

III. RESEARCH METHOD

This chapter discusses how the researcher conducted the research. Everything related to the model of research, such as research design, population and sample, setting, data collecting techniques, research procedures, research instruments, try out test, data analysis, and hypothesis testing are described as follows:

3. 1. Research Design

This research was administered through qualitative quantitative design. Qualitative design was used to describe the process of the implementation of Pictionary Game in the classroom. Meanwhile, the quantitative design was used to find out students' vocabulary achievement after the implementation of Pictionary Game. In this research, the writer used *one group pretest-posttest design* to calculate students' vocabulary achievement before and after the treatment. The research design is as follows:

T1 X T2

T1 : Pre-test

X : Treatment

T2 : Post-test

(Hatch and Farhady, 1982:20)

The pretest was administered to the students in order to know the students' vocabulary achievement before the treatment. After that, the treatment of teaching vocabulary through Pictionary Game was given to the students. The posttest was administered in order to find out the students' vocabulary achievement after the treatment.

3. 2. Population and Sample

The population of this research was all seventh grade students of SMP Al-Kautsar Bandar Lampung in the second semester of 2013/2014 academic year. In relation to the design, the researcher took only one class as the sample out of eight classes in seventh grade. The researcher chose the class randomly, and 7A class, which consisted of 31 students, was chosen to be given a treatment. Meanwhile, the students of 7B class were given the tryout test.

3. 3. Setting

This research was conducted at SMP Al-Kautsar Bandar Lampung. The research was conducted from April 21st to May 14th, 2014. The schedules are described as follows:

Activity	Time
Conducting pre-observation	February 19 th , 2014
Administering tryout test	April 21 st , 2014
Administering pretest	April 28 th , 2014
Conducting first treatment	April 29 th , 2014
Conducting second treatment	April 30 th , 2014
Conducting third treatment	May 13 th , 2014
Administering posttest	May 14 th , 2014

3. 4. Data Collecting Techniques

The researcher used several techniques in collecting the data:

1. Vocabulary Test

Vocabulary test was used for collecting the data by the researcher. It was used to measure students' vocabulary achievement. The test consisted of pretest and posttest. The pretest was given to find out students' vocabulary achievement before the treatment. Meanwhile, the posttest was given to know students' vocabulary achievement after the treatment.

Before administering the pretest, the researcher gave tryout test which consisted of 30 multiple choice questions in another class. The result of tryout test was analyzed to find out which items that should be eliminated and which should not for pretest and posttest. In pretest and posttest, the questions consisted of 15 items which were divided into 7 vocabularies of noun, and 9 vocabularies of verb.

2. Observation

In order to collect the data during the process of the implementation of Pictionary Game, the researcher used observation. In this research, the researcher became a participant observer because she did not only observe the students' activities but also taught them during the research. The researcher, along with the English teacher, observed the students' behavior during the implementation of Pictionary Game in the classroom. Observation sheet (see

Appendix 19) was used by the researcher and the English teacher in the middle of teaching learning process.

3. 5. Research Procedures for Collecting Data

In collecting the data, the researcher conducted the following procedures:

1. Determining the research problems

The problems of the research were intended to find out whether students' vocabulary achievement can significantly increase after being taught by using Pictionary Game and to investigate the process of the implementation of Pictionary Game in the classroom.

2. Preparing the instruments for collecting the data

The researcher prepared vocabulary test, which consisted of tryout test, pretest, and posttest. Observation sheet was also prepared for investigating the teaching learning process.

3. Determining the class for the sample

The population of this research was all seventh grade students of SMP Al-Kautsar Bandar Lampung in the second semester of 2013/2014 academic year. 7A class was chosen as the sample of this research.

4. Administering tryout test

The tryout test was administered to choose which items that should be presented in the pretest and posttest. The tryout test consisted of 30 multiple choice items with four alternative answers (A, B, C, and D) for each, one was the right answer and the others were the distracters. The test was conducted in 30 minutes.

5. Administering the pretest

The pretest was given to find out students' vocabulary achievement before being taught through Pictionary Game. The test consisted of 15 multiple choice items. It had four alternative answers (A, B, C, and D); one was the right answer, and the others were the distracters. The test was conducted in 30 minutes.

6. Conducting the treatment

After giving the pretest to the students, the researcher conducted the treatment for three times by using Pictionary Game. The treatment was conducted in 40 minutes.

7. Administering the post-test

The posttest was given to find out students' vocabulary achievement after being taught through Pictionary Game. The test consisted of 15 multiple choice items which were similar to the items in pretest. It had four alternative answers (A, B, C, and D); one was the right answer, and the others were the distracters. However, the formation of the items was distinguished from the pretest. The test was conducted in 30 minutes.

8. Analyzing the data

The data from pretest and posttest were analyzed by using SPSS (Statistical Package for Social Sciences) 17.0 for Windows to find out whether students' vocabulary achievement can significantly increase after being taught by using Pictionary Game or not. Meanwhile, the data from observation sheet were analyzed to investigate the process of the implementation of Pictionary Game in the classroom.

