

CHAPTER III
RESEARCH METHOD

A. Research Design

In this study, the writer used quantitative research. The writer decided to use an experimental design that in the form of quasi experimental design. Quasi experimental design contains of pre- and post – test. The design of quasi experimental can be described as the following,

Table 3.1 Nonequivalent Control Group Design

O1	X	O2
O3		O4

O1 is pre – test for the experimental group

O2 is post – test for the experimental group

O3 is pre – test for the controlled group

O4 is post – test for the controlled group

X is treatment for experimental group2 (using spelling bee game)

In this design, there are two observation; those are before and after experiment. Those observation called pre – test, and post – test, in which pre – test is the observation which is conducted before the experiment and post – test is the observation which is conducted after the experiment. In this design, there are two groups of students as the samples. At the first time, both of groups are given pre – test in order to know their competence in vocabulary mastery before they are given a treatment. In the experimental group, they would be find a treatment by spelling bee game, while the controlled group, they would be find a treatment by using conventional technique.

There are several things that the researcher should do in this research :

1. First, the researcher would be meeting the headmaster of SDN Kebun Bunga 6 Banjarmasin to ask permission for doing research. She gets a proposal and the letter of Culture and Education Department as the condition to do this research.
2. Second, meet the English teacher for discussing the research and arranging some lessons plan. The researcher and the teacher select the material and provide test. There fourth meetings of each class including pre-test and post-test. The students of IVA class as the control class are taught without using by spelling bee game and students of IVB class as an experimental are taught using spelling bee game in learning English vocabulary.

3. Then, give the students pre-test. Since the purpose of pre-test is to find out the students' prior knowledge, then both of classes are given pre-test. There are ten questions in the pre-test.
4. Next, researcher would be teaching English to the students of IV class by using spelling bee game for three meetings. In contrast, students of IV class as the controlling class will be teaching English without using spelling bee game.
5. After that, give the students post-test. The purpose of post-test is to find out the students' increasing vocabulary of the material given. As pre-test the post-test also has ten questions. To know the different score between pre-test and post-test, researcher uses some formulas to describe about students' vocabulary achievement, below:

- a) Giving interpretation for “ t_{count} ” with consulting t_{table} :

$$Df = N - 1$$

- b) Looking for standard deviation by using the following formula:

$$SD_x = \sqrt{\frac{\sum fx^2}{N}}$$

- c) Looking for t_{count} by using the following formula :

rumus

6. Then, calculating the students' score. After calculating the students' score, the researcher interpret the score whether it is “Excellent”, “Good”, “Fair”, “Low”, or “Poor”,

7. And then, determining mean for each classes of experimental class and control class by using the following formula:

$$\text{Rumus} = m_x = \frac{\sum f x}{n}$$

8. Next, analyzing the data. First the researcher would be analyze the data by using SPSS to determine the data is normal and homogeny or not, and then, using t-test. To find out the value of t-test, there are some steps that the researcher did:

- a) Determining mean for variable I and II by using the following formula:

$$\text{Rumus} = m_2 \text{ or } m_1 = \frac{\sum f x}{n_1}$$

- b) Determining standard Deviation for variable I and II by using the following formula:

$$\text{Rumus} = m_y \text{ or } m_x = \frac{\sum f x}{n_2}$$

- c) Determining standard Error for variable I and II by using the following formula:

$$\text{Rumus} = S = N = \frac{\sum_{X=1}^X X^2 - (\sum_{Y=1}^Y X_1)}{N(N-1)}$$

- d) Determining standard Error for variable I and II by using the following formula:

$$\text{Rumus} = SE X_1 \text{ Or } SE X_2 = \frac{SD_1}{\sqrt{N}}$$

- e) Giving interpretation for “t” with df formula:

$$\text{Rumus } = \frac{df}{db} = (n_1 - n_2 - 2)$$

Since the purpose is to prove the hypotheses whether H_a is accepted or H_o is accepted, then the hypothesis testing is done.

9. Finally, drawing conclusion based on the finding research. After analyzing the data, the researcher finds the result and make conclusion based on the result.

B. Research Setting

This research tooks place at SDN Kebun Bunga 6 Banjarmasin, which was located Jl. Achmad Yani, KM 4,5 Komp IAIN Antasari Banjarmasin. South Kalimantan.

C. Population and Sample

1. Population

The population of this research is the fourth grade students at elementary school Kebun Bunga 6 Banjarmasin. The fourth grade students of this school are 69 students, and they are divided into two classes (VIA, and VIB). For selecting samples, the writer find recommendation class from the English teacher at this school.

Table3.2. The students of the fourth grade at SDN Kebun Bunga 6

No	Class	Total
1	A	36
2	B	33
Total		69

Source: Administration staff documentary at SDN Kebun Bunga 6 Banjarmasin.

