CHAPTER III

RESEARCH METHODOLOGY

This chapter explains about research design, research subjects, research variables, data collection techniques and instruments and data analysis.

A. Research Design

Half method is used in this project. The nature of quasi-experimental research allows the writer to manipulate the methods of teaching and learning, the writer gives a treatment to the groups that become the experimental group, and then changes the progress of students learning to compare between pre- and post-analysis. application. A quasi-experimental research design tests whether there is a causal relationship between independent and dependent variables. Basically, independent variables are the variables that influence, and dependent variables are the variables that are influenced. Assessment of treatment effects requires comparisons between different treatments. The comparison between the treatment area and the person without treatment is the same (Reichardt, 2019, p.3).

On the other hand Loewen and Plonsky (cited in Rogers and Revesz 2016, p. 1) explains, independent variable is anticipated to bring approximately a few variety or alter within the dependent variable. In line with Loewen & Plonsky, Shadish et al., (2002, p. 14) in a quasi experiment, the writer must elective clarifications one by one, choose which ones are conceivable and after that utilize rationale, plan and estimation to evaluate

whether each of those clarifications works in a way that can clarify the watched impact.. The difficulty is that these alternative explanations can never be fully quantified in advance, that some of them are specific to the context being studied, and that the methods required to eliminate them from contention will vary from one alternative to another and from one research to another.

Based on the above, the type of research is quasi-experimental research or quasi-experimental research. This study was conducted with the aim of determining the effect of treatment on students' communication skills. The way to find out is to compare the speaking skills of the students in the test group. In the experimental group, learning from cognitive behavioral therapy and music was used as a means of relaxation after treatment.

The quasi-experimental design used in this study is a time-series design. This design does not use a control panel. This plan uses only one group. According to Rogers and Reeves (2019, p. 5), a time-series design is a representation of a longitudinal design in which the writer collects linguistic tests of a methodological hypothesis during a set period of time. The time series design uses a single group, so no control group is needed, and the design of this study can be seen in the figure below:

Tabel 3.1 Model Eksperimen Pretest Posttest Time Series Design

Group	Pretest	Treatment	Posttest
Eksperiment	O_1	X_1	O_2

Description:

O1 = Experimental group pretest

X = Experimental class treatment (Treatment using cognitive behavior therapy strategy combined with music media as relaxation)

O2 = Posttest of the experimental group

The writer was used the above technique to find out the cause and effect of the problems experienced by students at SMK Amaliyah Sekadau, especially class XI TKJ (Computer and network engineering), which is carried out on the experimental group sample where in this research the experimental group. Then, the group in this research, will get treatment using the cognitive behavior method using music and then was given the same pretest and posttest to be used as a comparison between before and after the method is applied.

This research was conduct to determine whether there is an effect of the impact of providing Cognitive Behavior Therapy treatment using music media to overcome speaking anxiety in eleventh grade students of TKJ SMK Amaliyah Sekadau. Before giving the pre-test to the two groups, the initial stage in both groups. Then the post test was conduct again on both groups to find out the final results of the experiment.

In this case, the pre-test is intended to see students' initial anxiety, while the post-test is intended to determine the extent to which the method used by the data helps students in overcoming speaking anxiety after being given treatment by the teacher during classroom learning.

B. The Subjet of research

The subject of this research, the writer was conducted students in SMK Amaliyah consisting of many classes such as Office Administration, Accounting, banking, nursing, hospitality, and Network Engineering majors and each department has more than one class according to the students present in each academic year. However, the subjects in this research was students of class XI TKJ.

Sampling was carried out using purposive sampling technique where one class was selected based on the consideration of the teacher who said that the class that has the highest anxiety in class XI at SMK Amaliyah Sekadau. From the results of the sample selection, XI TKJ class was selected, of which there were three classes, namely XI TKJ 1, XI TKJ 2 and XI TKJ 3 as samples, then from the sample was selected again based on teacher consideration to determine one class as an experiment. After randomization, XI TKJ 1 class was chosen as the experimental class.

Based on observations made, class XI TKJ 1 is indeed required to learn using English because it is in accordance with the department and the implementation that was carried out. As time goes by, this department must get used to using English for every practice implemented. They will find it difficult if they experience speaking anxiety problems. The following is the class sample used in this research:

Table. 3.2 Experiment Class

Class	Female	Male
Eksperiment	16	9

C. Variable of Research

1. Indenpendent variable

In this study there are three variables, one independent variable and two dependent variables. Independent variables are those that occur, affect, or affect the outcome, called treatment, manipulation, antecedent, or predictor variables. This variable was defined as a random variable trained to generate the first and second dependent variables.

