CHAPTER III
METHODOLOGY OF RESEARCH

3.1 Method of Research

In conducting this research, I apply quantitative method. This method is used in order to know whether the use of picture can improve students’ vocabulary at Elementary school or not.

3.2 Research Design

In this research I used pre-experimental design. By using one-group pretest-posttest design, consist of pre-test, treatment, and post test.

(Sugiyono, 2010: 111) state that the form of this method is as follow:

Note:

\( O_1 \) : Pre-Test
\( X \) : Treatment
\( O_2 \) : Post-Test

1. Pre-test

The first step was giving pre-test for the students. In this step I gave students test consists of 30 items of multiple choices and each item has 4 answers. The aim of pre-test is to know students’ ability of English vocabulary before they get treatment. I gave 1 score for the correct answer and 0 for the incorrect answer.
Therefore, the total of the correct answer is the result of the student’s answer which is going to be analyzed.

2. Treatment

After pre-test, I gave treatment. In this step, I taught English vocabulary to students used picture. In fact, from the treatment above, used picture was effective in teaching English because the students had more vocabulary than before. They feel relaxed and enjoyed during the learning process. The students did not feel bored anymore.

3. Post-test

In the post test, I gave the test in order to know whether or not the using picture in English learning can improve the students’ vocabulary. In this step I gave the same test with the pre-test. The test consists of 30 items of multiple choices and each item has 4 answer choices (see appendix 4).

3.3 Population and Sample

3.3.1 Population

Arikunto (2002: 115) states that “population is the totally of research subject”. The population of this research is all the students in SDN 2 Kobo Besar and the total of population is 90 students.

3.3.2 Sample

According to Arikunto (2002: 117) sample is a part of population which represents it. Based on population above, I took purposive sampling technique that is class V which consists of 15 students. I used purposive sampling in order to get easy way in doing the research and collecting the data.
3.4 Variable of Research

a. Variable X is dependent variable, in this case Variable X of this research is picture.

b. Variable Y is dependent variable, in this case Variable Y of this research is students vocabulary.

3.5 Technique of Collecting Data

The technique of collecting the data, I used test form. The test consists of 30 items where each item had 4 choices. It will be the basic data to measure the students’ ability in English vocabulary itself.

3.5.1 Validity Testing

Arikunto (2009: 144) states, “Validity of an instrument is used to show the degree of validity”. An instrument is valid if it has a high validity and on the contrary an instrument is not valid if it has low validity. In testing validity of instrument, I use the correlation of the product moment by person as follows:

$$r_{xy} = \frac{NZ_{XY} - (ZX)(ZY)}{\sqrt{(NZ_{X^2} - (ZX)^2)}(NZ_{Y^2} - (ZY)^2)}$$

Notes:

$R_{xy}$ : Correlation of product moment

$\Sigma x$ : The scope for each instrument

$\Sigma x^2$ : The total score obtained by the students for one items

$N$ : The numbers of sample

(Arikunto, 1997: 146)
3.5.2 Reliability Testing

Arikunto (1997: 154) states that “reliability refers to an understanding that an instrument is really accurate to be used as the instrument in collecting the data because that instrument has been good”. To test that instrument is reliable or not, I used Kuder and Richardson (K-R.20) formula. This formula used because the kind of test in this research is multiple choice tests. The formula is:

\[ \Gamma_{11} = \left[ \frac{K}{K-1} \right] \left[ 1 - \frac{M(K-M)}{Kv_t} \right] \]

Where:

- \( r_{11} \) = Instrument Reliability
- \( K \) = Amount of item / Question
- \( M \) = Average from All Question
- \( V_t \) = Total of Varian

To determine whether the test was reliable or unreliable. I used criterion by Arikunto (2002:167) as follows:

- 0.80 – 1.00 : Reliability degree is very high
- 0.60 – 0.79 : Reliability degree is high
- 0.40 – 0.59 : Reliability degree is medium
- 0.20 – 0.39 : Reliability degree is low
- < 0.20 : Reliability degree is very low

3.6 Technique of Analyzing the Data

The data in this research was analyzed quantitatively. The purpose of this formula is to measure students’ vocabulary before and after using picture whether it will be improved or not.
3.6.1 Testing Hypothesis

Testing hypothesis is to determine the use of picture in English learning to improve students’ vocabulary.

I used T-test to testing hypothesis.

\[ t = \frac{\bar{X} - \mu_0}{s / \sqrt{n}} \]

(Sugiyono, 2010: 250)

Notes:
\( \bar{X} \) = The Average Value
\( \mu_0 \) = The value that hypothesis
\( s \) = Standard deviation of sample
\( N \) = The number of samples

3.6.2 Hypothesis Verification

Hypothesis verification is very useful to know the result of research whether it will be rejected or received. In verifying the hypothesis of this research, I used the level of significance is:

\( \alpha = 0,05 \) and \( dk = (n - 1) \) with criteria as follow:

Receive \( = Ho, IF - t \leq (1 - 1/2 \alpha) \leq t \leq (1 - 1/2 \alpha) \)

Rejected \( = Ho, IF - t \geq (1 - 1/2 \alpha) \geq (1 - 1/2 \alpha) \)

Sudjana, 1992: 239)