

III. RESEARH METHODS

3.1 Research Design

This research is a quantitative research used one group pretest-posttest design. This used one class where the students would receive pretest before three-time treatments and after the treatments they received posttest. The pretest would be used to find out the students' preliminary ability and the posttest was used to look how far the increase of the students' vocabulary mastery after the treatments. The treatments are given to the students by applying flashcards. It was intended to find out whether there was a significant difference of the students' vocabulary mastery related to content words at the fifth grade of SD N 2 Metro Selatan Kota Metro before and after being taught through flashcards. The research design was described as follows:

T1 X T2

T1 = Pretest

X = Treatment

T2 = Posttest

(Setiyadi, 2006:133)

3.2 Population and Sample of the Research

The subjects of this research were the students at the fifth grade of SD Negeri 2 Metro Selatan Kota Metro. There were only two classes of the fifth grade in that

school, namely VA and VB. Class VA would be chosen as the experimental class through lottery drawing. This class consisted of 26 students. Class VB then chosen as the tryout class.

3.3 Data Collecting Technique

The data of the research was the student` vocabulary achievement before and after the treatments.

The instrument of the research would be test; the test was objective vocabulary test in the form of multiple choice items. Where the researcher would give pretest and posttest in order to evaluate, to measure the vocabulary achievement.

In collecting Data, this research used the following procedures:

1. Pretest

The pretest conducted before treatments. It was used to how far the students have mastered the vocabulary before the treatments were given. The pretest used by the researcher was an objective test in the form of multiple choices. The objective test was used because it encourages flashcard was applied which focused on vocabulary mastery in which the researcher had to know how many vocabularies that the students had already mastered. Vocabulary can generally be included in an objective test than a subjective test. The researcher assumed that in measuring their ability in mastering vocabulary, the proper or the suitable test used was objective test. The number of the items in the test was 30 in which each item had four options of answer (A, B, C, D). One was the correct answer and the rests were the distracters.

2. Posttest

The posttest was conducted after the researcher conducting the treatments. It was used to know how far the students had mastered English vocabulary after being taught through flashcard. Similar to the pretest, in the posttest the researcher used an objective test in the form of multiple choices items. The questions were the same as the pretest. But, the order of the questions and the distracters were changed 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 posttest consisted of 30 items with four options of answer for each (A, B, C, D). One was the correct answer and the rest were the distracters. This posttest had the same difficulty as the pretest.

3.4 Procedure of Collecting Data

1. Determining the subjects of the research

The subject of the research was selected using simple random probability through lottery drawing. The subjects of the research follow pretest, treatment, and posttest. There were 26 students that become the subject of this research.

2. Selecting instrument materials.

In this research, there was one pretest that was proper to the fifth grade of SD. The topic was “the things around school”. The materials took from

students' handbook that was based on the educational unit level curriculum.

3. Conducting try out.

The try out conducted in the different class at first class VA of SD Negeri 2 Metro Selatan Kota Metro. Try out was conducted to measure the reliability of pretest and posttest. It was administered for 40 items in 70 minutes. The aim of try out was to know the quality of the test which used as the instrument of the research, and determine which item should be revised for the pretest and posttest. This research used the result of the try out test to measure the level of difficulty and discrimination power, to find out the validity and reliability.

4. Conducting the pre test.

Pretest was conducted for 30 items in 70 minutes to measure student's basic ability.

5. Conducting the treatment.

After giving the pretest to the students, the researcher conducted the treatment for three meetings.

6. Administering post test.

The post test was administered after the application of Flashcards. It was conducted for 30 items in 70 minutes and the aim was to find out the students' vocabulary mastery after they are being taught Flashcards.

7. Analyzing the data.

Both of the pretest and posttest results of the class treated by using repeated measures T-Test (Repeated Measures T-Test of SPSS (statistical

package for social science) version 15.0 for windows). It would test in order to find out whether there was a significant difference of learners' vocabulary achievement before and after being taught through Flashcards.

8. Concluding the results

After analyzing the results of both pretest and posttest, the conclusion explained based on the result.

9. Reporting the results

In reporting the result, the data would be arranged systematically based on the pretest and posttest to see whether there is an increase on the students' vocabulary mastery.

3.5 Instrument of the Research

The research instrument in this research is vocabulary test in the form of objective test.

Test

The instrument was held for pretest and posttest. Pretest was given before the treatment in order to know how far the students' competence in vocabulary and posttest was given after presenting the treatment in order to know the improvement of students' vocabulary. Then, the researcher found out whether there was difference increase on the result between pretest and posttest.

3.6 Criteria Try out

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

3.6.1. Validity

The test could 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 used content and construct validity.