There are two independent variables or variables that influence this research:

a. Cognitive Behavior Therapy

Cognitive Behavior Therapy is a cognitive behavioral therapy generally used to treat mental health problems, Cognitive Behavior therapy such as anxiety and depression. However, not only that, cognitive behavioral therapy can also be used to help you deal with everyday problems. Cognitive behavioral therapy or cognitive behavioral therapy is a more general term than cognitive therapy and is a form of psychotherapy. Cognitive therapy aims to train your cognitive way of thinking function and how to act behavior. This is why cognitive therapy is better known as cognitive behavioral therapy. In this research, writer provided cognitive behavior therapy treatment

to overcome speaking anxiety with three stages that can be done, namely face fears, positive reinforcement and selfregulation. These three stages weill be carry out to overcome anxiety problems in class XI students of TKJ 1 in SMK Amaliyah Sekadau.

b. Music

In this research using music media as a tool for performing music therapy used is a type of instrumental music as explained in the previous chapter. The application of this music was carry out for groups that receive treatment, namely the instrument group. This treatment was given before they do a speaking test and do a performance in class. The writer was provide therapy with a music box so that the audio provided can be captured well by the group receiving the treatment.

2. Dependent Variable

A dependent variable is a variable that is affected and becomes the outcome of the independent variable. The dependent variable in this study was the students' success in overcoming speech anxiety.

D. Data Collection techniques and Instrumentation

To obtain valid data in this research, it is necessary to determine appropriate data collection techniques. Data collection method is an important part of collecting data. The data taken is the actual data (concrete). It aims to reveal facts about the variables studied.

The data collection technique that was used is a questionnaire and giving music therapy to respondents who are the subjects of the research. The questionnaire is a data collection technique by providing a set of questionnaires (Anxiety Questionnaire) before the music therapy treatment and after the music therapy treatment or what is called the Pre-Post test. The procedure for giving music therapy is respondents Prepare themselves to be given therapy, find a comfortable and quiet place so as not to be disturbed (Using the Laboratory, take care of environmental noises, such as annoying ringing telephones, play audio music with a maximum duration of 30 minutes. While you listen the music you can do close your eyes until you feel your brain and body relax,take a deep breath, take a long breath out and release it, allow your mind to find comfort in the rhythm of the sound, when the music starts playing, calm down for a while so that rhythmic synchronization occurs with the surroundings. The therapy giver will provide a positive motivation until the respondent feels calm and after listening to music, the respondent cleaned up and tidied up the tools used in music therapy.

1. Data Collection Techniques

There are techniques have various data collection observation, interview, measurement, indirect communication, documentation.

a. Observation

Observation is a method of data collection that has characteristics with other methods, namely interviewing with people, so observation is not only about people but also includes other natural things. Observation is a

method of collecting data through observation. According to Baker (2006. p. 172), it is difficult to observe a research method, because the writer has the same desire to carry out various activities and strategies, including his abilities five, to collect information for use. In addition, regardless of the level of entry into the research collection, the analyst must always remember his original role as a scientist and be limited to collecting and analyzing information related to the subject under investigation.

When described, observation is an activity carry out to directly observe a certain object with the aim of obtaining some data and information related to that object. However, based on several experts, the meaning of observation is very complex. Meanwhile, observation as a way to obtain important information about a person. Because, what is said is not necessarily exactly the same as what is done.

In this research are how writer make observations to find out from the problems that cause SMK Amaliyah Sekadau. Students to experience Speaking anxiety, in this observation also, writer will look for the right solution to overcome these problems. The existence of observation will help writer in taking data. The data that was taken from this observation is in the form of observation checklist data.

b. Interview

An interview is a productive interaction characterized by questions and answers, clear structure, control and neutrality. An interview is usually a two-way interaction, meaning it takes place between two people. A news

anchor asking a celebrity is an example of a double interview. According to Jung. (2015, p. 30) The most important factor in determining the number of respondents and the quality of answers is their willingness to answer the questions. Interviewees may have nothing to say, they may not have but cannot, or they may interview based on relevant information between the interviewer and the interviewee. The interview method used by the writer as a data collection tool, the interview method in this study, was directed at the teacher. In this technique the writer was interview teacher with questions concerning problems and solutions in teaching and learning activities at schools, especially in SMK Amaliyah Sekadau.

c. Measurement

Measurement techniques are carry out by giving tests in the form of pretests and postests. The test questions used in the form of dialogue and mini project of spaking in accordance with the material used and given before and after using cognitive behavior therapy method with music media. Pretest is used to determine the initial ability of students before being given the method. While the posttest is given after using the cognitive behavior therapy method with the help of music media on analytical exposition text material. This technique used to measure the extent of students' success in overcoming speaking anxiety.

