CHAPTER III
METHODS

A. Research Methods

A research method is an activity or process carried out systematically to solve a problem by applying scientific methods or research methods. This activity aims to explain, predict and control a phenomenon. In addition to that, research methods can be defined as a systematic approach or process for discovering information, whereas methodology refers to the study of the principles governing a particular method (Petersen et al., 2015). According to (Newing, 2010), a research method is a scientific approach used to gather data for a given objective and application. From this comprehension, it can be emphasized that research methods can be defined as a systematic approach to acquiring data for certain goals and applications in resolving research issues.

This research uses a quantitative type of research method. Quantitative research methods refer to the techniques employed to study certain populations or groups. These methods involve gathering data using research equipment and analyzing it in a quantitative or statistical format, typically expressed in numerical form. The primary objective of this type of research is to test pre-established hypotheses (Sugiyono, 2011). Quantitative

research methods can be defined as a methodical, organized, and well-structured approach to research, encompassing all stages from the beginning to the finish. In this research, the data is carried out using a research instrument, when analyzing the data it must be quantitative or use statistical formulas.

B. Research Design

These studies employ an experimental design, wherein an idea is tested to ascertain its impact on the outcome or dependent variable (Creswell, 2012). In addition, research employing an experimental design can be characterized as a form of research that is capable of testing hypotheses and establishing causal linkages (Cook et al., 2002). This design will then become a pre-experimental design involving groups. A pre-experimental design is characterized by the inclusion of only one group or class, which undergoes a pre-test and post-test. This design does not involve a control group (Sugiyono, 2017). Simply put, researchers designate one class as the experimental group that undergoes treatment. Both pre-test and post-test were given to this group to determine the effect of therapy. Researchers used the Statistical Package for the Social Sciences (SPSS) Students Version 25 for window to analyze the data The research design can be seen as follows:

Non equivalent control group design

O_1	X	O_2
O_3		O_4

In the experimental class, an audio-lingual method strategy will be implemented which focuses on the application of listening to strengthen students' understanding and language skills. This method emphasizes listening comprehension and repetition to internalize language structures. Meanwhile, the control class will use learning strategies that are coordinated in advance with the teacher who taught the previous class, which may involve traditional methods or more conventional teaching approaches. The aim of this contrast technique is to evaluate the effectiveness of the audio-lingual method compared to other learning approaches, by examining the differences in results between the two groups. in the experimental group, researchers used learning discovery thinking and the tough control group used methods commonly used by researchers in the classroom. This was done to determine the effect of using the Spotify Podcast Application in the experimental group and without using the Spotify Podcast Application in the Control group.

Table 3.1

Research Design

Groups	Pre-test	Treatment	Post-test
Experimental group	Y_1	X_1	Y_2
Control group	Y_1	X_2	Y_2

Y_1 : Pre-Test

Y_2 : Post-Test

X_1 : Using Spotify Podcast Application

X_2 : Without using Spotify Podcast Application

C. Research Setting

1. Location

The research was carried out between December 2023 and January 2024 at SMA 09 Bengkulu City, situated on Jalan WR. Supratman, Bentiring, Muara Bangka hulu, Bengkulu, 38119.

2. Population and Sample

A population refers to a collection of persons who have common features (Creswell, 2012). The population of this study was all students at class X 1, 2 and 3 SMA 09 Bengkulu City.

The sample represents a subset of the entire population (Ary et al., 2010). The sample for this

study comprised all students in classes X.1 and X.2, totaling 58 students. The sample selection in this study was carried out based on several considerations so that the research results can describe the population accurately and relevantly. The following are the reasons underlying the selection of samples in this study :

a. Characteristic Uniformity

Students of grade X.1 and X.2 at SMA 09 Bengkulu City were selected because they have similar characteristics in terms of age, educational background, and curriculum followed. This is important to ensure that these variables do not significantly affect the research results.

b. Population Representation

To guarantee that the sample adequately represents the population of class X pupils at the high school, the researcher can choose to include all students from two specific classes, namely class X.1 and X.2. The total number of 58 students is considered sufficient to provide valid and reliable research results.

c. Affordability and Ease of Access

Selecting students from the same two classes at the same school is also based on considerations of affordability and ease of access for researchers. This allows researchers to conduct interventions and measurements more efficiently and effectively.

d. Adequate Variability

By selecting two different classes, the researcher can reduce the possibility of bias that might arise if only one class is selected. The disparity in individual attributes between the two classes is anticipated to offer a more exhaustive depiction of the impact of utilizing the spotify podcast program on students' listening ability.

e. Consistent Research Method

In this quasi-experimental study, it is important to have a consistent sample group in terms of teaching methods and learning environment. By selecting the same two classes in one school, the researcher can more easily control other variables that might affect the results of the study.

