

III. RESEARH METHODS

This part discusses the design of this research and how to collect the data from the samples. The researcher includes data collecting technique and the procedure of this research. The researcher also gives the instrument of the research, criteria of tryout, pretest, posttest, and how the data analyzed. This chapter includes the validity, reliability, level of difficulty, discrimination power, scoring system, data analysis, and hypothesis testing.

3.1 Research Design

In doing this research, the researcher conducted quantitative research. This research used *one group pre test and post test design*. The researcher used one class as the experimental group and it was selected by using simple probability sampling. The researcher conducted pretest, treatment, and posttest. The pretest was used to find out the students' preliminary ability before the treatments. The treatments were given to the students by applying flashcard in the classroom. The posttest conducted after researcher gave the treatments. It was used to know how far the students had mastered vocabulary of concrete noun after being taught through flashcard. The design is shown as bellows:

T1 X T2

Notes:

T1 is the Pretest

X is the treatment

T2 is the Posttest

(Hatch and Farhady in Setiyadi, 2006: 131)

3.2 Population and Sample of the Research

This quantitative research was conducted at the fourth grade of SDN 1 Jati Mulyo Lampung Selatan. There were only two classes of grade IV students in academic year of 2012/2013. One class had been chosen an experimental class by using simple probability sampling through coin, which was class IV A. Class IV B was used as the try out class each class consisted of 34 students. This research was carried out for almost a month, from October 8th to Nov 7th 2012.

3.3. Data Collecting Technique

The data of the research were in the form of score of the students' vocabulary mastery of concrete noun, taken from pretest (before the treatment) and posttest (after the treatment).

The instrument of the research was test; the test was objective vocabulary test in the form of multiple choice items. The researcher gave pretest and posttest in order to evaluate, to see whether or not there was significant increase of students' vocabulary mastery of concrete noun after being through flashcard.

In collecting data, this research used the following procedures:

3.3.1 Pre Test

The pretest was conducted before treatments. It was used to know how far the students had mastered the vocabulary before treatments were given. 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 items in which each item had four options of answer (A, B, C, D). One was the correct answer and the rests were the distracters. The total score was 100 points, so if the students answered the whole questions correctly they got 100 points.

3.3.2 Posttest

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

3.4 Procedures of the Research

The procedures of the research were as follow:

1. Determining the population and sample of the research

To determine the population and sample of the research, the researcher chose two classes from two classes at the fourth grade students in SDN 1 Jati Mulyo Lampung Selatan, namely classes IV A and IV B and consisted of 34 students in each class. Those classes were chosen as an experimental class and other as the try-out class.

2. Administering try out to know the quality of the test

Try out test was carried out to know the quality of the test in order to take the data. The try out was conducted in the first meeting in the try-out class. The number of the test was 40 items and time allocated 60 minutes. 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.

3. Preparing the materials which will be taught

The researcher used the material from the students' handbook that was Grow with English for fourth grade elementary school students. The topics were about Food and Drink, Animal and Profession. The reason why the researcher chose this material because vocabulary especially concrete noun was very close to the students' daily life and it was important to rejuvenate them when they learn another vocabulary of noun then it should be mastered by students.

4. Administering the pre-test

In this research, there was one pre-test that was proper to the fourth grade students of SDN 1 Jati Mulyo Lampung Selatan. The researcher administered the pre-test in order to find out the student's basic ability before treatment. In this term the researcher asked the students to do multiple choice test which consisted of 30 items and the student should choose the correct answer from four options (a, b, c, and d). The pre-test took 60 minutes.

5. Giving treatment

After giving the pretest to the students, the treatment was conducted for three times. The class was given treatments with three different lesson plans. Those three lesson plans consisted of three different topics. During the process of treatment, the researcher used flashcard as a media for teaching vocabulary of concrete noun.

6. Administering post test

Post-test was done after giving the treatment. Post-test was very important in this research because the researcher need to know whether there was an increase on students' vocabulary mastery after being taught through flashcard. The post-test took 60 minutes which consisted of 30 items and with four option (a, b, c and d).

7. Analyzing the data (Pre-test and Post-test)

After conducting the pre test and post test, the researcher analyzed the data. The data was analyzed by using t-test (Repeated Measures t- test of SPSS Statistical

Package for Social Sciences version 16.0 for windows). It was used to know whether flashcard could be used to increase the students' mastery of concrete noun significantly.

8. Reporting the result and discussion

In reporting the data, the data were arranged systematically based on the pre test and post test to see whether there was an increase on the students' vocabulary mastery, then the result was discussed in reference to the theories reviewed in chapter II.

9. Concluding the results

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

3.5 Instrument Used for Collecting the Data

The instrument of this research was vocabulary test related to concrete noun that was used for try out, pretest and posttest. Those tests were in form of multiple choices. The multiple choices test was used since its marking is rapid, simple, and most importantly reliable, not subjective or influenced by the marker's judgment (Heaton, 1975). There were 40 items of multiple choices (objective test) in the try out test. Then, there were 30 items of multiple choices in pretest and posttest, which fulfill the criteria of validity, realibility, difficulty level, and discrimination index.

