CHAPTER III

METHODOLOGY OF RESEARCH

1. Method of Research

I use quantitative method. It is used to know whether *Tom and Jerry Comic* can improve students’ vocabulary at Junior High School or not.

2. Research Design

In this research, I used quasi experimental design. In addition, this research is use “one group pre test, and post test design” (Arikunto, 2002:25). The design consist of three steps as follows:

   a. Pre-test

      The first step was giving pre-test for the students. In this step I obtained the data about students vocabulary. The aim of pre-test is want to know students ability of vocabulary before they get treatment. In pre-test section, I used 60 items of multiple choice consist of 20 nouns, verbs and adjectives.

   b. Treatment

      After getting the data about students’ vocabulary, I gave treatment. In this step, I thought applied *Tom and Jerry Comic*. The treatment was conducted by applying the media in teaching vocabulary to the students through *Tom And Jerry* comic. I did the treatment about third meetings with the different title of comic.

   c. Post-test

      The last activity was giving post test. Post test conducted after I gave treatment. In this step I obtained the data again to know the success of the treatment. It is consist of 30 of multiple choice items include in verb, noun and
adjective category. The goal of this test is to know whether Tom And Jerry comic in teaching vocabulary can improved the students' vocabulary or not.

3. Population and Sample

a. Population

Arikunto (2009:91) states that population is the totally of research subject. The population of this research is all the students in seven grade in SMPN 1 Tapa in academic years 2012/2013. The total population is 176 students.

b. Sample

According to Arikunto (2009:97) sample is a part of population which represents it. Based on population above, I took purposive sampling technique that is one class, the class is VII 1 which consist of 21 students. I used purposive sampling because some reasons. First, it is representative to take the sample of population because the mastery of their vocabulary in this class is still low than the other. According to my observation, I find that when the teacher ask the students in class VII 1 worked the test about vocabulary, they write vocabularies less than students in class VII 2. Second, it is because of limitation of time. Third is the capacity and cost of the research.

4. Variable

Variable is all thing that become the object of research (Arikunto: 19:12) the variable of this research follows:

1. Variable X is independent variable. In this case, variable X of this research is Tom and Jerry Comic. Tom and Jerry Comic is the media that can be used in teaching learning process.
2. Variable Y is dependent variable. Variable Y of this research is students' vocabulary. Students’ vocabulary means that how much the students know their level of their knowledge about vocabulary.

5. Technique Collecting the Data

In collect the data I used test as the instrument. The test consisted of multiple choice test. The test instrument was taken from the comic it self is a word or phrase contained in the dialogue bubbles with images of both figures (Tom and Jerry). Firstly, I gave the try out test to the students in VII 2 of seven grade at SMPN 1 Tapa. The total items are consist of 60 items. Then the result of the test is analyzed by using quantitatively to know whether the test which valid or invalid. Then the valid test I gave to the students in pre-test and post-test activity to students in class VII 1 of seven grade at SMPN 1 Tapa who is the object of this research.

a. Validity Testing

Arikunto (2009:170) 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. Testing validity was happened before I gave the test in the pre-test and in post-test. The test was multiple choice form. The test items were about general adjective, noun and verb category. All the material have been taught in third meetings. The validity test is consist of 60 items which I gave as try out. Then in fact just 30 items which valid and 30 items is invalid. The invalid number are 3, 6, 7, 9, 10, 13, 15, 17, 18, 19, 20, 22, 23, 25, 26, 29, 30, 32, 33, 37, 38, 39, 40, 41, 42, 43, 46, 47, 52, and number 59.
Those items were not valid because most of the students can not answer well the question. Also the valid number are, 3, 6, 7, 9, 10, 13, 15, 17, 18, 19, 20, 22, 23, 25, 26, 29, 30, 32, 33, 37, 38, 39, 40, 41, 42, 43, 46, 47, 52, and number 59. Also the valid items because the question is easily to students understand so they can answer it correctly. In the validity of test, the test are valid I gave in the pre-test and post-test activity.

In this step the testing of validity instrument, I use the correlation of the product moment by pearson 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
- \( \Sigma x \) : The total score obtained by the students for one items
- \( N \) : The numbers of sample

b. Reliability Testing

Arikunto (2009: 171) 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 Kudar and Ricardo (K-R.21) formula. This formula used because the kind of test in this research is multiple choice tests. The formula is :

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

Arikunto (2009: 175)
Where:

\[ r_{11} = \text{Instrument Reliability} \]
\[ K = \text{Amount of item / Question} \]
\[ M = \text{Average from All Question} \]
\[ V_t = \text{Total of Varian} \]

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

6. Technique of Analyzing the Data

In technique of analyzing the data I use the statistical analysis or quantitatively analyzed. I gave 1 score for the correct answer and 0 for the false answer. The purpose of this formula was to measure students’ vocabulary before and after giving the media of *Tom And Jerry* comic.

1. Homogeneity Data

The homogeneity testing is intended to know whether the students’ competence in mastering vocabulary before and after giving treatment experiment was homogenous or not. In testing the homogenous data, I used Bartlett method by following procedures:

- 1. Arrange the score of X from the smallest unit the biggest
2. Arrange Y score based on the X score group and continued with calculate Y variant and X score is just one, so the Y variant equal with nol

3. Calculate dk every group is group n = minus one

4. Calculate $= 1/dk \cdot \log S^2_{1} (dk). \log S^2_{1} (dk). S^2_{1}.$

5. Calculate the combine variants all the score with formulate: $S^2 = \{\sum(n_i - 1)S^2_{1}/\sum(n_i, 1)\}.$

6. Calculate the unit value with formulate: $d = (\log S^2 \sum (x-1)).$

7. Calculate $x^2$ with formulate $x^2 (\ln 10) \{B \cdot \sum(n_i - 1) \log S^2_{1}\}$

8. Compare the value of $x^2$ count with $x^2$ table on the Chi-square table with chance $(1-\alpha)$ and $dk = k - 1.$

2. **Testing Hypothesis**

Testing hypothesis is to determine *Tom and Jerry Comic* can improve students’ vocabulary. The formula of t-test as follow:

$$t = \frac{X_1 - X_2}{\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$$S^2 = \frac{(n_1 - 1)S^2_{1} + (n_2 - 1)S^2_{2}}{n_1 + n_2 - 2}$$

(Sudjana, 1996 : 239)

Notes:

$X_1 =$The Average Value of Pre-Test

$X_2 =$ The average value of post-test

$N_1 =$ The number of samples of post-test

$N_2 =$ The number of samples test
\[ S_1 = \text{Standard deviation of pre-test} \]
\[ S_2 = \text{Standard deviation of post-test} \]
\[ S = \text{Standard deviation of pre-test and post-test.} \]

3. **Hypothesis Verification**

Hypothesis verification is very useful for to know the result of research are rejected or received. In verifying the hypothesis of this research, I used the level of significance according to Sudjana (2002:239) is:

\[ \alpha = 0.05 \] and \[ dk = (n_1 + n_2 - 2) \]

with criteria as follow:

Receive \[ = H_0, \text{IF } t \leq (1 - 1 / 2 \alpha) \]

Rejected \[ = H_0, \text{IF } t \geq (1 - 1 / 2 \alpha) \]