

## **Chapter Three**

### **Methodology**

In this chapter the researcher will talk about the methodology that the researcher uses in this research. The first part, the researcher talks about research design. Then, the researcher talks about research setting and participants, instruments of the research, data collection method and the last part is data analysis.

#### **Research Design**

The kind of research design that the researcher was used to identify the effectiveness of using pop-up book in improving students' vocabulary mastery was experimental design. Based on Creswell (2012) experimental design is an attempt to identify the influence or effect of independent variable to the dependent variable. The independent variable that was used in this research was pop-up book and the dependent variable was the students' vocabulary mastery. In this research the researcher wanted to know the effect of the use of pop-up book to the students' vocabulary mastery. That was why experimental research design was appropriate to use in this research. Experimental design was included in quantitative research.

The type of experimental design that the researcher chose in this research was time series of quasi experimental research. Creswell (2012) explained that time series of quasi experimental research is a research which uses the whole participant of a group, without choosing the participant randomly and the

measurement of the data is repeatedly. The reason why the researcher chose this type is because the researcher only used one group and there is no control group. Then, the researcher also felt hard to work in two groups because this research did not need many participants to get the result of this research and the school only had a class for each grade. That was why time series was appropriate to use in this research to identify the effectiveness of using pop-up book in improving students' vocabulary mastery

There were some procedures that were used to measure the effect of the variable by using time series design. The first step was studying the group. Then, the researcher gave some pre-tests to the participants. The researcher gave the multiple pre-tests to identify the students' vocabulary mastery before the researcher used pop-up book in the learning activities. The multiple pre-tests were given to get the stable condition of the participants' score and clearly description of the students' vocabulary mastery. Then the next step was intervention. In intervention the researcher used the pop-up book as media for students to learn vocabulary. After the intervention the researcher gave the post-test for several times. The pre-tests and post-tests were given to measure the effectiveness of using pop-up book toward the students' vocabulary mastery.

The procedure of doing experimental research based on Cresswell (2012)

the table below was illustrated as follows:

| Table 3. 1 <i>Time Series Design</i>      |                                |                                |                                |              |                                 |                                 |                                 |
|---|--------------------------------|--------------------------------|--------------------------------|--------------|---------------------------------|---------------------------------|---------------------------------|
| Time <span style="float: right;">→</span> |                                |                                |                                |              |                                 |                                 |                                 |
| Select participants for group             | Pretest measure or observation | Pretest measure or observation | Pretest measure or observation | Intervention | Posttest measure or observation | Posttest measure or observation | Posttest measure or observation |

### **Research Setting and Participants**

The setting of this research was in SD N 2 Trikarso. The reason why the researcher chose this place was because this school near with the researcher house. The researcher also ever studied in this school so it made the researcher easily to build good cooperation in doing this research. Then, the teacher of this school used module and used media teaching rarely. The researcher wanted to introduce an interesting media that helped the teacher to deliver the material and to improve students' elementary school vocabulary mastery.

There were six classes in this school. From that population, the researcher chose a class of students at fifth grade as the sample for this research. The total students in this class were 23 students but only 21 students that the researcher used as this research participant. The reason was because only 21 students who were consistent follow this research. A student only joined in the pre-test and the other was joined in some treatments and some post-tests. The researcher used purposive sampling when the researcher had chosen the participants. According to Sugiono (as cited in Oktafiya, 2014) "purposive sampling is a technique to take

sample based on consideration” (p. 85). This grade considered good enough to receive this research. The reasons why the researcher chose this grade was because of students in this grade have already learned English in the primary grade. This condition was appropriate to measure the effectiveness of using pop-up book to improve students’ vocabulary mastery. Students in this grade were not too busy as students at sixth grade who must face national exam.

### **Instruments of the Research**

Some instruments were needed in this research. The instruments were used in the process collecting the data and to process the data. Those instruments were:

**Test.** The test was used to measure the students’ vocabulary mastery. It was used as data to know the effect of using pop-up book in this research. In order to collect the data the researcher gave two kinds of tests for the participants. Those tests were pre-test and post-test. Pre-test was given before the implementation of pop-up book in the learning activities. It was given for three times. Then, post-test was given after pop-up book had implemented in the learning activities and it was also given for three times. The questions of the pre-test and post-test were same but the number was changed.

**Pop-Up book.** In this research, the researcher used pop-up book as media to teach vocabulary. The researcher used pop-up book in the teaching and learning activities. The pop-up book was made by the researcher.

Figure 3.1 *Pop-up Book*



**Equipment.** For learning activities, the researcher needed to prepare some instruments that enhanced learning activities. Those were lesson plans, students' attendance list, some learning facilities (eraser, marker, worksheet, and paper).

### **Data Collection Method**

In this research the researcher was used time series experimental research as the research design and the techniques that was used to collect the data was by giving the participants tests.

The tests were included pre-test and post-test. Pre-test was given for three times before the intervention. It was used to measure the students' vocabulary ability before the researcher implements the use of pop-up in the learning activities. The multiple pretests were given to get students' stabile score. Then, post-test was given after the intervention. The post-tests were also given for three times. Those tests were given to measure the students' vocabulary mastery before and after using pop-up book.

