CHAPTER III
RESEARCH METHODOLOGY

A. Research Design

According to (Creswell, 2009) Research designs are plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis. The design used in this research is the Quasi Experimental Design. The choice of this experimental design was based on the fact that the researcher wanted to know for sure the effect of using Bruno Mars songs on the pronunciation mastery of students in the class.

Experimental research design is a research method used to find the effect of certain treatments (Sugiyono, 2013). Another understanding of the experimental research design, namely, experimental research is research that is intended to determine whether there is a result of "something" imposed on the subject under study.

In this study, one group will be designated as the experimental class, while the other group will be designated as the control class. Researchers will use the song Bruno Mars in the Doo-Woops & Holigans album as a teaching media in the experimental class, while the control class will use printed media as media. The table of research design as quoted by (Sugiyono, 2013) as follows :

Table 3.1 Research Design

Class	Pre-test	Treatment	Post-test
A	O1	-	O2
B	O1	X	O2

Note :

A   : Control Class

B   : Experimental Class

O1 : Pre-test

O2 : Post-test

X   : Bruno Mars song in the Doo-Woops & Holigans album

-   : Printed Media

B. Research Variables

Understanding research variables is an attribute, value / nature of objects, individuals / activities that have a lot of certain variations between one another that have been determined by researchers to study and seek information and draw conclusions. A research variable must be relevant to the purpose of the research conducted and can also be observed and measured. A research variable has a function as a tool and method of data collection in a study, method of analysis or data processing and testing hypotheses. Research variables are basically everything in any form determined by the researcher to be studied so that information is obtained about it, then conclusions are drawn (Sugiyono, 2013).

1. Independent Variable (X)

   The independent variable is a variable that affects or is the cause of the change or the emergence of the dependent variable (Sugiyono, 2013). Based on this understanding, the independent variable in this study is Bruno Mars Song In Doo-Wops & Hooligans Album.

2. Dependent Variable (Y)

   The dependent variable is the variable that is influenced or that becomes the result, because of the independent variable (Sugiyono, 2013). Based on this understanding, the dependent variable in this study is the students' pronunciation mastery. Students' pronunciation mastery is the ability obtained by students after going through learning activities that can be known/obtained through the pretest and posttest that have been given.

C. Research Population and Sample

1. Population

   In quantitative research, population is defined as an area of generalization consisting of: objects/subjects that have certain qualities and characteristics determined by the researcher to be studied and then drawn conclusions (Sugiyono, 2013). Therefore, in this study the population was class X students of Vocational High School Kartikatama Metro in the 2023/2024 academic year which consisted of 3 classes and a total population of 65 students.

2. Sampling Technique

This study will use a sample selection technique, namely cluster random sampling and determine which class will be the group to be studied. The following are the steps that the researcher will take to select the group to be studied:

a. Write down all courses (X automotive, X Computer and Network Engineering, and X Accounting) on a piece of paper.

b. Paper is cut into pieces and rolled up, then put in a glass.

c. The glass is shaken until the paper comes out.

d. Two classes (X Computer and Network Engineering & X Accounting) were selected and had the opportunity to become the control class and the experimental class.

e. Both papers are rolled up and put back into the glass.

f. The experimental class will focus on the first roll of paper (X Accounting)

g. The control class will be assigned to the second roll of paper (X Computer and Network Engineering)

3. Sample

According to (Sugiyono, 2013) the sample is part of the number and characteristics possessed by the population. If the population is large, and it is impossible for the researcher to study everything in the population, for example due to limited funds, manpower and time, the researcher can use samples taken from that population.

In this study, it was obtained that class X Accounting as the experimental group and X Computer and Network Engineering as the control group using cluster random sampling. Class X Accounting consists of 23 students as an experimental class and X Computer and Network Engineering as a control class also consisting of 23 students.

D. Research Instruments

According to (Sugiyono, 2013) the research instrument is a tool used to measure the observed natural and social phenomena. Therefore, researchers must make research instruments before conducting research. In other words, it can be said that the research instrument is very important because it is a research tool.

In this study, the instrument used is test form. The researcher will do a pre-test and post-test. Pre-test and post-test are formative evaluation types that are used to assess student learning progress or development. The pre-test is a test given at the beginning of the learning process, while the post-test is given at the end of the lesson.

In conclusion, research instruments are tools used in research to collect data that can be tested. When giving instruments to students, the researcher used a type of reading aloud test to determine the percentage of students' pronunciation mastery.

E. Validity and Reliability

1. Validity

   Validity is the degree of accuracy between the data that occurs in the object of research and the power that can be reported by the researcher. Thus, valid data is data "that is not different" between data reported by researchers and data that actually occurs in the object of research (Sugiyono, 2013). The validity test was carried out by the researcher before valid or not. In order for the test measure to have good validity, the researcher will analyze the test in the form of face validity. Face validity is described as whether a test appears to be a good measure or not. So, the test questions must represent the material being discussed. In terms of validity, the material presented is in accordance with the expert's assessment material. Expert judgment is carried out to test the validity of an instrument based on the theoretical concept and the contextual instrument to be used. There were two experts who were given an assessment, namely Mr Refai Ahmad, S.Pd., M.Pd and Mr Siswanto, S.Pd. Experts review the test development process as well as the test itself and make decisions about how well the items represent the intended content.

