CHAPTER 3

METHODOLOGY OF RESEARCH

In this research I would like to describe the methodology of research. It consists of the method of research, population, sample and variable of research, technique of collecting the data, and technique of analyzing the data.

3.1. Method of Research

In this research I use the quantitative method. It is proved that the analysis of data by statistical analysis. Syamsuddin, Damaianti (2006: 170) says that Quantitative has two methods. They are quasi-experimental method and experimental method. Moreover, according to Syamsuddin, et al (2006: 170) that quasi-experimental method is a method which has the randomized posttest, using matched subject, and has only control group design. While experimental method is a method which is used to know whether or not can improve the students’ ability. In this case, I use quasi-experimental method because I want to focus on one class only.

In applying quantitative method, first I give the students the pre test as the direct observation. It will be continued by giving the treatment and take the post test to measure whether my basic assumption being accepted or not at the end of my program.

a. I give pre-test as a first step in which I record all students’ pronunciation just both sounds of consonants based on script of songs.
b. The second step is treatment. The treatment is being conducted for eight times. In this step I explain them with to some songs which have correlation with the pronounce /θ/ and /ð/, then I give the students eight songs based on version of the music and then I use script of the song to help them with easy or easily. Through pronouncing, with popular song students can follow to the song. It consists of four songs slow version, two songs medium version, two songs fast version. I let students listen to the popular songs one by one follow treatment for them in repeatedly.

c. The last step is post-test. This step will begin after I give them treatments. In this step, I record all students’ pronunciation just both sounds of consonants based on script of songs to know different with record in pre-test.

3.2. Population and Sample

3.2.1 Population

The population of this research is the students of grade 10\textsuperscript{th} of SMA N 1 Gorontalo, especially 2010-2011 academic years which consist of ten classes. So, all students at the grade 10\textsuperscript{th} grade of SMA N 1 Gorontalo has 340 students.
3.2.2 Sample

Margono (2005:121) states that a part of population is called a sample. Based on the population above I would use purposive sampling. I take eight grade especially class 10-B which each class consist of 34 students, but the two-student was get out from this class and now, this class have 32 students. I take this class because most of students have different intelligence and pronounce comprehension.

3.3. The Variable of Research

3.3.1 Variable (X)

Variable (X) is Independent variable. In this case variable X is the application of popular song. The popular song is called as independent variable because this application influences the students’ ability in pronounce.

3.3.2 Variable (Y)

Variable (Y) is Dependent variable. Variable Y of this research is students’ ability in pronounce is called as dependent variable because this variable is influenced by the application of popular song.
3.4. Research Design

I design my research by using the one group pre-test and post test to find out the improvement of the students’ ability in pronounce by using popular songs. I use pre-test, treatment, and post-test in this research. The research design can be draw as follow:

<table>
<thead>
<tr>
<th>Q1</th>
<th>X</th>
<th>Q2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Test</td>
<td>Treatment</td>
<td>Post-Test</td>
</tr>
</tbody>
</table>

Syamsudin & Damaianti (2006:157)

Where the procedure:

1. Implement Q1 (Pre-Test) to the subject to measure the average of the student’s study result in English subject before they get popular song.

2. Implement X (The Treatment) in this case is popular song in learning process.

During the treatment, I let students listen the popular songs. The treatment apply minimally eight times, to find out whether or not there is any significance impact in the use of popular songs to improve the students’ ability in pronounce. The treatment uses several songs.
3. Implement Q2 (Post-Test) to measure the students’ average achievement after they get the treatment.

To apply the popular song to the pronunciation ability is for the first step, I record all students’ pronunciation just both sounds of consonants based on script of songs. The second step is I teach them with to some songs which have correlation with the pronounce /θ/ and /ð/, then I give the students eight songs based on version of the music and then I use script of the song to help them with easy or easily. Through pronouncing, with popular song students can follow to the song. It consists of four songs in slow version, two songs in medium version, and two songs in fast version. Second step, I let students listen to the popular songs one by one for them in repeatedly. The last step is same with first step, I record all students’ pronunciation just both sounds of consonants based on script of songs to know different with record in pre-test.

