

### **III. RESEARCH METHODS**

#### **A. Research Design**

This research is a quantitative study which has *one group pretest-posttest design*.

The researcher selected one class as the experimental group using simple probability sampling. The aim of this research is to find out whether Teaching using Direct Method can increase the students' vocabulary achievement significantly. The design of the research is represented as follows:

#### **T1 X T2**

T1 = Pretest

X = Treatment

T2 = Posttest

(Hatch and Farhadi in Setiyadi, 2006:131)

#### **B. Population and Sample**

The population of the research was grade VII students of SMP Negeri 2 Gadingrejo. There were four classes in grade VII in first semester and 2011/2012 school year. The researcher selected one class as the sample of the research by using simple random probability sampling, which is by using lottery. The selected class consisted of 42 students as the experimental group.

#### **C. Data Collecting Technique**

The data of the research was the student` vocabulary achievement of occupation before and after the treatments in term of score.

The instrument of the research was objective vocabulary test in the form of multiple choice items, where the researcher gave pretest and posttest in order to evaluate, to measure the vocabulary achievement of occupation related to content words (noun and verb).

In collecting Data, the researcher used the following procedures:

### **1. Pretest**

The pretest was conducted before treatments. It was used to know how far the students had mastered the vocabulary before the treatments were given. The pretest used by researcher is an objective test of the multiple choices. The number of item in the test is 40 items and each item has four options of answers. One is the correct answer and the rests are the distracters.

### **2. Posttest**

The posttest was conducted after the researcher conducted the treatments. It was used to know how far the students had mastered the English vocabulary after being taught through direct method. Similar to the pretest, the researcher used an objective test in the form of multiple choices. The questions were the same as the pretest. But, the researcher changed the order of the questions and the distracters from those in the pretest in order that the students not only memorize or remember the order of the answer for each question but they can really understand the

questions. The posttests consisted of 40 items with four options. One is the correct answer and the rest were the distracters.

#### **D. Steps in Collecting Data**

##### **1. Determining the sample of the research**

The sample of the research was selected by using simple probability sampling, which was by using lottery. The researcher took one class of four classes of the first year students at SMP Negeri 2 Gadingrejo as the research sample. Each class consists of 42 students. The sample of the research follows pretest, treatment, and posttest.

##### **2. Selecting instrument materials**

In this research, there was one pretest that is proper to the grade VII students of SMP. The topic is "occupation". It focuses on vocabulary, which is classified in to content words (noun and verb). The materials will be taken based on the educational unit level curriculum of English for Junior High School.

##### **3. Conducting try out**

The try out was conducted in the different class of the experiment class in first class of SMP Negeri 2 Gadingrejo. Try out was conducted to measure the reliability of pretest and posttest. It was administered for 60 items in 90 minutes. The aim of try out was to know the quality of the test which will be used as the instrument of the research, and determine which item should be revised for the pretest and posttest.

##### **4. Conducting the pre test**

Pretest was conducted for 40 items in 60 minutes. It is held to measure student's basic ability.

#### 5. Conducting the treatment

After giving pre test, the students was given three times treatments by using direct method based on the lesson plan which has been prepared. Each treatment is held for 90 minutes.

#### 6. Administering post test

The post test will be administered after the application of direct method approach. It will be conducted for 40 items in 60 minutes and the aim was to find out the students` vocabulary achievement after the implementation of direct method.

#### 7. Analysis the Test Result

After conducting pretest and posttest, the researcher analyzed the data. The data was analyzed by using T-test. It was used to know whether direct method is able to increase the students` vocabulary achievement significantly. The date will compute through the Statistical Package for Social Sciences (SPSS).

#### 8. Reporting the Result

In reporting the result, the data were arranged systematically based on the pretest and posttest to see whether there is an increase on the students` vocabulary achievement.

### **E. Instrument of the Research**

The research instrument was vocabulary test in the form of objective test. In this research, the researcher administered three tests; try out test, pretest, and posttest. Try out test was given to know how the quality of the test which is used as the

instrument of the research. The pretest was given in order to know the students vocabulary before the treatments. The posttest was given in order to know the students vocabulary achievement after the treatments.

The form of the try out test, pretest and posttest is objective test. The total number of the items of the try out test is 60 items, and the total number of the items of the pretest and posttest was determined from the result of the try out test. The validity of the instrument concerns with the content, construct and face validity in which the questions represent the vocabularies stated in the process of teaching vocabulary through direct method.

## **F. Try Out of the Test**

In this research, to prove whether the test has good quality, it must be tried out first. The test can be said has good quality if it has a good validity, reliability, level of difficulty, and discrimination power.

### **1. Validity**

The test can be said valid if the test measures the object to be measured and it is suitable with the criteria (Hatch and Farhady, 1982:250). To measure whether the test has a good validity, this research will use content and construct validity.

