

CHAPTER III METHODOLOGY

The pervious chapter has elaborated theories relevant to the study. This chapter focuses on an elaboration of methodology conducted in this study. It covers *Research Design, Site and Participant, Data collection, Research Prosedure, and Data Analysis*. First, Research design discusses the method employed in this study. It includes the method's principles and method's characteristics. Second, Site and Participant elaborates the place where the study was conducted and the participants involved in the study. Third, Data Collection emphasizes on the technique used in collecting the data. Last, Data analysis explains the procedure of analyzing the data.

3.1. Research Design

Regarding the main aim of this study that is to investigate the use of Electronic Dictionary to enhance students' pronunciation, the study used a quantitative method with one group pre-test and post-test design of pre-experimental design. The effect of the treatment are judged by the difference between the pre-test and post-test score. Therefore, this research does not provide comparison with control group (Duff, 2008, p. 209). Therefore, this research used one-group pre-test and post-test of pre-experimental research. It was not feasible to use the quasi- experimental design. Because of the limitation time and cost which were also become consideration.

3.2. Variables

There were two variables in this study which are an independent and dependent variable. Hatch and Farhady (1982, p. 202) define an independent variable as the major variable which is selected, manipulated, and measure by the researchers. On the other hand, they define a dependent variable as the variable which is observed and measured to determine the effect of the independent variable. The independent variable of this study was the use of Electronic Dictionary, while the dependent variable was enhancing students' pronunciation.

3.3. Hypothesis

Hypothesis is a statement that predicts a single research outcome or a tentative explanation of the relationship between two or more variables. It limits the focus of the research to a definite target and determines what observations are to be made (Duff, 2008, p. 215).

The null hypothesis (H_0) in this study is that “there is no significant difference in enhancing students’ pronunciation before and after the Electronic Dictionary treatments”. While the alternative hypothesis (H_A) is that “there is a significant difference in enhancing students’ pronunciation before and after Electronic Dictionary treatments”.

3.4. Setting and Participant

This section would elaborate setting of the study and participant of the study. Detail description would be elaborated as follow.

3.4.1. Setting

The study was conducted in one of a state Vocational School in Bandung. This school was chosen because the school was near to the place where the researcher stayed, so it allowed the researcher to get access there easily.

3.4.2. Participant

The participants of the study were eleventh grade students of vocational school in Bandung. One class of the population was purposely to be the sample. According to Duff (2008, p. 227), a small part of the population selected for observation and analysis is called as a sample. In this research, the sample only involved one class consisted of 33 students. The class was conducted as an experimental group and there is no other class as a control group. The involved participants in this group are one male and 32 females.

3.5. Data Collection

This section would elaborate instruments and research procedures that are used in this study. Detail description would be elaborated as follow.

3.5.1. Instruments

In collecting the data, there were two types of instruments in this study, namely pronunciation tests and questionnaire. The pronunciation test used in the pre-test and post-test. Pre-test was used to know students' prior knowledge of pronunciation. While post-test was used to measure the improvement students' pronunciation after Electronic Dictionary treatments.

3.5.1.1. Pronunciation Tests

This section would elaborate pre-test and post-test that are used in testing participants' pronunciation. Detail description would be elaborated as follow.

3.5.1.1.1. Pre-test

Pre-test was conducted as the basic data of students' pronunciation ability. It was given at the first meeting, before conducting the research. The form of the pre-test was list of words. The students were asked to read the list of words that consist of 15 words related to the speech of consonantal /ʃ/ and /tʃ/. The reason of focusing on /ʃ/ and /tʃ/ because the samples have difficulty in pronouncing those two consonantal types. Samples mispronounced /ʃ/ as /s/ and /tʃ/ as /t/, for example the word English /'ngliʃ/ is pronounced as Englis /'nglis/ and the word catch /kaetʃ/ as cat /kaet/. The list of words was taken from textbook entitle *Surfing English 2 for SMK Students*.

