

CHAPTER 3

RESEARCH METHODOLOGY

This chapter serves how the researcher conducts the research. It involves research design, research variables, population and sample, research instruments, data collection technique, and data analysis technique.

3.1 Research Design

The reserach was done to find out the difference in spelling mastery between the students who were taught using Scrabble Game and those who were not taught using Scrabble Game in teaching English Vocabulary to the seventh graders of SMP Muhammadiyah 6 Surabaya.

Based on the statement above, it could be said that this research is experimental quantitative research, in the form of two group design pre-test and post-test. Ary (2010:26) states that experimental research is the study of the effect systematic independent variable(s) to another variable. One group served as the experimental group and the other as the control group. The class which was taught using scrabble game was experimental group and the class which was not taught using scrabble game was the control group.

The research design in conducting the experiment can be illustrated in the following table.

Table 3.1

GROUP	PRE-TEST	TREATMENT	POST-TEST
A	Y1	-	Y2
B	Y1	X	Y2

Where

A : The control group that was not given scrabble game.

B : The experimental group that was given scrabble game.

X : Scrabble Game

Y1 : The pre-test administered before the treatment

Y2 : The post-test administered after the treatment

3.2 Research variable

There are two variables investigated in this research, they are independent and dependent variable. Sugiyono (2013:39) says that an independent variable is the variable which influences dependent variable; meanwhile dependent variable is the variable that will be affected by independent variable.

1. Independent variable

It is variable that can be manipulated by the investigators. In this research the use of scrabble game were said to be independent variable of this research.

2. Dependent Variable

It is a variable that affected or expected to be affected by the independent variable. In this research, spelling mastery is dependent variable of this research because the score is affected by the use of scrabble game.

3.3 Population and Sample

3.3.1 Population

In this research, the population is seventh graders of SMP Muhammadiyah 6 Surabaya in the academic 2014/2015. There are 96 students from 4 classes. Here the list of classes:

1. VII A : 24 students
2. VII B : 23 students
3. VII C : 24 students
4. VII D : 25 students

3.3.2 Sample

Based on the population, the researcher will take 2 classes as sample. To choose the sample, the researcher use snowball sampling. It means that the researcher asks the teacher to choose which is class as the experiment and the control class. In this case, the teacher of seventh graders suggest to choose the VII C as the control class and VII D class as the experiment class. Even the number of the students (C and D class) are 49, the researcher just use 42 students. It is caused some of the students do not attend when the pre test or post test are held.

3.4 Research Instrument

3.4.1 Test

The instrument that is used in collecting the data which is needed for this research. The test particularly consisted of pre-test and post-test. The pre-test is done to find out the students spelling mastery before giving the treatment while the purpose of doing post-test is to examine whether or not the treatment that was taken effectively improve their spelling mastery.

3.4.2 Validity

Brown (2003:22)says that test is valid when it can measure what the researcher want to be measured. It means that the test is valid when it is appropriate, meaningful and useful in term of the purpose of the test. Brown (2007) stated that there are five kinds of validity; content validity, Criterion

validity, Construct validity, Consequential validity, and Face validity. In this study, the researcher uses the content validity because it is related to evaluating achievement test. The validity was taken from the 7th grade syllabus of 2013 curriculum, especially on second semester.

Table 3.2

Syllabus of 2013 curriculum

3.2 Memahami fungsi sosial, struktur teks, dan unsur kebahasaan dari teks deskriptif dengan menyatakan dan menanyakan tentang deskripsi orang, binatang, dan benda, sangat pendek dan sederhana, sesuai dengan konteks penggunaannya.
4.12 Menangkap makna dalam teks deskriptif lisan dan tulis, sangat pendek dan sederhana.
4.13 Menyusun teks deskriptif lisan dan tulis, sangat pendek dan sederhana, tentang orang, binatang, dan benda, dengan memperhatikan fungsi sosial, struktur teks, dan unsur kebahasaan, secara benar dan sesuai konteks.

3.4.3 Reliability

Brown (2003:20) says that a reliable test is consistent and dependable. It means that the score must be similar when the same test are given to the same students on two different occasions. Besides consistent, the score has to be dependable. It means that the students' score are proved and believable. Finally, reliability is demonstrated not only through predictability but also through commitment and dedication (Creswell, 2002:43).

According to Heaton (1990: 162) a test that is categorized reliable if the scores are relatively stable among one rater to another. To get reliable result, the researcher uses 2 observer when observe the students. It calls interreter. In this study, the rater 1 is the teacher and the rater 2 is the researcher.