d. Indirect communication

Indirect communication techniques was carry out by distributing questionnaires. In research the questions or statements used are closed. The

question or closed statement in question is a questionnaire that has provided answers and students will fill in personally according to what they feel. This technique is used to obtain data in the form of answers or responses regarding the variables measured.

e. Documentation

Documents are records of past events. Documents can be in the form of writings, images, or monumental works of someone else and others. This technique is used to obtain data in the form of student grades, ATP, Modules, related to the teaching and learning process using cognitive behavior therapy methods with the help of music media and data in the form of archives related to the research.

2. Instrumentation

Data collection tools are tools used by writer to collect research data. In research there must be tools used to collect data. In this research, the writer uses some instruments to collect the data such as observation checklist, test, interview guideline and questionnaire as instruments in this research.

a. Observation Checklist

The observation checklits is used when learning takes place. The observation is used to control or control the learning process to match the conditions desired by the writer. Observations was carried out by observers to observe and assess the steps of implementing learning methods using cognitive behavior therapy with music implemented by writer In addition, the observation sheet is also used to determine the condition of the students

who are the sample in this research. The measurement of the observation results is carry out using a guttman scale which get an answer firmly, with the answer "Yes" or "No".

b. Interview Guideline

The interview guideline in this research is in the form of a checklist so that no points are left out to be asked. The interview guideline serves to remind writer of what should be discussed during the interview.Interview guideline attached in appendix 5.

c. Questionnaires

Questionnaires are used to investigate subjects' opinions about matters or to reveal the personal circumstances of respondents. The main research task is to collect data through interviews. and the questionnaire given in the form of an anxiety questionnaire as a data collection instrument. Using interviews and also giving questionnaires to respondents will make it easier for writer to find data through questionnaires. Then, from these data the writer can find out the factors and strategies in the anxiety of English speaking students when facing speaking anxiety through an anxiety questionnaire.

The questionnaire used is the open-ended questionnaire according to Siniscalco and Auriat (2005, p. 3) a questionnaire is said to be standardized when each respondent is to be uncovered to the same questions and the same system of coding reactions. The point here is to undertake to guarantee that contrasts in reactions to questions can be translated as

reflecting differences among respondents, instead of contrasts within the forms that created the answers. This means that an open questionnaire is useful for representing the feelings of respondents in general by writing short texts.

This research uses the results of an open questionnaire to find out students' feelings about their speaking performance to find out the factors of student anxiety and strategies to reduce their anxiety in class when speaking. This research used the results of a questionnaire and also an anxiety questionnaire to find out students' feelings about their speaking performance and find out what factors are students' anxiety problems. This research provided 2 anxiety questionnaires which will give before being given treatment and also after being given treatment for the experimental group. The purpose of this research is to provide a questionnaire to analyze student factors and student strategies to reduce anxiety.

To find out the extent of a person's degree of speaking anxiety, you can use a measuring instrument (instrument) known as the likert scale anxiety scale. Likert scale is a scale that may be used to degree the attitudes, opinions, and perceptions of someone or organization of humans approximately a social symptom or phenomenon. By the use of a likert scale, the variables to be measured are translated into dimensions, the scale are translated into sub variables, then the sub variables are translated into measurable signs. These measurable signs may be used as a place to begin for growing tool objects withinside the shape of questions or statements

that want to be solution via way of means of respondents. Each solution is connected to a shape of assertion or mind-set assist expressed in words. The solution to every tool object the use of a Likert scale has gradations from very high-quality to very negative.

Based on the above statement, the instrument used in this research is an anxiety scale that uses Likert scale theory, because this research is measured is the anxiety of students in facing the English learning process, especially in speaking.

Examples of likert Scale Strongly Agree (5), agree (4), undecided (3), disagree (2), and strongly disagree (1). Then with the questionnaire data collection technique, the instrument was distributed to the experimental groups, in the classes totaling 25 students.

Data analysis technique is the most decisive step of a research. The technique used in this research is a questionnaire with 25 questions. Instruments that was used for research. The questions from this questioner must be tested for validity and reliability. After going through the calculations, the questions that was declared valid was 25 questions. Then the questions taken as many as 25 questions was used as pre-test and post-test materials in the experimental class. Then the questions that was used in data collection are 25 questions. The data was reprocessed using the SPSS program.