3.5.1.1.2. Post-test

A post test was aimed to evaluate students' pronunciation after Electronic Dictionary implementation. A post-test was employed in the last session of this research after giving some treatments and exercises. The form of post-test was same with the pre-test. The students were asked to read 15 list of words related to the speech of consonantal /ʃ/ and /tʃ/.

3.5.1.2. Questionnaire

The questionnaire that was used is close-ended question. A close-ended question is one in which the respondent is offered a choice of alternative replies (Openheim, 1966, p. 40). This type of questionnaire was chosen because it was simpler than the open-ended questions. The questionnaire were expected to help the researcher in exploring more information related to this research.

This questionnaire form consists of 10 questions with the following framework as follows.

Table 3.1
Questionnaire Framework

No.	Aspects	Number of statements	Total
1.	Students' opinions to the implementation of using Electronic Dictionary in teaching and learning pronunciation	1 – 5	5
2.	Students' opinions to the benefits of the implementation of using Electronic Dictionary in teaching and learning pronunciation	5- 10	5
Total questions			10

The researcher used Likert Scale in scoring the questionnaire. The framework might look like as follows.

Table 3.2
Likert Scale Score

Response Category	Code
Strongly Agree	5
Agree	4
Uncertain	3
Disagree	2
Strongly Disagree	1

(Oppenheim, 1996, p. 137)

To avoid students confusion and to make it easier, the answer uncertain (U) was eliminated from the answer given. Thus, the answer consist of 4 choices with the ranging score 4-1. Where, 4 for strongly disagree (SA), 3 for agree (A), 2 for disagree (D), and 1 for strongly disagree (SD).

3.5.2. Research Procedure

The research procedure included administering pilot test, administering pre-test, conducting treatments, administering post-test, and conducting questionnaire.

3.5.2.1. Administering Pilot-test

Pilot-test was needed in order to discover whether a pre-test were appropriate for participant to undertake or not. The pilot-test can minimize the possibility of error in research, so when the research was conducted, they were able to avoid making the same mistake that occurred in the pilot-test (Sugiyono, 2008, p. 223). There were fifteen students chosen randomly from a group as the samples of the pilot-test. The

chosen students were chosen because they were in the same level of pronunciation ability as participants. The chosen students were asked to take a pronunciation test by reading 23 list of words consisting consonantal /j/ and /tj/.

3.5.2.2. Administering Pre-test

The pre-test was done in participant's class and the participants were tested one by one. Because eight out of 23 words were not valid, there was only 15 words related to the speech of consonantal /j/ and /tj/ on the pre-test.

3.5.2.3. Conducting Treatments

The treatments were held four times, which lasted 45 minutes for each meeting. The lesson plan used were based on Kurikulum Tingkat Satuan Pendidikan (KTSP) and Standar Kompetensi dan Kompetensi Dasar (SK-KD).

In conducting treatments, the researchers acted as a teacher. For example, in first meeting before practicing their pronunciation by using Electronic Dictionary, students played a game in group. There were some activities that students did with the game, for example, guessed the gesture by pronouncing the answer out loud. The time allocation for playing the game was 15 minutes, including grouping of students, explaining the rule and playing the game. There were some steps in practicing pronouncing the list of words. First of all, the teacher would group the students into four groups based on their sitting row and explained the rule of the game. Then the teacher invited some students to do the gesture and the rest of students had to guess it. After playing the game, students had to list the words they have guessed through playing guessing game. Students have been grouped into several group in the last meeting and have been asked to bring at least one notebook which has been installed *Cambridge Dictionary* (Electronic Dictionary) in their group. They practiced pronouncing the list of words in their group in turn. For example, one student pronounced the words and the rest checking whether their pronunciation is right or not by listening to the pronunciation on cambridge dictionary. Time allocation for practicing is 20 minutes. When they have done it, teacher would invite some of them

to pronounce the list of words in front of the class. Time allocation for inviting some students to pronounce the list of words in front of the class is 10 minutes.