According to Bartz (1976:195) pearson product-moment correlation is common uses in measuring reliability. The formula is as follows:

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

r_{XY} = correlations coefficient

$\sum XY$ = total of result times score X and Y

$\sum X$ = total score X (total score from the teacher as rater 1)

$\sum Y$ = total score Y (total score from the researcher as rater 2)

$\sum X^2$ = total quadrate score X

$\sum Y^2$ = total quadrate score Y

N = number of subjects

From that formula, the level of reliability is determined based on the criteria by Bartz (1976:205) as seen in the table below:

Table 3.3

Criteria of reliability

Criteria	Description
$0.80 < r$	The reliability is very high
$0.60 \leq r \leq 0.80$	The reliability is strong
$0.40 \leq r \leq 0.60$	The reliability is moderate
$0.20 \leq r \leq 0.40$	The reliability is low
$r < 0.20$	The reliability is very low

Table3.4

The result of analyzing reliability

	X (Rater 1)	Y (Rater 2)
Mean	42,9	42,9
Standard Deviation (s)	15,35	15,35
Pearson product moment (r)	1,01	
Explanation	The reliability is very high	

Based on the table above, the result of analyzing reliability from two raters was 1.01 (see appendix 1). Based on criteria which proposed by Bartz, the test was considered reliable because it was “very high reliability”.

3.5 Data Collection Technique

3.5.1 The Schedule of Conducting Data

This research uses test (pre-test and post-test) to collect the data. This research is carried out through the following steps:

Table 3.5

The conducting data schedule

No	Time	Schedule
1	Monday, 20 th April 2015	Send permission letter at SMP 6 Muhammadiyah Surabaya
2	21 st -26 th April 2015	Prepare the lesson plan, teaching materials and reading the rubric
3	Tuesday, 28 th April 2015	Pre-test by writing descriptive text about favourite place (D Class/Experiment class)
4	Wednesday, 29 th April 2015	Pre-test by writing descriptive text about favourite place (C class/ control class)
5	Friday, 1 st May 2015	Treatment by playing scrabble game (D class/experiment class)
6	Friday, 15 th May 2015	Post-test by writing descriptive text about favourite place (Control and Experiment class)

3.5.2 The Procedure of Collecting The Data

It is the steps how the researcher does the research. It consists of pre-research, research process, research closing.

Table 3.6

The Procedures of The Research

Pre-research	
a. Determining the school and the class for the research. b. Determining material (descriptive text) and the topic to learn the activities of the research. c. Arranging and making lesson plan during learning the activities of the research. d. Determining the instrument of the research e. Analyzing the instrument of the research	
Research process	
Control Class	Experiment Class

<ul style="list-style-type: none"> a. Introducing and explaining about material. b. The teacher say the descriptive vocabulary based on the picture. c. The students write it in book. d. The students make some sentences. 	<ul style="list-style-type: none"> a. Introducing and explaining about material that will use in teaching and learning activities of the research. b. The teacher devides the students in groups. c. The teacher gives picture related with the material (descriptive text). d. The students observe the picture. e. The students play scrabble game. f. The students write the vocabulary and make it in sentences.
Research closing	
<ul style="list-style-type: none"> a. Giving post-test to measure experimental and control class. b. The researcher analyzes the data of post-test. c. The researcher will count the data and compare between control and experimental class to know the effectiveness of this method. 	

3.6 Data Analysis Technique

After obtaining the data, the researcher analyze it. The step of analyzing will be explained below:

- a. Measuring the homogeneity test based on the pre-test score.

The purpose of measuring homogeneity is looking the level of students' characteristic. The measurement should show that the two groups are from the same population with the same characteristic.

$H_0 : \sigma_1^2 = \sigma_2^2$ There is no differences variant between experimental and control class.

$H_1 : \sigma_1^2 \neq \sigma_2^2$ There is difference between experimental and control class.

The criteria make decision : H_0 accept, if $\rho \text{ value} < \alpha$

- b. Measuring the normality distribution.
- c. Measuring the T-test score based on the post-test score using *SPSS 1.6 Software*.
- d. Comparing the result based on the t-test score.
- e. Computing eta squared

$$\text{etasquared} = \frac{t^2}{t^2 + (N_1 + N_2 - 2)}$$

Explanation : $T^2 =$ Value from t test

$N =$ Number of students