

CHAPTER III

RESEARCH METHOD

This chapter presents the research design, population, sampling and sample, research variable, research instrument, validity and reliability testing, normality and homogeneity testing, data collection method, treatment and data analysis.

A. Research Design

Research design is a strategy to achieve the research objectives set by the researcher, it also acts as a research guide in the entire research process. Without the correct design, a researcher cannot do research well because they does not have clear guidelines. Sukardi (2004) states that research design is a describing variables, collecting and analyzing data clearly so it can be understood. A research design can be said to have quality or accuracy if it have two requirement: 1. Can be used to test hypothesis (for quantitative research), 2. Can control the variance (Machfoedz, 2007: 101-102). Two kinds of research design are qualitative and quantitative approaches. Both of them include experimental, survey or cross-sectional, longitudinal, case studies, and comparative research designs. This research conducted in quantitative approach. According to Creswell (2009: 233), quantitative research is used to test objective theories by connecting between variables in instruments numbered measurable, so the data can be analyzed with statistical procedure.

The researcher used quantitative approach with quasi-experimental research design. According to Cook and Campbell (1979), quasi-experimental research is research that resembles experimental research. The researcher decided to take quasi-experimental research design with two group consists of XII TEI 3 as experimental class and XII TEI 2 as control class which given pre-test and post-test. The experimental class was given treatment using song from JOOX Music Application while the control class was given treatment using conventional method. Tre pre-test conducted to know the based vocabulary from each group. The post-test conducted after students' given treatment by the researcher. Then, the researcher compared the post-test scores of both the experimental and the control class.

Table 3.1:
Quasi-experimental research design

Group	Pre-test	Treatment	Post-test
E	T	X	T
C	T	-	T

Note:

E : Experimental group (XII TEI 3)

C : Control group (XII TEI 2)

T : Pre-test

T : Post-test

X : Treatment of the experimental group using songs from JOOX Music Application.

- : The group without treatment or using conventional method.

The procedures using two groups pre-test and post-test design were:

1. Conducting a pre-test for the experimental group (XII TEI 3) and control group (XII TEI 2), to measure the vocabulary scores of the twelfth grade at SMKN 3 Boyolangu Tulungagung. The researcher gave pre-test to the two groups to determine the achievement of students' vocabulary mastery before being taught by using song from JOOX Music Application for the experimental group, and by using conventional method to the control group. The pre-test was done by using google form and it formulated as T .
2. The treatment applying in the experimental group (XII TEI 3) was taught vocabulary mastery using song from JOOX Music Application. And the control group (XII TEI 2) was taught vocabulary mastery using conventional method to the student at the twelfth grade of SMKN 3 Boyolangu Tulungagung. The treatment means that the researcher used song from JOOX Music Application as a teaching media to teach vocabulary mastery. The treatment is formulated as X.
3. After gave treatment, the researcher conducting a post-test for the experimental group (XII TEI 3) and control group (XII TEI 2), to measure the vocabulary scores of the twelfth grade at SMKN 3

Boyolangu Tulungagung. The post-test was done by using google form. The researcher shared a link of the test in WhatsApp group, the students had to open the link and did the test. The researcher compared the results of post-test score of the two classes to find out song from JOOX Music Application was effective to improve the students' vocabulary mastery. The post-test formulated as T .

B. Population, Sampling and Sample

1. Population

According to Johar Arifin, Population is the whole object or individual to be studied; has certain characteristics, is clear and complete. In this case, the population is an area consisting of subjects or objects that have certain quantities and characteristics that the researcher determines to study and draw conclusions. The population of this research were all the twelfth grade students' at SMKN 3 Boyolangu Tulungagung in academic years 2020/2021, which has 20 classes, there are:

Table 3.2

Table of Population

Class	The Number of Students
XII KGSP 1	34
XII KGSP 2	35
XII DPB 1	34
XII DPB 2	32
XII DPB 3	36

XII TIT 1	35
XII TIT 2	33
XII TIT 3	32
XII TOI	36
XII TPM 1	35
XII TPM 2	35
XII TPM 3	34
XII TKR 1	33
XII TKR 2	35
XII TKR 3	34
XII TKR 4	36
XII TBO	33
XII TEI 1	33
XII TEI 2	34
XII TEI 3	34
TOTAL	684

2. Sampling

Sampling is the process of selecting or describing an accurate representation of a unit, group or sample of a population. To determine the sample to be used, researcher must pay attention to several sampling technique that can be used. There is probability sampling and non-probability sampling.