3.5.2.4. Administering Post-test

The post test was held to investigate whether there is a significant difference of students' pronunciation before and after treatments. The form of post-test was the same as in the pre-test, it consisted of 15 list of words related to the speech of consonantal /f/ and /t/.

3.5.2.5. Conducting questionnaire

The questionnaire was given after the post-test had done. Since the researcher used mail questionnaire, so the questionnaire was sent through email by a researcher to the representatives' email of a class. Then the representatives would be sent the email to the rest of the students. Students had two days to resent the email to the representatives, afterwards the representatives would resent the email to the researcher. The reasons why the researcher used mail questionnaire were it was easier than spreadsheet questionnaire and also the researcher wanted students to implement the previous lesson about how to send the email.

3.6. Data Analysis

Data analysis includes scoring technique, pilot-test analysis the pre-test and post-test analysis, and also questionnaire analysis. The questionnaire would be analyzed based on Likert Scale procedure. Detail description would be elaborated as follows.

3.6.1. Scoring Technique

According to Arikunto (2010, p. 114), the researcher used this formula scoring scale because it was more effective in analyzing the scores. The formula scoring scale as follows.

$$\text{Score} = \frac{\text{actual score}}{\text{Ideal score}} \times 100$$

Besides, Supranata (2004) elaborates pronunciation scoring scale into five rating scales, there are:

Rating Scale/Classification	Score	Interpretation
Very good	80% - 100%	Wrong pronunciation = 1
Good	60% - 79%	Wrong pronunciation = 2
Average	40% - 59%	Wrong pronunciation = 3
Poor	20% - 39%	Wrong pronunciation = 4
Very poor	0% - 19%	Wrong pronunciation ≥ 5

The descriptions of the scoring scale are elaborated as follows.

- **Very good** : all target phonemes are pronounced clearly and accurately in most occasions.
- **Good** : pronunciation errors are still identified. However, generally the phonemes are pronounced accurately.
- **Average** : the occurrence of target phonemes which are pronounced accurately and wrongly is almost equal.
- **Poor** : almost all the target phonemes are mispronounced in all occasions.
- **Very poor** : the target phonemes are pronounced poorly. It is difficult to perceive the meaning of the words. (p. 59)

3.6.2 Pilot-test Analysis

The obtained data from the pilot-test were analyzed to investigate the validity and reliability of the test items, so the researcher may know whether the data were continuous, homogenous, and normal or not. The data were calculated by using SPSS (Statistical Package for the Social Sciences). Moreover, the difficulty (items facility) and discrimination test of the instrument were also analyzed to discriminate between the higher ability test takers and the lower ability test takers. This test must be done to observe the relevance of the test items with the population. Below is the analysis of the instrument.

3.6.2.1 Validity

Validity test was very important since it could decide whether the certain item was appropriate to be used as a tool for measuring what was intended to be measured (Duff, 2008, p. 238). The following is the categorization of coefficient correlation of validity that is proposed by Arikunto (2010, p. 178).

Table 3.3
Coefficient Correlation of Validity

r value	Interpretation
0.8 - 1.0	Very high
0.6 - 0.8	High
0.4 - 0.6	Moderate
0.2 - 0.4	Low
0.0 - 0.2	Very low

3.6.2.2 Difficulty Level

Arikunto (2010, p. 168) states that a good item is the item that should not be too easy or too difficult. Hence, the analysis of difficulty level was used in order to

determine whether the item is good to be used. The formula which is used to compute the items as follows.

$$P = \frac{B}{JS}$$

P=Difficulty level

B=Sum of students who answer correctly

JS= Number of students who taking the test

The criteria of difficulty index which is used to interpret data will be shown in the table below.

Table 3.4
Criteria Of Difficulty Level

Difficulty index	Interpretation
0.00 – 0.30	Difficult
0.30 – 0.70	Moderate
0.70 – 1.00	Easy

3.6.2.3 Discrimination Index

Arikunto (2010, p. 172) states that discrimination index of an item is intended to differentiate the high and low achiever students. If high achiever gives correct answer and low achiever gives wrong answer on the same item, then it means that the item is good to be used because it would differentiate the high and the low achieve students in the same way as the total score (Arikunto, 2010, p. 179). The table of criteria of discrimination index is as follows.