2. Sample

The technique samples, the writer find out recommendation class from the English teacher at this school. Because the samples in this study are lack of vocabulary, they are hard to be controlled in the class, and they are difficult to understand a material easily. It means that this research uses purposive sampling. According to Fraenkel, Wallen, and Hyun (2012, p.100) about purposive sampling, they said investigators use personal judgment to select a sample based on prior knowledge of a population and the specific purpose of the research. In the research, the writer engage 69 students at fourth grade as the samples, 33 students are experimental group, and 36 students are controlled group.

Table 3.3. Sample of the fourth grade students at SDN Kebun Bunga 6 Banjarmasin.

No	Classes		Total
	Control class	Experiment class	
1	IVA	-	36
2	-	IV B	33

Source: Administration staff documentary at SDN Kebun Bunga 6 Banjarmasin.

D. Research Instrument

The research instrument that the writer used to collect data is test. The test is divided into two parts: pre-test, that is given to both experimental and controlled class before treatment, and post-test, that is given to both classes after the treatment. The test have 10 questions about vocabularies spell item consist alphabet, parts of body and in the classroom.

Table 3.4 The category of students' spelling

No	Qualification	Score
1.	Excellent	4
2.	Very good	3
3.	Good	2
4.	Low	1

The whole process of preparing to collect the data is called instrumentation (Fraenkel and Wallen, 2009: p.113).

E. Data Collection

Collecting data is the most important step in conducting the research. The types of test that the writer uses are Spelling item. The questions of the test are about things around students' life, and those questions are tested to another group, which is not including as sample of the research, to see the reliability and validity of instrument. The writer analyzes the result of it by using Anates. Then, the writer collects 10 questions for pre-test, and the writer randomizes those questions for post-test. The writer gives the valid questions to experimental and controlled class for the pre-test and post-test. By this activity, the writer gets the scores about students' vocabulary mastery that would be analyzed.

To collect the data in this research, the writer uses some techniques which consist of:

1. Test

This research used achievement test, a test that is used to measure the achievement of a person having learned something (Arikunto, 2002, p.143).

The written used pre-test and post-test to know the students' first ability in vocabulary and students' last ability in vocabulary used spelling bee game in experiment class and did not use spelling bee game in control class. This test is spell in experiment and control class to get score of the students' achievement of vocabulary mastery. The instrument that would be taken from the pre-test are spell

items. The instrument that would be taken from post-test are spell items, and make spelling bee game appropriate word that give by teacher. The test could be seen in the appendix

a. Pre-test

In pre-test, all of fourth grade students at SDN Kebun Bunga 6 Banjarmasin, control class and experiment class would be answer 10 items about vocabulary mastery. It means the researcher want to know they vocabulary skill before the teacher used spelling bee game.

b. treatment

In conducting the treatments, the researcher acted as the teacher and the judge of the Spelling Bee game at the same time. In each meeting before playing the game, students were given a recount text. There were some activities that students did with the text, for example, read the words and memorized some words that they did not know. Next, they would start to play the game. The game in this study adopted from Stone (2010). The time allocation for playing the game was twenty minutes, including grouping of students, explaining the rule and playing the game.

There were some steps in playing Spelling Bee game. First of all, the teacher would explain about the rule of the game. It was usually in the form of demonstration of the game by asking one or two students to play the game by following the teacher's instruction. Then students started to play it. One of them was play spelling bee. The teacher arranged a list of words.

The words were from the list of word given before. Dividing the students into two teams, Team X and Team O. Choose one student from Team X. First one students from Team X would get 1 word for each to be spelled. The teacher mentioned the word of the first students. The first students had forty seconds to spell and to ask some clues, for instance the definition of the word, the word's part of speech. If both of the students spelled the words correctly, then Team X got 1 point by spell „X“ on one of the 10 paper on the boxes. But if one or both of them failed, Team X did not get a point. Team X and Team O continued to play it by turns. Both of groups competed to win the game by arranging 4 points in a row. The first team who could do that became the winner. The treatments were held five times, which lasted for 80 minutes for each meeting.

c. Post-test

In post-test, all of fourth grade students at SDN Kebun Bunga 6 Banjarmasin, control class and experiment class would be answer the same questions with post-test it means the researcher wants to know the students' mastery of vocabulary after the researcher used spelling bee game.

2. Interview

This technique is used to collect the data which is related to this research to the interviewers like the English teacher.

F. Data Analysis Procedure

In analyzing the data, the research used “quasi experiment” to find the result, of the effectiveness of Spelling Bee game to students in learning vocabulary. Quasi experiment statistics was tabulated the results of students’ used Spelling Bee game score in the form of frequency table. After the frequency distribution was set up, it was summarized which was aimed at finding out koefesion correalation.

The two variables investigated in this research were Spelling Bee game and students score. To know whether there is any significant difference scores in the students score before and after being taught by using Spelling Bee game, the writer analyzed the collected data quantitatively.

In this research, the writer used a quantitative data analysis technique.

The quantitative data of this research was analyzed by using statistical method. This technique was used to find the significant difference on the students’ scores after taught by using Spelling Bee game.