By considering the above factors, the selection of a sample consisting of all students of class X.1 and X.2 at SMA 09 Kota Bengkulu is expected to provide valid research results that can be generalized to the population of class X students at the school.

Tabel 3.2

Population of the research

No	Class	Female	Male	Total
1	X.1	16	13	29
2	X.2	20	9	29
3	X.3	18	11	29
Total Amount				

Tabel 3.3

Sample of the research

No	Group	Class	Gender	Total
1	The Experimental Group	X.2	9 M,20 F	29
2	The Control Group	X.1	13 M,16 F	29
Total Amount				

Tabel 3.4

Similarities Characteristic from Class X

No	Group	Student Class	Maen Score	Teacher
1	The Experimental Group Class X.2	29	78	Teacher A
2	The Control Group Class X.1	29	80	Teacher A

D. Research Procedure

There are several stages or research procedures in quantitative research, including:

1. Research Planning

   This stage is divided into selecting the research design and selecting the sample. The choice of research design was carried out in accordance with the topic discussed, where in this research it was pre-experimental. Next, sample selection is carried out by first determining the target population and then selecting a representative sample.

2. Data Collection

   This stage is divided into instrumentation and data collection. In instrumentation, measurement tools or research instruments are developed, while data collection is carried out in accordance with the research design that has been chosen

3. Data Analysis

This stage is divided into data processing and statistical analysis. Data processing is carried out by cleaning, coding and organizing data for analysis. Meanwhile, statistical analysis is carried out by hypothesis testing

4. Interpretation of Results

This stage is divided into statistical interpretation and conclusions. Statistical interpretation involves analyzing the results of statistical analysis and connecting them to the research topics at hand. Meanwhile, conclusions are written based on research findings

5. Reporting Results

This stage is divided into report writing and graphic presentation. Report writing is carried out sequentially including methodology, findings and interpretation of results. Meanwhile, graphical presentation is carried out by including graphics or tables to help present data clearly

E. Data Collection Technique

Data collection in this research used tests. In pre-experimental research, the researcher administers a pre-test before an intervention or treatment, and then follows up

with a post-test afterwards. This assessment is utilized to gauge the impact of students's auditory aptitude by employing the spotify podcast program. In this study, researchers employed accomplishment exams as a means to assess student performance following their engagement with the subject matter. Therefore, the test instrument is an objective test. Objective tests are categorized into many types, including transformation, completion, combination, addition, rearrangement, matching, true and false, and multiple choice (Stickel, 1988).

1. Research Instruments

a. Test

Tests serve as a tool to assess the advancement of students at each stage of the research process. Apart from that, tests can also be defined as a way to measure a person's abilities, knowledge or performance in a certain domain. The research utilizes pre-test and post-test instruments. An initial assessment is administered at the onset of instruction to gauge students' perceptions of the learning experience prior to utilizing the spotify podcast application. The objective of this assessment is to evaluate the auditory aptitude of the students. Subsequently, a post-test was administered at

the conclusion of the study to determine if there was a substantial improvement in the students' listening ability. This test helps researchers in measuring student improvement.

b. Validity

Validity refers to the degree to which the conclusions drawn from the assessment results are correct, meaningful, and valuable for the assessment. Various forms of validity exist, such as construct validity and content validity.

Construct validity is validity that occurs theoretically and explains causes and effects accurately which can represent real world situations in a model. This pertains to the extent to which the experiment is justified and reasoned.

Content validity is validity that measures the extent to which a content area is desired. To check its validity, the test items were measured using point biserial correlation.

c. Reliability

Reliability is the score of an instrument that is stable and consistent (Creswell, 2012). In addition, reliability is frequently characterized as the constancy and steadiness of data or

findings. To test reliability, the test questions were measured using the Kuder Richardson KR-21 formula.

2. Research Stage

a. Pre-Test

The pre-test stage is carried out to measure students' initial listening ability before being given treatment. The steps at this stage include :

1) Instrument Preparation

Compiling questions or tests that will be used to measure students' listening ability.

2) Implementation of the Pre-Test

Conducting tests on class X students of SMAN 09 Kota Bengkulu. This test is carried out on all students who are the research sample.

3) Analysis of Pre-Test Results

Conducting an analyzing of student’s listening ability through the collection and analysis of test results, in order to establish the appropriate degree of treatment.

b. Treatment

The treatment stage is the stage where students are given special treatment in the form of using the Spotify Podcast application in listening learning activities. This treatment is carried out for 6 meetings. The steps at this stage include :

1) Material Preparation

Determining and preparing podcast material that is relevant and in accordance with the listening learning curriculum in high school.