9. Reporting the result of data analysis

After analyzing the data, the result was reported in the script.

3. 6. Research Instruments

In this research, the instruments that were used by the researcher were as follows:

1. Pretest

The pretest was administered before conducting the treatment to find out students' vocabulary achievement before the implementation of Pictionary Game was given to them. It consisted of 15 items, and was conducted in 30 minutes.

2. Posttest

The posttest was administered to the students after the treatments to find out students' vocabulary achievement after the implementation of Pictionary Game. There were 15 items in the posttest and the questions were the same as those in pretest but the order of the questions was changed.

3. Observation Sheet

Observation sheet was used during the treatment to find out students' activity during the implementation of Pictionary Game. There were 10 things that were observed by the researcher and the English teacher, they are (1) respond to the game enthusiastically, (2) attentively focus on listening to the explanation, (3) ask some questions to the teacher, (4) pay attention to the teacher's instruction, (5) are well-regulated and have a well-mannered, (6) follow the teacher's order well, (7) act orderly and do not make impolite behavior, (8) are well-prepared

to participate in playing Pictionary Game, (9) discuss the answer with their groups seriously, and (10) work cooperatively in the group.

3. 7. Tryout Test

Tryout test was used to find out the quality of the test that was used as the instrument of the research. The researcher could determine which items in tryout test that should be revised for pretest and posttest.

3. 7. 1. Data Validity

1. Vocabulary Test

The validity of the test is the extent to which it measures what it is supposed to measure (Heaton, 1991: 159). There are two types of validity based on Hatch and Farhady (1982:281), they are content validity, and construct validity. These validities were used in this research in order to measure whether or not the test has a good validity.

a. Content Validity

Content validity is the extent to which a test measures a representative sample of the subject matter content (Hatch and Farhady, 1982: 251). In content validity, the material given is based on the curriculum. In this research, the test was based on KTSP curriculum, and the syllabus for first grade of junior high school students. The material that was learnt by the students at that time was procedure text, thus the researcher used vocabularies which were based on the material that had been taught by the teacher. The material was content words (noun and verb).

Table 1. Table of Specification (Tryout Test)

No	Word Class	Number of items	Percentage
1	Noun	1, 2, 7, 9, 10, 13, 17, 19, 21, 22, 25, 27, 30.	43%
2	Verb	3, 4, 5, 6, 8, 11, 12, 14, 15, 16, 18, 20, 23, 24, 26, 28, 29.	57%
	Total	30 items	100%

In order to make sure the validity of the content, the researcher also used inter-rater in which she asked several colleagues to be the evaluators of the content of the test before administering it to the students.

b. Construct Validity

Construct validity focuses on kind of the test that is used to measure the ability. According to Setiyadi (2006), if the instrument measures one aspect, for example vocabulary; the construct validity can be measured by evaluating all items in the test. If all items have measured students' vocabulary achievement, then the instrument has fulfilled the construct validity. In order to make sure the construct validity of the test, the researcher also asked the colleagues to evaluate the test before it was administered to the students.

2. Process

For the data validity of the process, the researcher used triangulation. In this research, the researcher used time and methodology triangulation. The observation was conducted in different time (time triangulation), and the researcher also used observation and notes (methodology triangulation) to gather the data.

3. 7. 2. Data Reliability

According to Hatch and Farhady (1982: 243), reliability of a test can be defined as the extent to which a test produces consistent result when administered under similar conditions. To estimate the reliability of the test, this research used split-half technique which requires the researcher to split the test in two similar parts, first and second half (Hatch and Farhady, 1982:246). To measure the coefficient of the reliability between odd and even group, this research used *Spearman Brown Formula* as follows:

$$r_{xy} = \frac{N \Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{(N\Sigma X^2 - (\Sigma X)^2)(N\Sigma Y^2 - (\Sigma Y)^2)}}$$

Note:

r_{xy} : coefficient of reliability between odd and even groups

N : number of the students

X^2 : square of x

Y^2 : square of y

ΣX : total score of odd group

ΣY : total score of even group

(Hatch and Farhady, 1982:245)

Then, this research used *Spearman Brown's Prophecy Formula* to know the coefficient correlation of whole items. The formula is as follows:

$$r_k = \frac{2r_{xy}}{1 + r_{xy}}$$

Note:

r_k : the reliability of the test

r_{xy} : the reliability of half test

The criteria of reliability are:

0.90 – 1.00 : high

0.50 – 0.89 : moderate

0.0 – 0.49 : low

(Hatch and Farhady, 1982: 246)

The result of the calculation by using the formulas above showed that the reliability of the test was 0.70 (see Appendix 4). It can be believed that the reliability of the test was moderate in which the criterion of moderate reliability is in the range of 0.50 – 0.89 (Hatch and Farhady, 1982:246).

