CHAPTER III

RESEARCH METHODOLOGY

This chapter provides research design, data collection, research procedure, and the data analysis.

3.1 Research Design

This study applied a quasi-experimental method involving experimental group and control group. Both groups got pre-test and post-test and both got different treatment. In this study, the experimental group was the group that got REACT method meanwhile, the control group was the group that got a traditional (non-REACT) method. As stated by Gay et al. (2006) in Lucya (2009), quasi-experimental design involves several essential characteristics; the control group, experimental group, pre-test, post-test, and treatment.

A quasi-experimental design was selected in this research because it was impossible to arrange a numerous elementary schools in one area to be served as the sample of this research because of the school regulation. It is in line with Hatch and Farhady (1982:23) who acknowledge that in undertaking research especially in language field, researchers face some problems to conduct a true-experimental research; they can find the way to clear up a problem but sometimes they are not be able to change. In short, Hatch and Farhady (1982:24) convince that a quasi-experimental design can yield a powerful generalization since

researchers can break the point of interpretation about cause-effect relationship and control many variables. The research design can be formulated as follows:

G1	T1	x	T2
G2	T1		T2

(Hatch and Farhady, 1983:22)

Where:
G1 = Experimental group
G2 = Control group
T1 = Pre-test
X = Treatment
T2 = Post-test

Then, the result of the research was elaborated by putting the description of the result data.

3.1.1 Variable

Hatch and Farhady (1982:12) define variable as an attribute of a person or an object that distinguishes each other. There were two variables involved in this study. There were independent and dependent variable. The independent variable was the contextualization using REACT in teaching vocabulary to the experimental group. It is a variable that the researcher presumes affected by the independent variable (Brown, 1998:10). Meanwhile, the improvement of the fifth grade of elementary students' vocabulary achievement was the dependent variable because it was what the researcher chooses to investigate in attempt to assess the possible effect on a particular variable (Fraenkel and Wallen, 1990:43).

3.1.2 Hypothesis

Fraenkel and Wallen (1990:46) state that a research hypothesis is a possible result predicted by a researcher in a study. The hypothesis used in this study is a null hypothesis that serves as a fundamental guide of this study. Null hypothesis (H_0) states that there is no relationship between the independent variable and the dependent variable or response variable (Coolidge, 2000:95). In conclusion, there is no difference in mean adjustment between two goups; experimental group and control group. In others words, the mean of both groups are equal. Schematically, null hypotheses can be described as follow:

$$H_0 \quad : \bar{x}_1 = \bar{x}_2$$

Where:
H_0 = Null hypothesis
$\bar{x}_1$ = Mean of experimental group
$\bar{x}_2$ = Mean of control group

3.2 Data Collection

3.2.1 Population

Fraenkel and Wallen (1990:93) define population as a group chosen by a researcher that would be used to generalize the research result. The population of this study was the students of one of elementary schools in Bandung.

3.2.2 Sample

The selected population above was narrowed into sample. The samples of this study were chosen purposively, it means that a researcher has a personal consideration in determining samples in attempt to get a certain goal (Fraenkel and Wallen (1990:100). In this study, two classes of 5th grade students of elementary school have been involved as samples; Class V A as an experimental group and class V B as a control group.

3.2.3 Research Instrument

3.2.3.1 Try Out Test

The instrument in this study was vocabulary achievement test (See Appendix C). The test was tried out to 34 students in one of different elementary schools in Bandung. The purpose of trying out the test is to investigate the validity and reliability of the test by analyzing the individual items of the test.

3.2.3.2 Pre-test and Post-test

The pre-test and post-test used in this study were in the form of multiple choice (See Appendix C). According to Simkin and Kuechler (2005), Multiple-Choice (MC) can evaluate a wide range of students understanding. Thus, it is

advisable to be used as the instrument since researchers are able to arrange questions in accordance with students' ability.

Both control and experimental group got pre-test to gain the students' prior knowledge in multiple –choice format (See Appendix C). There were consisting of twenty-one questions. The question covers several topics that would be delivered in the process of teaching learning, these included: My Favorite Sport, Animals in the Zoo, My pet, and Traffic Signs. Meanwhile, post-test was given to experimental group and control group to find out whether there is a change on students' vocabulary achievement after receives the treatment. Thus, the test items were equal to the pre-test items.