3. Instrument Test

a. Validitas Test

Test validity is the degree of precision between assessment tools that indicates where the test measures what it is measuring. Validity has two measures: internal and external. Acording to Shone (2013 p. 43) validity is about whether our estimation reaaly measures our concept. Good evaluation da ta in accordance with reality is called valid data. A test is said to be valid if the test measures what is to be measured. The validity test is used to measure whether a question is valid or not with 25 items of questioning that was used. This validity test will carry out by asking for expert consideration and consulted with the supervisor. After that the questions can be tested on students who are the subjects in this research. In calculating the results of the trial, the writer was used miscorosoft excel and the r product moment table. The formula use to measure validity as follow :

1. Calculate with the product moment formula

$$rxy = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{\{N(\sum X^2) - (\sum X)^2)\} - \{(N \sum Y^2) - (\sum Y)^2)}}}$$

Description:

: correlation coefficient

: number of respondents

: question item score

: total score of each question

Table 3.3 Criteria Validity Test

Score	Description
10,000-15,625	Exorbitan
5,625-10,000	High
2,500-5,625	Meddle Anxious
625-2,500	Low
0,000-625	Relaxed

Source : Score of total questiannaire

Based on the calculation formula above, it was used to calculate the results of the answers of the two classes which are the experimental class totaling 25 students. So the total subjects in this research amounted to 25 students who will then be given questioners as pretest and posttest questions totaling 25 questions.

2. Calculate the t test with the formula:

$$t_{hitung} = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

Description:

r = correlation coefficient of the calculated r result

n = number of respondents

3. Find t_{tabel} with $\alpha = 0.05$.

4. Draw conclusions, with the following test criteria

If $t_{count} > t_{table}$, it is valid, or

If $t_{count} \leq t_{table}$, it is invalid

Table 3.4 Validity Test Results of Speaking Anxiety Test Questions with
Likert Scale

Likert scala score range	T$_{count}$	t$_{table}$	Description
1-5	2,919986	0,093723	Invalid

The table above states that the information is valid if the number of
values filled in by students gets the appropriate range, and is calculated using
the existing formula.

Table 3.5 Instrument Validity Test with Likert Scale

Cronbach's Alpha Reability Coefficient	r$_{table}$	Decision
5	101<125	Exorbitant
4	76<100	High
3	51 <75	Meddle Anxious
2	25<50	Low
1	0<25	Relaxed

Based on the results of the table above, it can be seen that the range of
values states the validation results that was obtained by students and was
calculated using the formula above, a question of 25 questions if students
choose answer 5, a value range of 101 <125 is obtained which states that the
student is still experiencing a exorbitant level of speaking anxiety in speaking
anxiety, if the student gets a value range of 76 <100 which states that the
student is still quite high in his level of speaking anxiety, students who get a
score range of 51<75 say that the student experiences a level of anxiety in the
meddle anxious that indicates a slight decrease in the student's speaking
anxiety, and if the student gets a score range of 26<50 then the student
experiences a low level of anxiety and this method is quite effective to do,

students who get a score range of 0<25 then the student relaxed on the results of the pretest and posttest answers then the success rate of the method used is very effective.

b). Reliability Test

The reliability of a research instrument is a tool that provides the same (consistent) results. that remains the same (consistent). The measurement results must remain the same if the measurement is given to the same subject even though it is carry out by different people, different times, and different places.

Different people, different times, and different places, are not affected by actors, situations and conditions. A measuring instrument with high reliability is called a reliable measuring instrument. According to Creswell (2009, p. 257) reliability in this context alludes to the consistency or repeatability of an instrument. The foremost critical shape of reliability for multi-item disobedient is the instrument's inside consistency which is the degree to which sets of things on an instrument carry on within the same way. In line with Creswell, Shone (2013 p. 42) reability in this context it has meaning in measurements and in lifestyle , implies consistency do we get the same result in the event that measured over and over. The address things utilized in this research utilized the depiction question sort. The question items used in this research used the description question type. The formula used to find the reliability coefficient of the description question type is the Cronbach's Alpha. The formula used to measure reability as follows :

$$r = \frac{k}{k-1}\left(1 - \frac{\sum s_i^2}{s_t^2}\right)$$

Description :

K   = Number of question items

$\sum s_i^2$ = Sum of variance of test items (s2 test number 1+s2 test number

2+s2 test number n)

s_t^2 = Varian total

If r>r$_{table}$ then reliable

If r <r$_{table}$ then not reliable

Table 3.6 The Result of Reability Test

Coefficient Cronbach's Alpha Reliability	r$_{table}$	Decision
0,95	2,398754	Reliable

Based on the table above, it is known that from the 5 questions tested, a reliability value of 0000 was obtained. The reliability decision criterion is that if the calculated r value is greater (>) than the rtable value, then the test questions are declared reliable. Coefficient calculation results.

e. Documents

Data collection techniques with documents are carry out to obtain data in the form of the results of research activities. Data collection in this research was record students' exercise values, ATP, module, and student data obtained from SMK Amaliyah Sekadau.

