who answer correctly

N : the total number of the students following the test

The criteria are:

< 0.30 : difficult

0.30 – 0.70 : average

> 0.70 : easy

(Shohamy, 1985: 79)

Table 1. The difficulty level of the try out test

No	Number of item	Computation	criteria	decision
1		<0.30	difficult	Dropped
2	1,2,3,4,5,7,8, 10,11,13,14,15, 16,18,19,21,23, 2425,27,28,29, 30,32,34,35,36, 38,39,40	0.30-0.70	average	administered
3	6,9,12,17,20, 22,26,31,33,37	>0.70	easy	dropped

Based on the result of the try out test related to the criteria, it can be inferred that there were ten items had the result more than 0.70 (see table.1). It means that the items were easy. Therefore, those items were dropped. No item was less than 0.30 (see table 1). So, there was no difficult item. Mean while, 30 average items were

administered to be reference for the pretest and the posttest (see table 1). The result of the difficulty level of the try out test shown on appendix

3.4.4 Discrimination Power

Discrimination power is used to indicate the discrimination of the fail and the success of the students. To find out the discrimination power, this research uses the following formula:

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

Where:

DP : discrimination power

U : the proportion of upper group students

L : the proportion of lower group students

N : total number of students

The criteria are:

1. If the value is positive discrimination a larger number of more knowledgeable students than poor students get the item correct. If the value is zero, 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: 81)

Table 1. Discrimination Power of the try out test

No	Number of item	Computation	criteria	decision
1	6, 9, 12, 22	0.00	poor	dropped
2	17	<0.00	poor	dropped
3	20, 26, 31, 33, 37	<0.20	poor	dropped
4	1, 2,3, 4, 5, 7, 8, 10, 11, 13, 14, 15, 16, 18, 19, 21, 23, 24, 25, 27, 28, 29, 30, 32, 34, 35, 36, 38, 39, 40.	0.20 or >0.20	good	administered

Based on the calculation of discrimination power (see table 2), the result of the try out test shows that there was four items had zero discrimination. It means that, the items could not discriminate the upper and the lower students well. Therefore, those items were dropped since the discrimination result was negative, which means low level students answered more than high level students. Five items did not fulfill the standard of discrimination power since those items had discrimination power index under 0.20 which means that the items had poor discrimination power. So that, those items were dropped. Meanwhile, 30 items had good discrimination power; therefore, those items were administered to be the

reference for the pretest and the posttest. A further of discrimination power is shown on appendix.

3.5.5 Scoring System

In scoring the students result of the test, this research uses Arikunto's formula. The ideal higher score is 100. The score of pretest and posttest are calculated by using formula as follows:

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

Where:

S : the score of the test

R : the total of the right answers

N : the total items

(Arikunto, 1997: 212)

3.6 Data Analysis

After conducting pretest and posttest, the researcher will analyze the data. It is used to know whether:

1. There was a significant difference increase of the students' vocabulary mastery at the first year of SMPN 12 Bandar Lampung after being taught through picture sequence.
2. There was a significant increase of the students' vocabulary mastery at the first year of SMPN 12 Bandar Lampung.

The researcher examines the students' score using the following steps:

1. Scoring the pretest and posttest
2. Tabulating the score of the students' vocabulary test results using Repeated measures T-test. The formula manually is as follows:

$$\frac{\bar{X}1 - \bar{X}2}{S\bar{D}} \qquad \text{in which} \qquad S_{\overline{D}} = \frac{S_D}{\sqrt{n}}$$

Where:

$\bar{X}1$ = Mean of the pretest

$\bar{X}2$ = Mean of the posttest

$S_{\overline{D}}$ = standard error of differences between two means (denominator)

SD = standard deviation

n = number of students

(Hatch and farhady, 1982: 116)

In this research, the researcher used statistical computerization.

3. Drawing conclusion from the tabulated result of the pretest and posttest administering, that is statistically analyzed using SPSS (Statistical Program for Social Sciences) in order to test whether increase of the students' gain was significant or not.

3.7 Hypothesis Testing

Hypothesis of this research are:

1. "There was a significant difference increase of the students' vocabulary mastery through picture sequence at the first year of SMPN 12 Bandar Lampung after being taught through picture sequence".
2. "There was a significant increase of the students' vocabulary mastery through picture sequence at the first year of SMPN 12 Bandar Lampung."

The hypothesis will be statistically analyzed using Repeated measures T-test that will be used to draw the conclusion at the significant level of 0.05 ($P<0.05$).