3.2.3.3 Interview

In attempt to answer the students' responses toward contextualization as stated in the second research question, this study entailed a semi-structured interview only to the experimental group since experimental group received REACT treatment as the primary focus of this study. Interview can be a helpful way to obtain the data that has not been answered which that influencing the research result (Philips and Stawarski, 2008:23). Besides, Seidman (2006:10) asserts that interviewing provides an access to get knowledge of people behavior that can be utilized by researchers to conclude the meaning of that behavior. The interview was administered after carrying out post-test which consist of several

questions. There were three basic questions formulated to investigate the students' responses toward contextualization using REACT strategy (See Appendix A).

3.3 Research Procedure

This study involved several procedures. The followings are further elaboration for each procedure:

3.3.1 Organizing Teaching Procedure

The first step in organizing teaching procedure was creating a lesson plan consisting appropriate materials for teaching learning process as treatment for both experimental group and control group. In detail, lesson plan covers the standard competence and basic competence as a guideline for determining the clear objectives of the lesson, indicator of the teaching learning process, teaching materials, activities, method, and media used as a bridge to deliver the materials.

3.3.2 Organizing Research Instrument

The next step was organizing the research instrument. Multiple-choice was the instrument used in obtaining students' vocabulary achievement since Simkin and Kuechler (2005) assert that Multiple-Choice (MC) can evaluate a wide range of students understanding. Meanwhile, to obtain students' responses toward the

treatment, this study employed an interview. Several questions were determined to obtain the information mentioned (See Appendix A).

3.3.3 Administering Try Out Test

The try out test was held to investigate the test validity and reliability prior to conduct pre-test involved multiple-choice test (See Appendix C). It was administered to 34 fifth grade students of a different elementary school in Bandung on September 24th, 2011. The test consists of 50 items in form of multiple choices.

3.3.4 Administering Pre-test

Pre-test was administered to both experimental group and control group. It was aimed at finding out the initial ability of the two groups before giving the treatment. Besides, pre-test was carried out to ensure that the experimental and control group have equal ability.

3.3.5 Conducting Treatment

In this study, contextualization using REACT was given to experimental group; whereas the control group got a traditional (non-REACT) method; grammar translation method. They were merely taught vocabulary based on their daily activities that usually given by the English teacher without recognizing the

context of words; translation and repetition were frequently applied in their class in teaching vocabulary.

During the treatment, both experimental and control group were taught by the same teacher. In experimental group, contextualization using REACT was established. Teacher arranged the activity based on REACT (Relating, Experiencing, Applying, Cooperating, and Transferring) stages. First, in *relating* stage, teacher asked a particular question that bridged between the students' prior knowledge and the topic that would be discussed. Some students were appointed to answer that question orally such in teaching My Favourite Sport, a question can be formulated such as: what is your favorite sport? or what kind of sport do you like?. Second, in *experiencing*, teacher gave a hand-on activity by using a media such as puppets or creating a situation that was related to the topic; for instance in teaching Animals in the zoo, teacher conjured up the class as if they were in the zoo with a variety of animals and their characteristics. Third, in *applying* stage, students received an exercise individually. In this stage, teacher intended to check students' understanding after receive the explanation in experiencing stage. Fourth, in *cooperating* stage, students were assigned to work in a group; teacher gave them task to be discussed in their group. After that, they told the result with the class. The most commonly used way in cooperating stage in this study was a game. Fifth, in transferring stage, students received new task in a different situation then, teacher asked them to conclude the material.

Meanwhile, control group got a traditional (non-REACT) method; translation method. Teacher worked out a list of particular vocabulary based on the topic given prior to giving the whole materials (See Appendix A).

The following table is the stages of teaching in experimental group and control group.

Table 3.1
Teaching Stages In Experimental and Control Group

Teaching in Experimental Group	Teaching in Control Group
The stages that were applied as follows: **1. Relating** • The teacher (T) opens the lesson. • T checks students' (Ss) attendance. • T formulates questions that relate the material (topic) to Ss prior knowledge. • Ss respond to the questions from T orally. **2. Experiencing** • Ss receive the pictures of relevant topic they encounter. • T gives explanation of a particular vocabulary as a hand-on activity. **3. Applying** • Ss individually read a text relating to the topic. • Ss answer the question based on the text. **4. Cooperating** • Ss are given a time to play a game in accordance with the topic given. • T asks Ss to discuss the result of the game. **5. Transferring** • T provides a new context to apply the material that has been learnt. • S review the lesson • T closes the lesson.	The stages that were applied as follows: **1. Pre-Activity** • T opens the lesson. • T checks Ss' attendance. • T tells the topic that Ss will encounter. **2. Whilst-Activity** • T shows the pictures of relevant topic. • T lists vocabulary that are relates to the topic in Ss' native language. • T asks Ss to translate the listed vocabulary. • Ss read a text. • T asks Ss to translate the text individually. • Ss and T have a small discussion about the text given. **3. Post-Activity** • T concludes the lesson. • T closes the lesson.