2) Implementation of Treatment

Providing treatment to students in 6 meetings. Each meeting involves listening to podcasts through the Spotify application. In meetings 1-2, students listen to podcasts containing stories or information that are easy to understand to familiarize them with the podcast format. Meetings 3-4, students listen to more complex podcasts with specific themes relevant to the subject matter. Meetings 5-6, students listen to podcasts and are then asked to summarize or analyze the

contents of the podcast, and answer related questions to measure their understanding.

3) Monitoring and Evaluation

Monitor and record student responses and developments during the treatment period.

c. Post Test

The post test stage is carried out to re-measure students' listening skills after being given treatment. The steps at this stage include :

1) Implementation of the Post Test

Administering the same test or equivalent to the pre-test to students after the treatment period is complete.

2) Analysis of Post Test Results

Collecting and analyzing test results to determine changes or improvements in students' listening ability after being given treatment.

3) Comparison of Results

comparison of results of the pre-test and post-test to evaluate the impact of utilizing the spotify podcast application on students' listening ability.

F. The Technique of Data Analysis

1. Validity of the Test

The validity test in this research was employed to assess the accuracy and reliability of the instrument. The validity test is conducted to assess the accuracy and reliability of the assertions included in the research instrument. Validity, as defined by Sugiyono (2017: 125), refers to the level of certainty regarding the correspondence between the real data observed on the item and the data gathered by the researcher. In order to determine the validity of an item, you should refer to the "Corrected Item-Total Correlation" column in the item-total statistics table generated by data analysis using the SPSS version 26.

Apart from that, the researchers also analyzed the test results using computer statistics such as SPSS version 26. Apart from that, the test results consisted of 20 questions containing education in daily activities. This experiment was carried out to find out the effect of the Spotify podcast application on students' listening abilities.

Table 3.5

Instrument Validity

Question Item	r-value	r-tabel	Interpretation
Question 1	0.074	0,361	Tidak Valid
Question 2	0,003	0,361	Valid

Question 3	0,000	0,361	Valid
Question 4	0,718	0,361	Tidak Valid
Question 5	0,002	0,361	Valid
Question 6	0,837	0,361	Tidak Valid
Question 7	0,682	0,361	Tidak Valid
Question 8	0,385	0,361	Tidak Valid
Question 9	0,001	0,361	Valid
Question 10	0,039	0,361	Valid
Question 11	0,244	0,361	Tidak Valid
Question 12	0,355	0,361	Tidak Valid
Question 13	0,083	0,361	Tidak Valid
Question 14	0,007	0,361	Valid
Question 15	0,165	0,361	Tidak Valid
Question 16	0,094	0,361	Tidak Valid
Question 17	0,017	0,361	Valid
Question 18	0,493	0,361	Tidak Valid
Question 19	0,003	0,361	Valid
Question 20	0,000	0,361	Valid
Question 21	0,164	0,361	Tidak Valid
Question 22	0,064	0,361	Tidak Valid
Question 23	0,074	0,361	Tidak Valid
Question 24	0,718	0,361	Tidak Valid

Question 25	0,837	0,361	Tidak Valid
Question 26	0,355	0,361	Tidak Valid
Question 27	0,001	0,361	Valid
Question 28	0,007	0,361	Valid
Question 29	0,083	0,361	Tidak Valid
Question 30	0,165	0,361	Tidak Valid
Question 31	0,094	0,361	Tidak Valid
Question 32	0,493	0,361	Tidak Valid
Question 33	0,064	0,361	Tidak Valid
Question 34	0,074	0,361	Tidak Valid
Question 35	0,718	0,361	Tidak Valid
Question 36	0,083	0,361	Tidak Valid
Question 37	0,355	0,361	Tidak Valid
Question 38	0,017	0,361	Valid
Question 39	0,003	0,361	Valid
Question 40	0,165	0,361	Tidak Valid
Question 41	0,074	0,361	Tidak Valid
Question 42	0,497	0,361	Tidak Valid
Question 43	0,406	0,361	Tidak Valid
Question 44	0,244	0,361	Tidak Valid
Question 45	0,001	0,361	Valid
Question 46	0,001	0,361	Valid

Question 47	0,057	0,361	Tidak Valid
Question 48	0,064	0,361	Tidak Valid
Question 49	0,007	0,361	Valid
Question 50	0,001	0,361	Valid
Question 51	0,355	0,361	Tidak Valid
Question 52	0,017	0,361	Valid
Question 53	0,003	0,361	Valid
Question 54	0,493	0,361	Tidak Valid
Question 55	0,164	0,361	Tidak Valid
Question 56	0,385	0,361	Tidak Valid
Question 57	0,244	0,361	Tidak Valid
Question 58	0,064	0,361	Tidak Valid
Question 59	0,058	0,361	Tidak Valid
Question 60	0,003	0,361	Valid