3. 7. 3. Level of Difficulty

A test is considered as a good test if it is not too easy or too difficult to be answered by the students. To find out the level of difficulty, this research used this following formula:

$$LD = \frac{R}{N}$$

Note:

LD : level of difficulty

R : the number of pupils who answer correctly

N : the total number of pupils following the test

The criteria are:

LD < 0.30 : difficult

LD = 0.30 – 0.70 : average

LD > 0.30 : easy

(Shohamy, 1985:79)

After calculating the level of difficulty by using the formula above, the researcher found that there were 19 easy items (1, 4, 5, 6, 7, 8, 9, 12, 13, 14, 15, 17, 18, 19, 21, 22, 26, 29, and 30); 10 average items (2, 3, 11, 16, 20, 23, 24, 25, 27, and 28); and 1 difficult item (number 10) in the test (see Appendix 3).

3. 7. 4. Discrimination Power

Discrimination power is used to indicate the discrimination of the failure and the success of the students. To find out the discrimination power, the researcher used this following formula:

$$DP = \frac{U-L}{\frac{1}{2}N}$$

Note:

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:

1. If the value is positive discrimination, there are a larger number of more knowledgeable students than poor students who get the item correct. If the value is zero, it means that there is no discrimination.
2. If the value is negative, it means that there are more low level students than the high level students who get the correct item.
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)

By calculating through the formula of discrimination power above, the researcher found that there were 9 poor items (1, 6, 7, 12, 14, 20, 22, 26, and 30) and 6 bad items (4, 5, 9, 10, 15, and 17) which means that those items were not good to discriminate between smart and poor students; and there were 11 satisfactory items (2, 3, 8, 11, 13, 18, 19, 21, 23, 25, and 27) and 4 good items (16, 24, 28, and 29) which means that those items were good to discriminate between smart and poor students.

The items which had difficult and easy level of difficulty level but had satisfactory and good discrimination power were revised and administered. The items which were average in difficulty level and had satisfactory discrimination power were administered. Meanwhile, the items which were bad and poor discrimination power were dropped. The calculation of the discrimination power of the tryout test can be seen on Appendix 3.

3. 7. 5. Scoring System

In this research, Tayler-Powell's formula was used to score the students' test result. The formula is as follows:

$$S = \frac{R}{N} 100$$

Note:

S : the score of the test

R : the total of the right answers

N : the total items

(Tayler-Powell, 1996)

In order to know the students' vocabulary achievement, the writer calculated the students' scores by doing three steps:

1. Scoring the pretest and posttest
2. Tabulating the result of the test and finding out the mean of the pretest and posttest by applying this formula:

$$\bar{X} = \frac{\sum X}{N}$$

Note:

\bar{X} : mean

$\sum X$: the total score of the students

N : number of the students

3. Making conclusion from tabulated results of the test given that were statistically analyzed by using SPSS (Statistical Program for Social Sciences) 17.0 for Windows.

3. 8. Data Analysis

3. 8. 1. Vocabulary Test

After conducting the pretest and posttest, the data were analyzed to find out whether there is an increase of students' vocabulary achievement after being taught by using Pictionary Game or not. The following steps were used to examine students' score:

1. Scoring the pretest and posttest
2. Tabulating the score of students' vocabulary test result using *Repeated Measures t-test*. The formula is as follows:

$$\frac{X_1 - X_2}{SD}$$

in which $S_{\bar{D}} = \frac{S_D}{\sqrt{N}}$

Note:

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. Making conclusion from tabulated results of the test given that were statistically analyzed by using SPSS (Statistical Program for Social Sciences) 17.0 for Windows to test whether or not the increase of students' vocabulary achievement was significant.

3. 8. 2. Process

The researcher used several steps to analyze the data from observing students' activities, they are:

1. Count the total score

The researcher counted the total score of students' activities. There were 10 activities that the researcher and the English teacher observed, they are (1) respond to the game enthusiastically, (2) attentively focus on listening to the explanation, (3) ask some questions to the teacher, (4) pay attention to the teacher's instruction, (5) are well-regulated and have a well-mannered, (6) follow the teacher's order well, (7) act orderly and do not make impolite behavior, (8) are well-prepared to participate in playing Pictionary Game, (9)

discuss the answer with their groups seriously, and (10) work cooperatively in the group.

2. Making description from the data

The researcher made the description based on the collected data from researcher's observation and the English teacher's observation.

3. 9. Hypothesis Testing

The hypotheses of this research are:

- a. H_0 : There is no significant difference of the students' vocabulary achievement after being taught through Pictionary Game.
- b. H_1 : There is a significant difference of the students' vocabulary achievement after being taught through Pictionary Game.

In order to test the hypotheses, *Repeated Measures t-test* was used through Statistical Package for Social Sciences (SPSS) 17.0 for Windows at the significance level of 0.05 ($p < 0.05$).