#### **a. Content Validity**

Content validity is concerned with whether the test is sufficiently representative and comprehensive for the test. In the content validity, the material is given suitable with the curriculum. Researcher used the vocabulary that is supposed to be comprehended by grade VII students. In this research, the researcher arranged the instrument based on the material that will be given, which is vocabulary, and the researcher makes instrument related to vocabulary which is content words (noun and verb, adjective and adverb). If the instrument had represented all the ideas that connected with the material that will be measured, that measuring instrument has fulfilled the aspects of content validity. In this case, that measuring instrument had fulfilled the aspect of content validity. Content validity also can be examined from the table of specification. If the table represents the material that the tester wants to test, it means that it is a valid test from the point of view (Shohamy, 1985:74). The content validity is constructed by including vocabulary material presented in the training;

they were noun and verb. The content of try out test is presented in the table of specification below:

**Table 1. Table of specification of the Test**

No	Words classes	Percent	Number of items	Item Numbers
1	Noun	33,3%	20	2., 4., 9., 11., 16.,18., 20., 24., 31., 33., 37., 41., 42., 49., 50., 54., 56., 58., 59., 60.
2	Verb	33,3%	20	1., 3., 5., 6., 8., 10., 13., 14., 15., 17., 23., 25., 26., 28., 30., 43., 45., 47., 48., 52.
3	Adjective	16%	10	7.,12., 19., 21., 27., 32., 36., 39., 46., 55.
4	Adverb	16%	10	22., 29., 34., 35., 38., 40., 44., 51., 53., 57.
	Amount	100%	60	

#### b. Construct Validity

Construct validity is concerned with whether the test is true reflection of the theory of the trait – in our case language which is being measured. It means that the items should really measure the students` vocabulary achievement. In this research, the researcher used the vocabulary that is supposed to be comprehended by the grade VII students of Junior High School. The material is under topic of occupation which is representative of vocabulary material based on the curriculum used in Junior High School; KTSP Kurikulum Tingkat Satuan Pendidikan) 2006.

## 2. Reliability

Reliability of test can be defined as the extent to which a test produces consistent result when administered under similar conditions (Hatch and Farhady,1982:243).

To compute the reliability of test, split half method is used. It is done through dividing the test into two parts, odd and even number. To measure the coefficient of the reliability, the researcher used the Person Product Moment Formula below:

$$r_1 = \frac{n \sum XY - (\sum X)(\sum Y)}{\sqrt{(n \sum X^2 - (\sum X)^2)(n \sum Y^2 - (\sum Y)^2)}}$$

Where:

$r$  : coefficient of reliability between odd numbers and even numbers items

$x$  : total numbers of odd numbers items

$y$  : total numbers of even numbers items

$n$  : numbers of students who take part in the test

$x^2$  : square of  $x$

$y^2$  : square of  $y$

$\sum x$  : Total score of odd number items

$\sum y$  : Total score of even number items

(Arikunto, 1997:69)

The criteria of reliability are:

0.80 - 1.00 : very high

0.60 – 0.79 : high

0.40 – 0.59 : average

0.20 – 0.39 : low

0.00 – 0.19 : very low

Then, to compute the coefficient correlation of the whole items, the researcher use Spearman Brown Prophecy Formula.

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

$r k$  : reliability of a full test

$rl$  : reliability of half test

The criteria of reliability are:

0.90 - 1.00 : high

0.50 – 0.89 : moderate

0.00 – 0.49 : low

(Hatch and Farhady, 1982:246)

### 3. Level of Difficulty

Difficulty level related to how easy or difficult the item is from point of view of the students who take the test. This is important since test items, which are too easy, tell us nothing about differences is discarded. To see the level of difficulty, this research will use the following formula:

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

Where:

LD : level of difficulty

U : upper group students

L : lower group students

The criteria are:

<0.30 = difficult

0.30-0.70 = average

>0.70 = easy

(Shohamy, 1985; 79)

#### 4. Discrimination Power

The discrimination power (DP) 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 which good students do well on and bad students fail

To know the discrimination power of the test, the writer will use 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 were:

Dp: 0.00-0.19 = Poor

Dp: 0.20-0.39 = Satisfactory

Dp: 0.40-0.69 = Good

Dp: 0.70-1.00 = Excellent

Dp: - (Negative) = Bad items, should be omitted

(Heaton, 1975:182)

## 5. Scoring System

In scoring the students result of the test, this research used Arikunto`s formula.

The total score of pre-test and post tests were 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 (40)

(Arikunto, 1997:212)

## G. Data Analysis

After conducting pretest and posttest, the researcher analyzed the data. It is used to know whether there is significant increase of the student`s mastery.

The researcher examines the students score using the following steps;

1. Scoring the pretest and posttest
2. Tabulating the score of student`s vocabulary test results using Repeated measures T-test
3. Drawing conclusion from the tabulated result of the pretest administering, that is statistically analyzed using SPSS (Statistical Program for Social Sciences) in order to test whether increase of the students gain is significant or not.

## H. Hypothesis Testing

The hypothesis testing is used to prove whether the hypothesis proposed in this research is accepted or not. The hypotheses of this research are:

1. There is significant increase of student's vocabulary achievement of the first grade of SMP Negeri 2 Gadingrejo after being taught through direct method?
2. There is no significant increase of student's vocabulary achievement of the first grade of SMP Negeri 2 Gadingrejo after being taught through direct method?

The hypothesis is statistically analyzed using Repeated measures T-test that is used to draw the conclusion in significant level of 0.05 in which the hypothesis is approved if  $\text{Sig} < \alpha$ . It means that the probability of error in the hypothesis is only about 5%.