2. Reliability

   Instrument reliability is a reliable measurement result. Instrument reliability is needed to obtain data in accordance with the measurement objectives. Reliability relates to the degree of consistency and stability of data or findings. In the positivistic (quantitative) view, a data is declared reliable if two or more resea

rchers in the same object produce the same data, or the same researcher at different times produces the same data, or a group of data when split into two shows data that are not different (Sugiyono, 2013).

The researcher tries to find reliability after calculating the validity of the instrument, to measure the reliability of the test the researcher uses the Spearman-Brown formula which can be seen below:

$$r_i = \frac{2r_b}{1 + r_b}$$

Where:

r_i   = internal reliability of all instruments

r_b   = product Moment correlation between odd and even divisions

Fraenkel state in (Yusup, 2018) an instrument is said to be reliable when the Spearman-Brown reliability coefficient is more than 0.70 (ri> 0.70). If the Spearman-Brown reliability coefficient is less than 0.70, then the number of questions is added to the questions that match the original.

F. Data Collecting Technique

Data collection technique in this study include:

1. Pre-Test

   Before the researcher gives treatment to the group to be studied, a pre-test will be given. The purpose of the pre-test is to find out the students' initial conditions before the researcher gives treatment. The test is a method for assessing students' knowledge, skills, feelings, and intelligence. There will be 20 words from the lyrics of the Bruno Mars song that have been selected to be submitted to students. Assessment of student pronunciation will be assessed from a score of 1 to 5. So if students pronounce all the words perfectly, then students will get a score of 100.

2. Treatment

   After doing the pre-test, the researcher will give treatment to experimental group. The aim of the treatment is to develop students' mastery of pronunciation. In the media treatment used is a song from Bruno Mars on the album Doo-Woops & Holigans. Each meeting will be 45 minutes long using a song to learn the pronunciation of the lyrics. The material for the first

meeting will discuss pronouns, the second meeting will discuss verbs and nouns. Then the third meeting will discuss adverbs, and the last treatment will discuss simple continuous tense.

3. Post-Test

The post-test will be used to determine students' mastery of pronunciation after teaching with the Bruno Mars song, how much students pronounce the vocabulary correctly given after the treatment process is carried out. The questions used were the same as those used by the researcher in the pre-test, but with different numbers. Assessment of student pronunciation will be assessed from a score of 1 to 5. So if students pronounce all the words perfectly, then students will get a score of 100.

G. Data Analyzing Technique

Based on (Sugiyono, 2013) data analyzing is an activity after data from all respondents or other data sources are collected. Activities in data analysis are: grouping data based on variables and types of respondents, tabulating data based on variables from all respondents, presenting data for each variable studied, performing calculations to answer the problem formulation, and performing calculations to test the hypotheses that have been proposed.

In this study the data will be analyzed using the following techniques:

1. Data identification. The researcher will identify the data through the scores obtained by the students beforehand.
2. Calculating the score on the pre test.
3. Doing treatment using the Bruno Mars song to teach pronunciation.
4. Calculating the score on the post test.
5. Report the results, after completing all steps the researcher can make conclusions.

   The formula was tested using the normality and homogeneity tests by the researcher. The procedures to treat the data as follow:

a. Normality Test

   The normality test is a test for the normality of the distribution (pattern) data. Thus, this normality test assumes that the data in each variable comes from a normally distributed population (Wulansari, 2016).

   Normality test using the formula Kolmogorov-Smirnov as follow :

The hypothesis formula :

H_0 : Normal population distribution

H_1 : The population distribution is not normal

Statistic Formula :

$$D = \max_{1 \leq i \leq n}\left(\left| F(z_i) - F_{n_{i-1}}(x_i) \right|, \left| F(z_i) - F_{n_i}(x_i) \right| \right)$$

The researcher calculated the data using SPSS.

b. Homogeneity Test

Homogeneity test is a test of differences in variance between two or more data sets (Wulansari, 2016). In this study, researchers formula test variance as follows:

The hypothesis formula:

H_0 = Homogeneous variance

H_1 = The variance is not homogeneous

The used statistic formula of the test is:

$$F_{hitung} = \frac{S^2_{max}}{S^2_{min}}$$

Where:

S^2_{max} = biggest variant

S^2_{min} = smallest variant

Decision:

H_0 is rejected if $F_{Count} \geq F_{table}$

H. Hypothesis Test

After the normality and homogeneity tests were carried out, the researcher continued data analysis using the T-test. The t-test is a statistical test used to see whether there is a significant difference between the averages of two samples taken randomly from the same population. This test compares the pre-test and post-test scores in the class studied. T-scores were calculated using SPSS or the T-test formula by the researchers in this study:

$$t-_{test} = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\frac{S_1{}^2}{N_1} + \frac{S_2{}^2}{N_2}}}$$

Notes:

$\overline{X}_1$ = the means of the experiment class

$\overline{X}_2$ = the means of the control class

S = the standard devitiation

N_1 = the number of students' in the experimental class

N_2 = the number of students' in the control class

Before using t-test formula the researcher would determine the average variant (S^2)

The Variant (S^2) is calculade by formula :

$$S^2 = \frac{(N_1-1)S_1^2 + (N_2-1)S_2^2}{N_2(N_2-1)}$$

Notes:

N_1 = Number of students' in experimental class

N_2 = Number of students' in control class

S_1^2 = Variant of experimental class

S_2^2 = Variant of control class

S^2 = Variant

The criteria are:

H_0 : H_0 is accepted if t-ratio $<$ t-table

H_a : H_a is accepted if t-ratio $>$ t-table