This study used purposive sampling technique to gain the samples. Purposive sampling is a sampling technique with certain considerations. As the example, we will examine political conditions

in a region, so the the sample data sources are people who are political experts (Sugiyono, 2017: 138). Purposive sampling was chosen because the researcher discover several characteristics of the sample in XII TEI 3 and XII TEI 2 class. The two classes have the same value and mean. So, these two classes will develop when they are given treatment of using song from JOOX Music Application and conventional method.

3. Sample

Sample is a part of the number and characteristics possessed by the population. There are several factors why you should use a research sample; due to limited funds, manpower and time. Therefore, samples taken from the population must be truly representative (Sugiyono, 2017: 131).

The researcher chosen the experimental group (XII TEI 3) and control group (XII TEI 2) as the sample of this research. The researcher choose those classes as the sample because they have similarities and mean score, also have the same level of knowledge in vocabulary mastery.

Table 3.3
The Research Sample

No.	Class	The Number of Students
1.	XII TEI 2 (control class)	34
2.	XII TEI 3 (experimental class)	34

C. Research Variable

Research variable is anything that is researched in order to obtain the data and draw conclusions from it (Sugiyono, 2017: 55). Variable also can be define as attribute of a particular field or science, for example; high, weight, ability, attitude, motivation, etc. This research contain two variables, there were:

1. Independent variable (X)

This variable can also called as stimulus variable, predictor or antecedent. Independent variables are variables that affect or cause the dependent variable to change or arise (Sugiyono, 2017: 57). In this research, teaching vocabulary using song from JOOX Music Application was an independent variable because it affected the students' vocabulary mastery.

2. Dependent variable (Y)

This variable also known as output variable, criteria or consistent. Dependent variables are variables that is affected or becomes a result because there are independent variables consistent. It can say that the value of the dependent variable can change as the value of the independent variable change. The dependent variable of this research was students' vocabulary mastery.

D. Research Instrument

In principle, test are measurements which requires an appropriate measuring instrument. Measuring instruments in tests are usually referred

to a test instruments. The research instrument is a tool to measure natural and social phenomena are observed. This phenomenon is called in particular the research variable (Sugiyono, 2017: 166). Quantitative research instruments are typically tools used by scientists to collect quantitative information about variables from theories will be tested in the study. The main principle when choosing an instrument is to understand the purpose of the research. In general, there are different types of measuring instruments used as measuring tools, including; questionnaires, tests, interviews, observations. Data wouldn't exist without the research instrument. Creswell (2008:5), stated that researchers used instrument to assessing the abilities of individuals, measuring their achievements, observing behavior, improving individual psychological profiles or conduct interviews with someone. An appropriate research instruments indicate whether the instrument is working properly or not.

The researcher used test as a research instrument. A test is a series of question given to obtain a response based on a numerical score that can be determined (Ary, 2010:201). In other words, tests are tools provided by the teacher that aimed to find students' scores.

In this study, two types of tests were used, there are pre-test and post-test. The pre-test aimed to determine the students' vocabulary mastery and their scores they are treated. While, the post-test given after the treatment is used to determine whether students' vocabulary mastery is significantly increased. The pre-test was done using the google form. The

pre-test is a multiple choices consisting of 10 vocabulary items with time allocation 20 minutes. The researcher provide vocabulary learning treatment using song from JOOX Music Application in the experimental group (XIII TEI 3), and using conventional method in the control group (XII TEI 2). The treatment was also done using google form. Post-test are provided after receiving the treatment, it is a multiple choices consisting of 10 vocabulary items with time allocation 20 minutes. The post-test was used to determine the significant difference scores of vocabulary mastery between experimental group and control group who were taught using song from JOOX Music Application and those who were taught by conventional method.

The following are the procedure for scoring multiple choices, the correct answer would get 10 points, while the incorrect answer would get 0 points. Then, the final score would be $10 \times 10 = 100$. The researcher made a scoring criteria as follows:

Table 3.4

Score Criteria

Score	Criteria
90-100	Excellent
80	Good
50-70	Average
30-40	Poor
0-20	Very Poor

E. Validity and Reliability Testing

In this case, it is necessary to distinguish between valid and reliable research results with valid and reliable instruments.