- a. Content validity is concerned with whether the test is sufficiently representative and comprehensive for the test. In the content validity, the material given is suitable with the curriculum. In the case, the researcher used the vocabulary that is supposed to be comprehended by grade V students. It was based on KTSP of English for Elementary school students. To fulfill this validity, the researcher should see all the indicators of the instrument and analyzing them whether the measuring instrument had represented the material that was measured or not. The instrument was arranged based on the material that would be given, which was vocabulary and the instruments related to the content words (concrete nouns, verbs, adjectives). If the measuring instrument has represented the ideas that connected with the material that will be measured, that measuring instrument has fulfilled the aspect of content validity. In this case, that measuring instrument has 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 was constructed by including vocabulary material presented in the training; they were noun, verb, and adjective. The researcher took those three aspects since it was appropriate with flashcards. The content of try out test is presented in the table of specification below:

Table1. Table of specification of try out test

| No | Word classes | Percent | Number | Item numbers |
|----|--------------|---------|--------|---|
| 1 | Noun | 50% | 20 | 1,2,3,4,5,6,7,8,9,10,11,12,13,14,18,19,20,21,23,26. |
| 2 | Verb | 27,5% | 11 | 15,16,17,22,24,25,27,28,29,30,31. |
| 3 | Adjective | 22,5% | 9 | 32,33,34,35,36,37,38,39,40. |
| | Amount | 100% | 40 | |

b. Construct Validity

Construct validity is concerned to know the certain language knowledge skill. To know the test was true reflection of language which was being measured, the writer would examine whether the test question actually reflect what is meant to know a language. To get the construct validity, the test was adopted from student's hand book. Then, the test determined according to the material that was taught to the students. In other words, the writer wrote and made the test based on the material in the 2006 English curriculum for Elementary School.

3.6.2. Reliability

Reliability of test can be defined as the extent to which a test produces consistent result when administrated under similar conditions (Hatch and Farhady, 1982:243). To estimate the reliability of the test this research used split-half technique. To measure the coefficient of the reliability between odd and even group, this research used the person product moment formula as follows:

$$r_1 = \frac{\sum XY}{\sqrt{[\sum x^2][\sum y^2]}}$$

Where:

r_1 : coefficient of reliability between odd and even groups

x : total numbers of odd group

y : total numbers of even group

x^2 : square of x

y^2 : square of y

(Lado (1961) in Hughes, 1991:32)

Then to know the coefficient correlation of whole items, the researcher used Spearman brown`s prophecy formula:

The formula is as follows:

$$rk = \frac{2r_1}{1+r_1}$$

Where:

rk : the reliability of the test

r_1 : the reliability of half of the test

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

(Hatch and Farhady, 1982:246)

3.6.3. 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 was important since test items, which are too easy, tell us nothing about differences is discarded. To see the level of difficulty of the test, this research used the following formula:

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

Where:

LD : level of difficulty

U : Number of the Upper group who answer correctly

L : Number of the Lower group who answer correctly

N : Total number of students following the test

The criteria are:

00.0 – 0.30 = difficult

LD = 0.30 – 0.70 = average

LD > 0.70 – 1.00 = easy

(Arikunto, 1997; 121)

3.6.4. 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 used 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:

D: 0.00-0.20 : poor items

D: 0.21-0.40 : Satisfactory items

D: 0.41-0.70 : Good items

D: 0.71-1.00 : Excellent items

D: - (Negative)= bad items (should be omitted)

(Heaton, 1975:180)

1. If the value is positive discrimination a large number of more knowledgeable students then poor students got the item in correct. If the value is zero, no discrimination.

2. If the value is negative, means that more low-students than high level students got 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)

3.6.5. Scoring System

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

The ideal higher score is 100. The ideal higher scores of pretest and post tests was 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)

3.6.6 Data Analysis

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

The researcher examined 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. The formula manually was as follows:

$$\frac{X_1 - X_2}{S D} \quad \text{in which } S \frac{D}{D} = \frac{S_D}{\sqrt{n}}$$

Where:

X1 = mean of the pretest

X2 = mean of the posttest

S = standard error of differences between two means (denominator)

SD = standard deviation

n = number of students

(Hatch and Farhady, 1982: 116)

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

3.6.7 Hypothesis Testing

Ho = There is no significant difference of students' vocabulary mastery before and after they were taught by using flashcard.

Hi = There is significant difference of students' vocabulary mastery before and after they were taught by using flashcard.

The hypothesis testing was used to prove whether the hypothesis proposes in this research is accepted or not. The hypothesis analyzed by using Repeated measure T – Test through computing with statistical Package for Social Science (SPSS) version 15.0 for window at the significance level of 0.05 ($P < 0.05$).