

### III. RESEARCH METHOD

This chapter describes the research design, population and sample, data collecting technique, research procedure, research schedule, criteria of good test, level of difficulty, discrimination power, scoring system, data analysis, and hypothesis testing.

#### 3.1 Research Design

This research was conducted in order to find out a difference of students' vocabulary before and after being taught through picture sequence and to investigate the students' activities in teaching learning process using Picture Sequence media . In conducting this research, the researcher used *one group pretest posttest design* (Hatch and Farhady, 1982:20). Pretest and posttest was administered to see whether Picture Sequence can be used to improve student's vocabulary.

This research used one class. The class had both pretest and posttest and three time treatments. The design could be illustrated as follows:

**T1 X T2**

Where :

T1 : Pretest

X : Treatment ( Picture )

T2 : posttest

(Hatch and Farhady, 1982 : 20 )

### **3.2 Population and Sample**

The population of this research was the students at class VIII of SMPN 1 Abung Tinggi Lampung Utara. There were four classes of class VIII. Each class consists of 30 students. The researcher took two classes, VIII A as try out class and VIID as experimental class. In this research, the researcher used simple random probability sampling, by using lottery (Setiyadi, 2006:39).

### **3.3 Data Collecting Technique**

In collecting the data, the researcher used the following technique :

#### **3.1.1 Try – out**

Try – out test was intended to assess the quality, i.e. the reliability and validity, of the instrument used for data collection. In constructing the tryout test was multiple choice. The number of the test items were 40 with four options and of answer for each (A, B, C, D ) and time allocation was 90 minutes.

#### **3.1.2 Pre Test**

The researcher gave the pre test to the students'. The purpose of the test was to know how far students' vocabulary mastery before given the treatment. The researcher carried out aspects the sampling of data. The students which the pre test was students who determined as the research.

### **1.1.3 Treatment**

In this occasion, the researcher applied the media. The researcher gave three time treatments to the experimental class through picture sequence.

### **3.1.4 Post Test**

The researcher administrated the post test after giving the treatment to know the result at the end of the research. Post test could be given after the students' get materials. Which accordance with material is to explained by their teacher. Post test material was the same with pre test . With the post test, the students' easier than express the ideas.

In this research, the researcher choose content word ( noun, verb, adjective ) because all which were the things that the students find in their daily life, so it was very important to know the English of those things. The material was about daily activities. The material was selected in English book for grade VIII students of Junior High School.

### **3.1.5 Questionnaire**

Questionnaire consists of a list of questions to gather data from the respondents. In this case, the respondents are second grade students of SMPN 1 Abung Tinggi. The respondents were asked to answer all the questions. Questionnaire was used to find out the students' problem in teaching vocabulary using picture sequence as media. This questionnaire consists of 10 questions including questions about vocabulary and picture sequence teaching media. It could be seen in this following table specification:

**Table 1. Specification of Questionnaire**

<b>No</b>	<b>Aspects</b>	<b>Number of Items</b>	<b>Percentage</b>
1	vocabulary	1, 3, 6, 7, 8, 9	60%
2	Picture sequence	2, 4, 5, 10	50%
<b>Total</b>		<b>10 items</b>	<b>100%</b>

### **3.4 Research Procedures**

In collecting the data, the researcher carried out the following procedures which can be described as follows:

#### **1. Selecting and Determining The Materials**

The materials were based on the School Based Curriculum (KTSP) 2006 for the second year students. The materials were taken from the text book and internet. The researcher used one type of vocabulary mastery through picture sequence.

#### **2. Determining the Research Instrument**

These instruments of this research were vocabulary test and questionnaire.

Vocabulary test consisted of 30 items with four alternative answers for each, they are A, B, C or D which consist of one the correct answer and the rest were the distracters.

#### **3. Administering Questionnaire**

Questionnaire was used to find out the students' problem in teaching vocabulary using picture sequence as media. It was used to know the students' problem in

understanding the vocabulary especially in three aspects of vocabulary and what is their respond in vocabulary teaching learning process.