Table 3.5
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

3.6.2.4 Realibility

According to Hatch and Farhady (1982, p. 244) states that reliability can be defined as the extent to which a test produces consistent result when administered under similar conditions. This test is aimed to observe whether the test is reliable to the extent that it measures consistently from one time to another (Duff, 2008, p. 190). Here is the table of category of coefficient correlation reliability.

Table 3.6
Coefficient Correlation Of Reliability

Coefficient correlation	Interpretation
0.0 – 0.20	Low
0.21 – 0.40	Moderate
0.41 – 0.70	High
Above 0.70	Very high

3.6.3 Pre-test and Post-test Analysis

After doing pre-test and post-test, the next step was analyzing the output data of those tests. The output data were analyzed using a dependent t-test to determine whether there is a significant difference between the means of the sample before and after treatment. Before analyzing the t value, the normal distribution test was done. In

addition, employing the dependent sample t-test involves several steps. First, stating the hypothesis. In this research, the null hypothesis was proposed.

H_0 : Electronic Dictionary enhances students' pronunciation.

Second, calculating the data gathered from pre-test and post-test. Third, analyzing the data by using the assistance of SPSS 21 for Windows Program. Fourth, selecting the level of significance (p) which was 0.05. If the level of significance >0.05 , it means that the distribution of the sample is not significantly different from normal distribution, then the null hypothesis is accepted. However, if the level of significance <0.05 , it means that the distribution is significantly different from normal distribution (Permanasari, 2010, p. 90). In analyzing the result of pre-test and post-test, dependent t-test was used to compare the means difference of the two tests. As stated by Fatch and Farhady (1982, p. 230), dependent t-test is used to analyze the pre-test and post-test scores and to investigate whether or not the difference of pre-test and post-test means are significant.

In this study, dependent t-test was calculated using SPSS 21 for windows program. After getting the t-value (t-obtained), then it was compared with the t-critical. If $t_{obtained} \geq t_{critical}$ of the level significance (p) = 0.05, the null hypothesis (H_0) is rejected and accepts the alternative hypothesis (H_A). However, if $t_{obtained} < t_{critical}$, then the null hypothesis is accepted.

3.6.4 Questionnaire Analysis

The questionnaire design was close-ended questions. The data from close-ended questions were calculated to get the percentage of how many students who strongly agreed, agreed, disagreed, and strongly disagreed to the statements in the questionnaire were calculated to get the percentage of how many students who strongly agreed, agreed, disagreed, and strongly disagreed to the statements in the questionnaire. After all the data of the questionnaires were collected, to get the

accurate findings the data were checked once again. Then, the table and percentage were set to display the data. The example as follows.

Table 3.7
The Example of Data Display Table

Question 1:	
Saya menyukai belajar <i>pronunciation</i> dengan menggunakan <i>Electronic Dictionary</i> .	
(I like learning pronunciation by using Electronic Dictionary)	
Response	Number of respondents*
Strongly Agree	4
Agree	1
Disagree	0
Strongly Disagree	0

**Based on five respondents*

To find the percentage of each aspect, the formula used as follows.

$$\text{Percentage} = \frac{\text{Number of respondents who choose the answer (fo)} \times 100}{\text{Total Respondents (n)}}$$

To interpret each percentage, the framework below was used.

Table 3.8
The Framework of the Percentage Interpretation

Percentage	Finding
00,00%	None
00,15% - 24,99%	A few students
25,00% - 49,99%	Nearly half of the students
50,00%	Half of the students
50,01 -% - 74, 99%	More than half of the students
75,00% - 99,99%	Nearly all of the students
100%	All of the students

3.7 Concluding Remark

This chapter has presented the research methodology. It provides information about research design, site and participant, data collection, research procedure, and data analysis. Next, chapter 4 presents findings and discussions of the study.