3.6 Criteria of a Good Test

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 can be said valid if the test measures the object to be measured and suitable with the criteria (Hatch and Farhady, 1982: 250). So these two validities are considered to be less needed. Therefore, To measure whether the test has a good validity, this research used content and construct validity. The two types of validity which will be used in this research, as follows:

Content Validity is the extent to which a test becomes representative sample of the subject matter contents. Content validity was used to know whether the test items were good reflection of the material used in the class. To fulfill this validity, the researcher saw the indicators of the instrument and analyzing them whether the measuring instrument had represented the material that would be measured or not. In this research, the researcher arranged the instrument based on the material that would be given, that was vocabulary and the the instrument related to the concrete noun especially (food and drink, animal and profeesion). 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. The table specification of the instrument test could be seen on the table below: **Table 3.6.1** Table specification of Try out Test (concrete noun)

No	Word classes	Percent	Number	Item numbers
1	Food and drink	17,5%	7	1, 2,10, 19, 23, 24, 25
2	Animal	45%	18	11, 12, 13, 14, 15, 16, 17, 18, 20, 22, 26, 27, 28, 29, 30, 31, 36, 37
3	Profession	37,5%	15	3, 4, 5, 6, 7, 8, 9, 21, 32, 33, 34, 35, 38, 39, 40
	Amount	100%	40	

Construct Validity is concerned to know the students' comprehension of vocabulary. It means that the items should really measure the students' vocabulary mastery. In this research, the researcher used the vocabulary that is supposed to be comprehended by the grade IV students of elementary school. The material is under topic of knowing new vocabularies which is representative of vocabulary material based on the curriculum used in Elementary School; KTSP (Kurikulum Tingkat Satuan Pendidikan) 2006.

3.6.2. Reliability

Reliability of test can be defined as the extent to which a test procedures consistent result when administered under similar condition (Hatch and Farhady, 1892: 243). To compute the reliability of test, split half method was used. It was 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:

$$rl = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}}$$

Where:

r_1 : coefficient of reliability between odd and even groups

x : total numbers of odd group

y : total numbers of even number

x^2 : Square of x

y^2 : Square of y

The criteria of reliability is:

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

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

Then to know the coefficient correlation of the whole items, the researcher used

Spearman Brown formula:

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

Where:

rk : is reliability of full test

r_l : is reliability for half test

The criteria of reliability is:

0.80 – 1.00 : high

0.50 – 0.79 : moderate

0.00 – 0.49 : low

(Arikunto, 1997: 156)

3.6.3 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 the students who answer correctly

N : Total number of the students

The criteria is:

00.0 – 0.30 = difficult

0.30 – 0.70 = average

0.71 – 1.00 = easy

(Arikunto, 1997; 121)

3.6.4. Discrimination Power

The discrimination power (DP) referred 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 : Upper group

L : Lower group

N : total number of students

The criteria is:

DP: 0.00-0.20 : poor items

DP: 0.21-0.40 : Satisfactory items

DP: 0.41-0.70 : Good items

DP: 0.71-1.00 : Excellent items

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

(Heaton, 1975:180)

3.6.5. Scoring System

In scoring the students of the test, this research used Arikunto's formula. The ideal higher scores 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 analyzed the data. It was to know whether there was significant increase of students' vocabulary mastery of concrete noun taught by using flashcard. The researcher examined the students score using the following steps;

1. Scoring pretest and posttest.
2. Tabulating the results of the test and calculating the scores of the pretest and posttest.

3. Drawing conclusion from the tabulated result of the pretest and posttest administered, that was by statistically analyzing the data using statistical computerization i.e. *Repeated Measure t-test of Statistical Package for Social Science (SPSS) version 16.0 for windows* to test whether the increase of students' gain was significant or not, in which the significance was determine by $p < 0.05$. It was uses as the data come from the two samples. (Hatch and Farhady, 1982:111)

3.8. Hypothesis Testing

The findings of the research was used to test the hypothesis that was previously put forward:

Ho = There is no significant increase of students' vocabulary mastery of concrete noun at the fourth grade of SD Negeri 1 Jati Mulyo, Lampung Selatan after being taught through flashcard.

Hi = There is significant increase of students' vocabulary mastery of concrete noun at the fourth grade of SD Negeri 1 Jati Mulyo, Lampung Selatan after being taught through flashcard.

The hypothesis testing was used to prove whether the hypothesis proposed in this research is accepted or not. The hypothesis was analyzed using Repeated measures t-test that was used to draw the conclusion in significant level of 0.05 ($P < 0.05$) in which the hypothesis is approved if $\text{Sig} < 0.05$.