Meanwhile, the treatment was held from October 8th, 2011 until November 29th, 2011. The following table was the schedule of teaching learning process during the treatment delivery.

Table 3.2

Time Schedule of Research

No	Date	Experimental Group	Control Group
1.	Saturday, October 8th, 2011	-	**Pre-test**
2.	Thursday, October 20th, 2011	**Pre-test**	-
3.	Saturday, October 22th, 2011	-	**My Favorite Sport**: ● Grammar Translation Method (GTM). ●Media: Pictures.
4.	Thursday, October 27th, 2011	**My Favorite Sport:** ●Contextualization using REACT. ● Media: Pictures	-
5.	Saturday, October 29th, 2011	-	**Going to the Zoo** ● GTM ● Media: Pictures
6.	Thursday, November 3rd, 2011	**Going to the Zoo** ● Contextualization using REACT. ● Media:Pictures, simple video.	-
7.	Saturday, November 5th, 2011	-	**My Pet** ● GTM ● Media: pictures
8.	Thursday, November 16th, 2011	**My Pet** ●Contextualization using REACT. ● Media: Pictures and puppets/dolls.	-
9.	Saturday, November 19th, 2011	-	**Traffic Signs** ● GTM ●Media: Pictures.

10.	Thursday, November 22nd, 2011	**Traffic Signs** ● Contextualization using REACT. ● Media: Pictures.	-
11.	Saturday, November 26th, 2011	-	**Post-test**
12.	Thursday, November 29th, 2011	**Post-test & Interview**	-

3.3.6 Conducting post-test

Post-test was administered to investigate significant differences between the score of the two groups having different treatment, more importantly, in this study, post-test was aimed at finding out the effectiveness of contextualization using REACT strategy.

3.3.7 Conducting Interview

Interview was given to the experimental group to know the students' responses toward the implementation of REACT in the end of meeting. Semi-structured interview was adopted to investigate how students feel about REACT deeply since it is suitable to be carried out in the end of study that helps researchers to get shape responses on how the respondents perceive about something (Fraenkel and Wallen, 1990). Fifteen interviewees were given questions among other are:

1. *Apakah kamu menyukai metode pembelajaran contextualization using REACT)?* (Do you like the implementation of contextualization using REACT in teaching-learning English?);

2. Menurut kamu apakah keuntungan menggunakan metode pembelajaran ini?(In your opinion, what are the advantages of contextualization using REACT ?)*;*

3. Apakah kerugian menggunakan metode pembelajaran ini?. (In your opinion, what are the disadvantages of contextualization using REACT strategy?)

In this study, recording was used to capture the information from interviewees in detail. Then, it was transcribed prior to making the interpretation of what is actually on their responses toward REACT.

3.4 Data Analysis

3.4.1 Scoring Technique

As has been mentioned above, multiple-choice test was chosen to obtain students' vocabulary achievement. Based on Arikunto (2007:168), there are two types of formula that can be used to score the multiple choice data: the formula with punishment and without punishment. To forestall a negative score, this study employed the formula without punishment. The formula is as follows:

S = R

Where:

S= Obtained score (Raw Score)

R= the right answer

3.4.2 Data Analysis on Try Out Test

The result of try out test was analyzed by considering several points. According to Arikunto (2007:170), there are some considerations to find out the

quality of the used instrument need to be observed. They are difficulty level, discriminating power, validity, and reliability.

3.4.2.1 Validity

Validity refers to the appropriateness, meaningfulness, and usefulness of the inferences a researcher makes (Fraenkel & Wallen, 1990:151). The test of validity is used to determine how well test score represents course objective. The test is said to have validity if it measures something that is supposed to be measured. It will decide whether the certain item is appropriate to measure what is supposed to measure. The validity of test is calculated by using Product Moment formula. The criteria of the interpretation data are as follow:

Table 3.3
Category of Coefficient Correlation of Validity

r value	Interpretation
0.80 – 1.00	Very high
0.60 – 0.80	High
0.40 – 0.60	Satisfactory
0.20 – 0.40	Low
0.00 – 0.20	Very low

(Arikunto, 2007)