This research uses quantitative approaches in analyzing the data. According to Fraenkel and Wallen (2006, p.15) quantitative data deal primarily with numbers. Therefore quantitative approach is used to describe the improvement of the students’ vocabulary achievement between those who taught by using spelling bee game and those who are taught without it.

To answer research questions were using inferential analyses, and also hypotheses.

1. Inferential Analysis

Inferential analysis is aimed at testing the research questions and hypotheses. The tests are normality and homogeneity tests. Those tests to analyze whether the hypothesis comparative study using parametric or nonparametric research, based on table 3.5 the researcher used research application (Two Dependent Sample) that the two tests taken from the same respondent.

Table 3.5 Tests Parametric and Non Parametric

Application	Parametric Test	Non Parametric Test
(two dependent sample)	T test Z test	Wilcoxon Signed-Rank Sign Test Mc Nemar Test
(two independent sample)	T test Z test	Mann –Whitney U test Moses Extreme Reaction Chi square test Kolmogorow-Smirnov test Walt-wolfowitz runs
(several dependent samples)	T test Z test	Friedman test Kendall W Test Cochran's Q
(several independent samples)	Anova test (F test)	Kruskal – Wallis Test Chi Square Test Median Test

a) Normality

Normality test is testing intended to make sure this research uses parametric or nonparametric research. Statistic parametric need a lot of assumption, main principal assumption is the data will analyze must have normal distribution (Sugiyono, p.150). To know the Normality tests, the

researcher used Kolmogorov-Smirnov test SPSS 22 for computing the data. This test to know the data of this research whether normal distribution or not, in this test of normality the researcher make two assumptions about the data:

1. If that the data normal distribution the researcher uses parametric research

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2} - 2r \left(\frac{s_1}{\sqrt{n_1}}\right) \left(\frac{s_2}{\sqrt{n_2}}\right)}}$$

2. If that the data abnormal distribution the researcher uses non parametric research

The data will be tested by using Chi Square formula:

$$X^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

$$X^2 = X^2$$

O_i = Observation Value

E_i = Expected value

N = Total Frequency

- a. Homogeneity

Homogeneity testing is intended to make sure that the collected manipulation data in analysis is truly taken from a population which is different from each other and it is second assumption for researcher to use parametric or nonparametric research. Especially in a study which is

predictive, the model which is used must be appropriate with the composition and its distribution (Sujianto, p.112). To know the Homogeneity, the researcher used Leven test by computing the data with the One Way Anova SPSS 22.

1. Hypotheses

Alderson (2000, p.86) states there are factors affecting the difficulty of spelling test items. One of them is different type of question. Pearson and Johnson (1978) in Alderson (2000: p.86) identify that different types of questions and suggest that they might vary in their difficulty. Based on those theories, two hypotheses were used, two hypotheses as follows:

a. Alternative Hypothesis (H_a)

There is a significant difference in students' achievement in learning English between who are taught by using spelling bee game and students who are taught without using spelling bee game in fourth grade of SDN Kebun Bunga 6 Banjarmasin.

b. Null Hypothesis (H_0)

There is no significant difference in students' achievement in learning English between students who are taught by using spelling bee game and students who are taught without using spelling bee game in fourth grade of SDN Kebun Bunga 6 Banjarmasin.

In analyzing the data, the researcher does several does steps: first, the pre-test and the post-test are given. In this case, the pre-test would be given before

the treatment while the post-test would be given after the treatment. After that, scores the student's achievement.

After scoring the data, the researcher interprets the students' score for pre-test and post-test. The researcher uses the category which is submitted by David p, Harris (1969, p.134), as follows:

Table 3.6 The score interpretation

Score	Interpretation
80-100	excellent
70-79	good
60-69	fair
50-59	low
0-49	poor

Then, the researcher evaluated the average or the mean score from the frequency distribution above. The formula as below:

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

M = mean

$\sum X$ = total number of score

N = total number of sample

Next, t-test will be used in testing the hypothesis. The formula of t-test can be seen as below:

The criteria in determining gain (improvement) distribution of the data are as follows:

$$T = \frac{x_1 - x_2}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}} - 2y \left(\frac{S_1}{N_1} \right) \cdot \left(\frac{S_2}{N_2} \right).$$

H_0 : *Gain* (improvement) students' achievement who are taught teaching English by using spelling bee game in SDN Kebun Bunga 6 Banjarmasin are lower.

H_a : *Gain* (improvement) students' achievement who are taught teaching English by using spelling bee game in SDN Kebun Bunga 6 Banjarmasin are higher.

$$H_0 : \mu_1 < \mu_2$$

$$H_a : \mu_1 > \mu_2$$

The criteria of the test:

- If probability (sig.) > 0.05 H_0 accepted, in another words if probability (sig.) < 0.05 H_0 refused. Or
- If $t \text{ test} > t \text{ table}$ then H_0 refused with belief 5% ($\alpha = 0.05$), in other words If $t \text{ test} < t \text{ table}$ H_0 accepted (Rusman, 2011, p. 94)