#### **4. Analyzing the result of the Test**

Both of the pretest and posttest result of the class was analyzed using repeated measured T-Test to compare the data average score (mean) of both pretest and posttest in one sample (Hatch and Farhady, 1982:114). It was tested in order to find out whether there is a difference in students' vocabulary mastery after being taught by picture sequence.

#### **3.5 Research Schedules**

In order to gain the regularity and avoid irregularity in doing all the research procedures, the researcher made a time schedule for experimental class in one week

**Table 2. The Schedule of The Research**

NO	Meeting	Type of Action
1.	September,16,2013	Administering Try Out
2.	September,20,2013	Administering pre-test
3.	September, 23,2013	Treatment 1
4.	September,27,2013	Treatment 2
4.	September,30,2013	Treatment 3
5.	Oktober, 4, 2013	administering posttest and Questionnaire

### 3.6 Criteria of Good Test

Whenever a test or other measuring device is used aspect of the data collection process. There are four criteria of a good test, namely, validity, reliability, level of difficulty, and discrimination power.

#### Validity

The data validity of very important to get the data and information that responsible of the test. There are five validities of data, they are face validity, content validity, predictive validity, construct validity and democratic validity. The researcher used content validity for the related test was given. The researcher analyzed each test. The test to measure the material presented, the test must be suitable the indicator. The data validity is very needed to get the data and information that can be responsible of the truth. There are five validities, they are face validity, content validity, predicative validity ,construct validity and democratic validity.

In this case, the researcher used vocabulary that supposed to be comprehended by the second year students based on the curriculum. To know the whether the test has good validity ; the term of test was discussed with the expert and the colleagues ( The researcher classmate and English teacher of SMPN 1 Abung Tinggi Lampung Utara ).

Table 3 of specification of the try – out test

No.	Word classes	Number of Item	Percentage
1.	Noun	2,6,7,9,16, 18, 27,31, 33, 34, 37, 38, 39, 40	30%
2.	Verbs	1,3,4,5,10, 11,12,13,14,17,19,20,21,22,23, 24, 25,26,28, 29, 30	60%
3.	Adjectives	8,15,32,35,36	10%
Jumlah			100%

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 supported to be comprehended by the first year students 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.

### **Reliability**

Based on the validity of data above the researcher determined reliability. Reliability is a tool measure by different time for same subject, but gave the same result. Stability reliability is relation with consistent of product the test given. Knowing reliability is given minimum twice for subject in different time. So, correlative both of result, it is named test retest. Reliability can be means can be believed. So research instrument must reliability.

Hatch and Farhady ( 1982 : 243) say that reliability of a testa can be difined as a extent to which a test produced consistent result when administer under similar conditions. In order to estimate the reliability of the test, the research will used splithalf technique and to measure the coeficient of the reliability between odd and even group, this research used “ The Person Product Moment Formula “ as follows :

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

Where :

rI : Coeficient of reliability between old and even number items

x : Odd number

y : Even number

$\sum x^2$  : Total score of odd number item

$\sum x^2$  : 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 – 0.49 : Low

( Hatch and Farhady, 1985 : 247 )



The research used “ Spearman Brown Formula “ to know the coefficient correlation of whole items.

The formula is as follows :

$$r_k = \frac{2r_I}{1 + r_I}$$

Where :

$r_k$  : Reliability of a full test

$r_I$  : 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 and Farhady, 1985 :247 )

A try out test was carried out before conducting the pre test and post test. This test was administered in order to determine the quality of the test that consisted of 40 items. After analyzing the data, the researcher got that 30 items meet the criteria of good test, 4 items should be revised, and 10 were bad and should be dropped.

The result of the reliability was 0.97 ( appendix 12 ) . by referring to the criteria of the reliability proposed by Hatch and Farhady ( 1982 : 268), the test has high reliability in the range 0.9000 – 1.00. It indicated that this instrument would produce consistent result when administered under similar condition to the same participant and in different time ( Hatch and Farhady, 1982 : 244).