1. Validity Testing

A valid data instrument can be used to measure what should be measured. Azwar (1986) stated that validity is the level of accuracy of the measuring instrument in carrying out its measurement function. A test has high validity if the results produced are precise and accurate in accordance with the test objectives, if the results produced are not precise and accurate it has low validity. Researchers use content validity as an assessment of the extent to which the test content is comprehensive and represents the content domain claiming to be controlled by the test, construct validity is the criteria for fluency in speaking and face validity as an objective assessment.

a. Content Validity

Content Validity indicates that the content reflects the entire set of properties studied and is generally performed by more than 7 experts (Devon et al 2007). This means that validity estimated by testing the relevance or suitability of the test. It can be said that the content validity has been carried out to analyze content through expert judgement to make sure the content is appropriate and relevant to class objectives. If the test content is a representative sample of the technology under test, the test is declared to have a valid content. The

test being tested must be based on standard competency and basic competency of the twelfth grade school-based curriculum in English. When tested, the trial test valid in terms of content validity because it refers to the school syllabus. It can be conclude that the content validity of the test is valid because the material being tested has been taught to the students also valid with SMKN 3 Boyolangu Tulungagung's syllabus.

Table 3.5

Content Validity

Syllabus Basic competence	Indicator	Learning Material	Technique	Test Item
4.16 Capturing the maening of the song	Students can respond the meaning contained in the song, write new vocabulary obtained through song lyrics, classify new vocabulary based on the type part of speech.	Song and the lyrics fro JOOX Music Application	Written test	Pre-test Post-test

The test instrument is said to have content validity because the test has the same objectives as the standard and basic competencies with 2013 curriculum syllabus of the twelfth grade, which is to test students' vocabulary mastery with correct structure.

b. Construct Validity

Construct validity refers to the extent to which conclusions can be legally made from operationalization in a study to the theoretical constructs on which the operationalization is based. According to Bachman and Palmer (1996:21) construct validity refers to the meaning and suitability of interpretation based on the test score.

The instrument was constructed according to a particular theory, paying attention to the aspects that to be measured, then consulted with experts. The researcher used construct validity in given vocabulary test. The vocabulary test construct of 10 multiple choices vocabulary items with time allocation 20 minutes for pre-test, and the post-test has the same format test. Besides, the researcher also consulted with English teachers of SMKN 3 Boyolangu Tulungagung, there were Mr. Handry and Mrs. Farista Ulfa. The expert would given their opinion about the instrument which researcher made. After receiving feedback and expert evaluation, the instrument can be tested in the twelfth grade at SMKN 3 Boyolangu Tulungagung, which excluded of experimental group and control group to determine the validity of the test.

c. Face Validity

Face validity is validity related to what appears to measure something and not to what should be measured. According to (Ary, 2010:225) face validity refers to the ability of a test instrument to

measures what should be measured. This is the type of validity that has the lowest significance because it is only based on a cursory assessment of the content. If the contents of the measuring instrument are visible in accordance with what you want to measure, it can be said that the face validity has been fulfilled. This validity refers more to the shape and appearance of the instrument, for example measuring intelligence, talent and skills. The test of the research was made to measure students' vocabulary mastery, therefore to achieve it the researcher gave instructions on the question sheet to choose the correct answer. In this study, face validity was carried out through interviews experts.

2. Reliability Testing

Reliability is a measure of the same instrument will produce same results. Reliability testing can be carried out externally or internally. Externally, testing can be carried out by test-retest, equivalent and a combination of both. Reliability can be measured by analyzing the consistency of items on the instrument with certain techniques internally. Reliability is related to the effect of measurement error on the consistency of scores (Ary et al, 2010:237). A study is considered reliable if it provides consistent results for the same measurement. If it showed different results, the study is unreliable.

Reliability test refers to stability, consistency, predictive power, and accuracy. Measurements is reliable if it has high reliable data. In this study, before giving the pre-test and post-test, the researcher made a trial test to be tested on students to determine the extent of the reliability test. To determine the reliability of the test instruments, the researcher used SPSS 16.0

The testing reliability instrument use the Alpha Cronbach formula because this research instrument was in the form of a multi-level questionnaire and scale. The reliability instrument criteria can be divided as follows:

Table 3.6

Interpretation of Cronbach Alpha

Cronbach Alpha	Interpretation
0.00 – 0.20	Less Reliable
0.21 – 0.40	Rather Reliable
0.41 – 0.60	Quite Reliable
0.61 – 0.80	Reliable
0.81 – 1.00	Very Reliable

If the value of alpha is > 0.81 the reliability is perfect or very reliable. If the alpha is between 0.61-0.80, the reliability is high reliable. If the alpha is between 0.41-0.60, the reliability is quite reliable. If the alpha < 0.40 , the reliability is low. If alpha is low, it is possible that one or more items are unreliable.