3.4.2.2 Reliability

According to Fraenkel and Wallen (1990), reliability refers to the consistency of scores or answers from one administration of an instrument to another, and from one set of items to another. In this study, the instrument was a set of question in multiple-choice format. This study used Cronbach's alpha formula in SPSS 16 for windows to obtain the reliability of the test items. The category of reliability can be seen below:

Table 3.4
Category of Coefficient Correlation of Reliability

Coefficient Correlation	Interpretation
0.00 – 0.20	Low
0.21 – 0.40	Moderate
0.41 – 0.70	High
Above 0.70	Very High

(Arikunto, 2007)

3.4.2.3 Difficulty Level

The difficulty level test is conducted to find the level of difficulty for every item of the instrument (Arikunto, 1993: 209). In this study, the test items were processed by using Anates for multiple-choice in attempt to classify the level of the test items based on the criteria of difficulty index before conducting pre-test and post-test.

The criteria of difficulty of items can be described below:

Table 3.5
Criteria of Difficulty Index

Facility Value	Interpretation
0.000 – 0.300	Difficult
0.300 – 0.700	Moderate
0.700 – 1.000	Easy

(Arikunto, 1993:210)

3.4.2.4 Discriminating Power

Discriminating power test is calculated to determine the test items that can differentiate between the lower achiever students and the high achiever students (Arikunto, 2007:177). In this study, a set of question in multiple-choice format was analyzed to find out the appropriate test to be used as research instrument. This matter deals with discriminating power represented by discrimination index with symbol D.

The formula and criteria of Discrimination Index can be seen as follow.

$$D = \frac{BA - BB}{\frac{1}{2} JS}$$

D = Discrimination Index
BA = Number of right answer from upper group
BB = Number of right answer from lower group
JS = Number of all subjects

Table 3.6

Criteria of Discrimination Index

Discrimination Index	Interpretation
0.00 – 0.20	Poor
0.20 – 0.40	Satisfactory
0.40 – 0.70	Good
0.70 – 1.00	Excellent

(Arikunto, 2007)

3.4.3 Data Analysis on Pre-test and Post-test

3.4.3.1 Normality Test

Normality test was calculated to examine the hypothesis of this study. It was an effort to see whether the score were normally distributed or not. Arikunto (2009:301) states that normality test is aimed at finding out the distribution of the research data. In this study, the scores of pre-test of both groups were estimated by using *Kolmogorov-Smirnov*. The hypothesis used is as follow:

H_0: the score of the experimental and the control group are normally distributed.

By using 5% level of significance (α), H_0 is rejected if the significance value (Sig.) < 0.05. Meanwhile, if significance value (Sig.) > 0.05, H_0 is not rejected.

3.4.3.2 Variance Homogeneity Test

After the result of normality test was found, the researcher executed variance homogeneity test. It is aimed at ensuring that the experimental and control group have approximately equal variance (Coolidge, 2000:153). In this study, the score of pre-test and post-test of both groups were estimated to investigate the equality of the score variances. The hypothesis used is as follow:

H_0: the variance of experimental and control group are homogenous.

The variance of homogeneity test used is *Levene Test* at 5% level of significance (α). H_0 is rejected if the significance value (Sig.) < 0.05, meanwhile, if significance value (Sig.) > 0.05, H_0 is accepted.

3.4.3.3 The Calculation of *t*-test

Independent *t*-test was used when the variance is homogenous and the data population is normally distributed. According to Sugiyono (2008), the selection of *t* model depends on whether the variance is homogenous and whether the variances of two groups are equal. The computation of independent *t*-test was executed by using SPSS version 16.0.

3.4.3.4 The Calculation of Effect Size

To find out whether or not the independent variables give significant influence to the dependent variable, the effect size was also used in the present study. The effect size in the independent *t*-test refers to how strongly the independent variable affected the dependent variable (Coolidge, 2000:151). The formula of the effect size:

$$r = \sqrt{\frac{t^2}{t^2 + df}}$$

Where:

r = effect size

t = t_{obt} or t value from the calculation of the independent *t*-test

d*f* = degree of freedom

To interpret the magnitude of the effect size, this study used the scale below:

Table 3.7

The scale of effect size

Effect size	r value
Small	.100
Medium	.234
Large	.371

Coolidge (2000:151)

3.4.4 Data Analysis on Interview

In analyzing the data output of the interview, the answers of students on the interview were transcribed (See Appendix A). The answers were then categorized into several findings which relate to the students' feeling towards the instructional activity by using contextualization and the students' opinion towards contextualization in terms of the advantages and the disadvantages. Then, the findings were also elaborated based on students' answers of the interview. It would be described deeply in chapter 4.