### 3.7 Level of Difficulty

To see the level of difficulty, the researcher used the following formula:

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

Where :

LD : level of difficulty

R : number of students who answer correctly

N : the total number of students following the test

The criteria are :

<0.30 : difficult

0.30 – 0.70 : average

.0.70 : easy

( Shohamy, 1989:79)

Table 4. The Difficulty Level Of The Try Out Test

No	Number of item	Computation	Criteria	Decision
1		<0.30	Difficult	Dropped
2	1,2,4,5,7,8,10,12,13,14, 15,17,18,19,20,21,22,2 3,25,26,27,29,31,32,33, 35,37,38,39,40	0.30-0.70	Average	Administered
3.	3,6,9,11,16,24,28,30,34 ,36	>0.70	Easy	Dropped

Based on the result of the try out test related to the criteria, it could be inferred that there were ten items had the result more than 0.70 ( see table ). It means that the items were easy. Therefore, those items were dropped. No items was less than

0.30 ( see table ). So, there was no difficult item. Mean while, 30 average items were administered to be reference for the pre test and post test ( see table ) . the result of the difficulty level of the try out test shown on appendix.

From the computation of level difficulty (see appendix 9), the researcher found that there were 4 item which are less than 0.30. It means those items were difficult. There were 6 items which are higher than 0.70. It means that the items were easy and 30 items were average (0.30- 0.70 )

### 3.8 Discrimination Power

To see the discrimination power, the researcher used the following formula:

$$DP = \frac{\text{the proportion of upper SS} - \text{the proportion of lower SS}}{\frac{1}{2} \text{ total number students}}$$

(shohamy, 1985:81)

The criteria are:

1. If the value is positive, it has discrimination because a large number of more knowledgeable students than poor students get the item correct if the value is zero. It means no discrimination.
2. If the value is negative, it has negative discrimination because more low-level students than high level students get the item correct.
3. In general, the higher discrimination index, the better, in the classroom situation most items should be higher than 0.20 indexes

(Shohamy, 1985:82)

From the computation of discrimination power (see appendix 10) the researcher found that there were 1 bad items ( has negative value discrimination ), 9 items were poor ( has less than 2.00 index ) and 30 items were satisfactory ( has higher than 2.00 index). In general, it could be concluded that all items tested had good discrimination power and positive value since a larger knowledgeable student than poor students got the item correct.

From the result of try out test, 30 items which met the criteria of a good test were administered in pre test and post test. The researcher changed the numbers of arrangement of the items in pre test, rearranged the texts also put the choices randomly in order to use the items in post test. This was an attempt to made sure that the increase of students' vocabulary mastery or not because they got the same test in pre test but because of the treatments

### 3.9 Scoring System

In scoring students result of the test, this research used Arikunto's formula. The idea higher score was 100. The score of pretest and posttest were calculating by using

formula as follow ;

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

Where :

S : The score of the test

R : The total of the right answers

N : The total item ( Arikunto, 1997 : 212 )

### 3.10 Data Analysis

After conducting pretest and posttest, the researcher analyzed the data. It was used to know whether the students use the media for vocabulary mastery of the second year at SMPN 1 Abung Tinggi through picture sequence

The researcher examined the student's score using the following steps :

1. Scoring the pretest and posttest
2. Tabulating the score of the student's vocabulary test result using repeated measures T- test. The formula manually was as follows :

$$\frac{\overline{X1} - \overline{X2}}{SD} \quad \text{In which} \quad S_D = \frac{S_D}{\sqrt{n}}$$

Where :

$\overline{X1}$  : Mean of the pretest

$\overline{X2}$  : Mean of the posttest

$S_D$  : 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 student's gain was can the use picture or no.

### **3.11 Hypothesis Testing**

In the line with data analysis above, the researcher formulated the hypothesis as follow : There is any increase the students' vocabulary mastery significantly.