Table 3.7**The result of reliability pre-test****Case Processing Summary**

		N	%
Cases	Valid	33	100.0
	Excluded ^a	0	.0
	Total	33	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.876	10

As seen on the table, the value was 0.876, which means that each question on pre-test was reliable.

Table 3.8**The result of reliability post-test****Case Processing Summary**

		N	%
Cases	Valid	33	100.0
	Excluded ^a	0	.0
	Total	33	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.863	10

As seen on the table, the value was 0.863, which means that each question on post-test was reliable.

F. Normality and Homogeneity Testing

1. Normality Testing

Normality testing is needed as an assumption for each parametric test and to measure whether the obtained data is a normally distributed or not. Kolmogorov-Sminorv used to determining data normality. The Kolmogorov-Sminorv test requirements as follows: interval or ratio scale data (quantitative), single data or grouped in a frequency distribution table, it also can be for large or small values. Kolmogorov-Sminorv has the rules $\alpha = 0.05$:

- a. If the normality test resulted $< \alpha = 0.05$. The data are not normally distributed and H_0 is rejected.
- b. If the normality test resulted $> \alpha = 0.05$. The data are distributed normally and H_0 is accepted.

2. Homogeneity Testing

Homogeneity testing is a test of the difference between two or more groups. All group characteristic can vary from one to another. This test used to measure whether the data has variants which

homogeneous or not. Researcher used T test to determine the homogeneity of variances with SPSS 16. Decision making basis for the homogeneity testing as follows:

- a. The data distribution is homogeneous if the significance value > 0.050 .
- b. The data distribution is not homogeneous if the significance value < 0.50 .

G. Data Collection Method

According to Sugiyono (2012:224), the main purpose of research is to collect data, so data collection techniques are the most strategic step in the research. This technique is used to collect data accordance with procedures to obtain the data needed in the study. This study used learning outcome test to measure students learning outcomes. There are two kinds of tests given to students:

1. Pre-test

The researcher gives a pre-test to students before being given a treatment. It's given to determine the level of basic vocabulary mastery of students before being given treatment. The pre-test format was consisted of 10 multiple choices with time allocation 20 minutes. Researchers used a scoring procedures for calculating pre-test score. The test score became an evaluation before using song from JOOX Music Application. The pre-test was held on Saturday, September 12, 2020 for experimental and control group using google form.

2. Post-test

Researchers provide post-test after students were given treatment. The content of the questions is different from the pre-test, but has the same indicators and almost the same difficulty. Post-test consists of 10 multiple choices about part of speech with the allocation 20 minutes. It was done to measure students' vocabulary mastery after being given treatment. Researchers used a scoring procedures for calculating post-test score then comparing the post-test results of the two classes to determine the students' vocabulary mastery. The post-test was held on Saturday, September 26, 2020 for experimental and control group by using google form.

H. Treatment

The students were given treatment after being given pre-test. The goal of the treatment was to assists students in mastering vocabulary. Treatment of the experimental class taught by using song from JOOX Music Application and taught the control class by using conventional method. September 14th 2020, both the experimental and control class were treated. Researchers provide material in the form of song from JOOX Music Application for the experimental class. The students' given the material via whatsapp group, they will learn how to practice vocabulary by listening English songs from Joox Music Application. First, the students must download and install JOOX Music Application on Appstore or PlayStore, then sign up or log in (if they already have an account), or

log in with Facebook account. After that, they listen to favorite song and try to figure out the meaning of the words if don't understand. If they dont understand the words spoken by an artist, they can look for the meaning. Not only listen to the song, students can also sing along while listening to the song. In addition to understanding the content of the song, its also able to train their pronunciation.

I. Data Analysis

Quantitative research design depends on the measurement data used in this study. Data were analyzed to determine the effectiveness of the use of song from JOOX Music Application to the students' vocabulary mastery. Researchers analyzed the data by comparing the students post-test results both of groups. The data was statistically analyzed using *Independent-Sample T-test* with SPSS 16.0 for windows. Researcher used t-test to determine whether the average value is higher of less than 0.5. To get the data normality and homogeneity of the post-test from Experimental and Control groups are presented in a clear and descriptive, check out the significant differences using independent sample T-test whether the data normality and homogeneity of the two groups were appropriate.