E. Data Analysis Technique

The data to be analyzed are quantitative data in the form of student speaking anxiety problem solving ability results, and descriptive data in the form of observation results and student self concept scale questionnaires. Data processing is done with the help of SPSS 16 software and Microsoft Office Excel 2011.

1. Analysis of Speaking Anxiety Test Scores

Processing the results of the speaking anxiety problem solving ability test speaking problem solving ability test results, SPSS 16 and Microsoft Office Excel 2011. The first thing to do is to do a descriptive analysis which aims to see an overview of the achievement of the ability to overcome speaking anxiety consisting of the average score and standard deviation. Then, the difference and improvement in the ability to overcome speaking anxiety will analysis using parametric or nonparametric two means similarity test. The two mean equality test is used to compare between two conditions, namely the state of the average pre-test score of students in the experimental class, the state of the average post-test score of students in the experimental class, and the average N-gain in the experimental.

Before the research data will analyz, several things was prepared, including:

a. Scoring student answers according to the alternative answers and scoring system used.

b. Making a table of pret-test and post-test scores of experimental class students.

c. Calculating the average test score for each class.

d. Calculating the standard deviation to determine the distribution of the group and show the variance of the data group.

e. Comparing pre-test and post-test scores to find the increase (gain) that occurs after learning in each group calculated by Meltzer's (2002, p.5) normalized gain formula, namely:

$$g = \frac{S_{post} - S_{pre}}{S_{maks} - S_{pre}}$$

Description:

Spost: Post-test score

Spre: Pre-test score

Smaks : Maximum score

The results of the gain calculation are then interpreted using the following classification Hake (1999, p.45) there is :

Table 3.7 Criteria N-Gain

N-Gain	Interpretation
$g \geq 0,7$	High
$0,3 \leq g < 0,7$	Medium
$g \leq 0,3$	Low

Before testing the hypothesis, first test the normality and homogeneity of the data.

1) Normality Test

Testing the normality of the distribution of the initial test scores (pretests) and the final test (posttes) using the help of the SPSS program. Acceptance of data normality is based on the following hypothesis:

H_0 : The sample comes from a normally distributed population

H_1 : The sample comes from an abnormally distributed population

After the calculation, the significance value is compared with α. If the significance value $> \alpha$, then H_0 is accepted. If not normally distributed, nonparametric testing can be done.

2) Homogeneity Test

Testing the homogeneity of variance between the experimental group will carry out with the aim of knowing whether the variance of the two groups will the same or different. The calculation process will carriy out with the help of the SPSS program. The hypothesis to be tested can also be stated as follows:

$$H_0 : \sigma \frac{1}{2} = \sigma \frac{2}{2}$$

$$H_1 : \sigma \frac{1}{2} \neq \sigma \frac{2}{2}$$

Description:

$\sigma 1 =$ pretest variance, $\sigma 2 =$ pretest variance

The test criteria is to accept H_0 if the significance value $> \alpha$, and reject

H_0 if the significance value $< \alpha$

The hypotheses in this research are:

Hypothesis 1

H_0: The ability to overcome students' speaking anxiety using cognitive behavior therapy method combined with music is the same as students who get conventional learning.

H_1: The ability to overcome students' speaking anxiety using cognitive behavior therapy method combined with music is better than students who get conventional learning

Hypothesis 2

H_0: The improvement of students' ability to overcome anxiety by using cognitive behavior therapy method combined with music is the same as students who get conventional learning

H_1: Improvement in the ability to overcome anxiety by using cognitive behavior therapy method combined with music is better than students who get conventional learning.

The hypotheses to be tested are:

$H_0 : \mu 1 = \mu 2$

$H_a : \mu 1 > \mu 2$

Description:

$\mu 1$ = average score of pretest

$\mu 2$ = mean score of postest

If both mean scores are normally distributed and the variance is homogeneous, then the statistical test used is the t-test and if the variance is

not homogeneous, then th e statistical test used is the 't-test' using the help of the SPSS program.

If not normally distributed, nonparametric testing can be done, namely the Mann Withney test. Nonparametric testing applies to populations that are not normally distributed Mann Withney test (Uji-t) is a nonparametric test that is strong enough as a substitute for the t-test, in the event that the distribution assumptions of the t-test are not met, such as the distribution is not normal and the mean difference test whose variance is not homogeneous.