Intervention of this research was by giving treatment to the participants. The treatments were given by using pop-up book in the teaching and learning English activities. The researcher gave the treatments for three times. It was because of the materials of fifth grade that the researcher feels easily to make a pop-up was transportation and it did not base on the headmaster's or the English teacher's order. The researcher also felt hard if the researcher should make the other chapters because it was wasting the time and spending much money. The treatments were conducted based on the lesson plan that the researcher made. The teaching activities and learning activities were conducted out of school regular time. It was conducted after they went home that was at 13.30.

This research was conducted in the first semester, the table below was explaining the research plan:

| Pretest         |                 |                 | Intervention | Posttest        |                 |                 |
|-----------------|-----------------|-----------------|--------------|-----------------|-----------------|-----------------|
| 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>rd</sup> | 1-3          | 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>rd</sup> |
| pretest         | pretest         | pretest         | treatments   | posttest        | posttest        | posttest        |
| 30              | 31              | 01              | 06-08        | 13              | 14              | 15              |
| August          | August          | September       | September    | September       | September       | September       |

### Validity and Reliability of the Instrument

**Validity.** According to Carmines and Zeller (1979), validity was defined as “the extent to which any measuring instrument measure what it is intended to

measure” (p. 17). It means that there were compatibility between the instrument with the target measurement, and the subject. It was a condition when an instrument was able to measure what it ought to measure. A valid vocabulary instrument was if the instrument was able to measure the students’ vocabulary mastery.

**Reliability.** According to Garson (2002) “reliability is a measure of the extent to which an item, scale, or instrument will yield the same score when administered in different times, locations, or populations, when the two administrations do not differ in relevant variables" (p. 190). It meant that the instrument that was used was able to measure the same thing accurately. The accuracy of the instrument was stable and consistent although it was used in different occasion.

In this research, the researcher did a consultation with a person who was expert in material design, after the researcher was made the lesson plans and the questions for the pre-tests and post-tests. An evaluation of an expert judgement was needed to know whether the lesson plans and the tests were appropriate to use or not for that grade and for the students. The expert suggested that the researcher should make it based on the standard competence and basic competence. Then, it was also appropriate with their stage. After that the researcher revised it. The expert judgement said that the lesson plans were appropriate to use because it was based on standard competence and basic competence for that subject and grade. Then, the lesson plans also were involving the use of pop-up book in the teaching and learning activities and it was appropriate for that grade. Furthermore, the

question for the pre-tests and the post-tests were appropriate to measure the students' vocabulary mastery because it was based on the lesson plans or materials that students learned.

The reliability of the instrument was measured by using SPSS version 22. The reliability was known by identifying the result of the Cronbach's Alpha. The table below was explained kind of reliability level of an instrument Phankania and Modi (2013).

| Table 3. 3 <i>The Criteria of Reliability (Alpha)</i> <sup>3</sup> |                  |                      |
|--|------------------|----------------------|
| No.  | Cronbach's Alpha | Interval Reliability |
| 1.   | $\leq 0.90$      | Excellent            |
| 2.   | $\leq 0.80$      | Good                 |
| 3.   | $\leq 0.70$      | Acceptable           |
| 4.   | $\leq 0.60$      | Poor                 |
| 5.   | $\leq 0.50$      | Under acceptable     |

The instrument that was used in this research was tests. The tests were including pre-test and post-test. The reliability of the pre-test and post-test were shown in the table below:

**Reliability Statistics**

| Table 3. 4 <i>The Reliability of Pre-test</i> |            |
|---|------------|
| Cronbach's Alpha                              | N of Items |
| 0.79  | 3          |

**Reliability Statistics**

| Table 3.4 <i>The Reliability of Post-test</i> |            |
|---|------------|
| Cronbach's Alpha                              | N of Items |
| 0.77  | 3          |



The value of pre-test and post-test was higher than 0.7. It means that the value of the tests was acceptable.

### Data Analysis

In this part the researcher analyzed the students' vocabulary mastery by checking students' tests answer. The researcher gave the students' scores for their answer in the pre-tests and post-tests. The minimum score was 0 and the maximum score was 100. The indicator for students' score was based on the passing grade (Palupi, p.39) as the bellow:

| Score  | Category   |
|--------|------------|
| 80-100 | Excellent  |
| 66-79  | Good       |
| 56-65  | Sufficient |
| 46-55  | Low        |
| 30-45  | Poor       |

The next step after the researcher got the students' tests score was inputted those scores into Microsoft excel and SPSS 22. The used of Microsoft Excel was to find the average scores. The average scores of pre-tests and post-tests could be calculated with following formula:

$$M_1 = \frac{\sum X_1}{N}$$

$M_1$  = Mean pre-test

$\sum X_1$  = The sum of pre-test

$$M_2 = \frac{\sum X_2}{N}$$

$M_2$  = Mean post-test

$\sum X_2$  = The sum of post-test

$N$  = Number of case

Then, for the differentiation of students' post-test and pre-test scores, it could be calculated as the formulation below:

$$S = M_2 - M_1$$

$S$  = The deviation score

$M_2$  = Mean post-test

$M_1$  = Mean pre-test

Then, the used of SPSS 22 was to analyze the mean, the normality and reliability of the students' score. It was used to analyze the significant effect of using pop-up book to the students' vocabulary mastery by comparing the post-test and pre-test score.

Finally, after the researcher analyzed the data, the researcher could make the conclusion for this research, whether using pop-up book was effective to improve students' vocabulary mastery or not.