3.5 Technique of Collecting the Data

To collect the data in this research I obtain the data. The form of the test is oral test (pronounce performance). And it will be collected by audio record. The oral test includes names of sample, and score of samples. I use scoring include true words to evaluate the students pronounce ability.
3.6 Technique of Analyzing the Data

In analyzing the data, I use quantitative way. In this case, statistical analysis by following steps:

3.6.1 Homogeneity Analysis

1. Testing hypothesis: $H_0 = \sigma_1^2 = \sigma_2^2 = \sigma_3^2 = \ldots = \sigma_k^2$

2. If $\chi^2_{\text{count}} \geq \chi^2_{\text{table}}$ in the real standard $\alpha = 0.05$ and $dk = (n - 1)$ means that it is not homogeneity, and if $\chi^2_{\text{count}} \leq \chi^2_{\text{table}}$ means that it is homogeneity.

3. The testing procedure:

   a. Arrange the X score from the lowest score until the highest score

   b. Arrange Y score based on the X score group, and continued by calculating Y variant. If X score is only one, the Y variant is zero (0).

   c. Calculate $dk$ of each group $n$ minus one.

   d. Calculate $1/dk$, $S_1^2$, $\log S_1^2$, $(dk) \log S_1^2$

   e. Calculate the combined variant of all the scores by using formula:

   $$S^2 = \{ \Sigma(n - I)S_j^2 / \Sigma(n - I) \}$$

   f. Calculate B unit value with formulate: $B = (\log S^2) \Sigma(n - I)$
g. Calculate Chi-square ($\chi^2$) with formula:

\[
\text{(In 10)} \{ B - \Sigma(n_i - 1) \log S_i^2 \}
\]

h. Compare the value of $\chi^2$ with $\chi^2$ table which on the Chi-Quadrate table in level significant (1 - $\alpha$) and $dk = (k - 1)$

(Sudjana, 2002:263)

### 3.6.2 Paired t-test

The result of this research was analyzed by statistical analysis. In this case I used *paired t-test* formula. Paired t-test is a way for compare two related samples, involving small values of $n$ that does not require the variances of the two populations to be equal, but the assumption that the two populations are normal must be continue to apply. Such a test is generally appropriate in a before and after treatment study. We may test a group of certain students before and after treatment in order to know whether the treatment is effective by using procedure bellow:

- Took the score before treatment as X and the score after treatment as Y
- Found the difference score for each matched pair
- Found the average of such differences $\overline{D}$ along with the sample variance of score
• The values from the two matched (Pre-test and Post-test) denoted as $X_i$ and $Y_i$, and then the differences by $D_i$ ($D_i = X_i - Y_i$), then the mean of differences:

$$
\overline{D} = \frac{\sum D_i}{n}
$$

And the variance of the differences or:

$$(\sigma_{diff})^2 = \frac{\sum D_i^2 - (\overline{D})^2 \cdot n}{n-1}$$

• Assuming the said differences to be normally distributed and independent, we can apply the paired t-test for judging the significance of mean of differences and work out the test statistic $t$ as under:

$$t = \frac{\overline{D} - 0}{\sigma_{diff} / \sqrt{n}} \text{ with } (n - 1) \text{ degrees of freedom}$$

Where:

- $\overline{D}$ = Mean of differences
- $\sigma_{diff}$ = Standard deviation of differences
- $n$ = Number of matched pairs

Khotary in Yumanraya (2004:214)

3.6.3 Hypothesis Verification

In verifying hypothesis of this research, I used the level of significance that is $\alpha = 0.05$ and $df = (n - 1)$ with the criteria as follows:

$H_0 : \mu_1 = \mu_2$ which is equivalent to test $H_0 : \overline{D} = 0$

$H_a : \mu_1 < \mu_2$ (as we want to conclude that the popular songs is effective).