Upon evaluating the questions in the table above, it is evident that all 20 statement elements were found to be genuine, resulting in a total of 20 valid questions. From this table it is known that there are 20 questions with a calculated value > rtable, namely questions number 2, 3, 5, 9, 10, 14, 17, 19, 20, 27, 28, 38, 39, 45, 46, 49, 50, 52, 53 and 60, then 20 question items are said to be VALID while the other 40

question items get a calculated r value < r-table, so the 40 question items are said to be INVALID.

Table 3.6

Case processing summary

Cases	Validity	N	Percent (%)
	Valid	20	100.0
	Excluded	0	.0
	Total	20	100.0

2. Reliability of the Study

Reliability testing is conducted to assess the consistency and stability of a research instrument throughout multiple administrations. Testing was carried out using the Cronbach Alpha technique. An instrument can be considered dependable if it has a specification coefficient or alpha of 0.8, which indicates a very good level of reliability. Sugiyono (2017:130) defines a reliability test as the degree to which repeated measurements of the same thing consistent findings. A questionnaire is considered reliable if an individual's responses to claims remain constant or stable over a period of time.

The researcher obtained the dependability score using the SPSS 26 software. Subsequently, the researcher retrieved the answer sheets and assigned a score depending on the accuracy of the answers. Then the researcher analyzed all the items using SPSS to look for valid items that could be used in the research sample at SMAN 3 In Bengkulu City.

Table 3.7

Instrumen Reliability

Reliability Statistics

Cronbach's Alpha	N of Items
.919	20

The reliability of instruments is a dependable tool for collecting data. Following the assessment of the research instrument's validity, the study proceeded to test the reliability of the data using IBM SPSS Statistics 26. The Cronbach's Alpha formula was employed, with a criterion stating that a research instrument is considered reliable or consistent if the Cronbach's Alpha value exceeds 0.60 (Herlawan, 2021). So therefore The table above describes the results of the Listening Ability reliability test using the Cronbach's Alpha Test. From this table, the Cronbach Alpha Test value is 0.919. Because the Cronbach's Alpha

value is 0.919 > 0.60, all Listening Ability statement items are said to be reliable.

3. Normality Test

The normality test is a method used to ascertain if data from a population follows a normal distribution. He assesses whether the data follows a normal distribution or not. The research employs a test to assess the normalcy of the data. The formula used in this research is:

If the results of the chi-squared normality test exceed the value in the chi-squared table, it indicates that the collected data follows a normal distribution or is derived from a normal population. Conversely, if the results of the chi-squared normality test are lower than the value in the chi-squared table, it suggests that the data does not follow a normal distribution (Sugiyono, 2013: 95).

4. Homogeneity Test

The homogeneity test is employed to ascertain the equality or disparity among multiple population variants. This test was conducted as a preliminary step for the independent sample t test and anova analysis. The fundamental assumption of analysis of variance (anova) is that the variances of the populations being compared are equal. The test for equality of two variances is employed to

determine if the distribution of data is homogenous or not, specifically by comparing the two variances. If many data groups exhibit equal variances, there is no need to conduct the homogeneity test again as the data is deemed homogenous. The homogeneity test can be conducted when the data set follows a normal distribution. The homogeneity test is conducted to demonstrate that variations observed in parametric statistical tests (such as t-tests, anova, and ancova) are a result of differences across groups, rather than differences within groups. Conducting a homogeneity of variance test is crucial prior to comparing two or more groups in order to ensure that any observed differences are not due to variations in the underlying data, rather than differences between the groups being compared.

5. T-test

The T test is a statistical test used to assess differences in data analysis between the experimental group and the control group (Sugiyono, 2018: p. 159). The T-test was employed in this study to ascertain substantial

disparities in data outcomes between students' proficiency in comprehending vocabulary, utilizing word mapping media in the experimental group, and students' proficiency in comprehending vocabulary without the incorporation of word mapping media. The analysis will utilize the SPSS T test, employing the appropriate calculation. When other independent variables are held constant, tests are conducted to evaluate the significance of the partial impact of the independent factors on the dependent variable.

a. If the significance level is <α (0.05), then each independent variable has a statistically significant influence on the dependent variable.

b. If the level of significance is greater than >α (0.05), it indicates that the independent variable does not have a significant effect on the dependent variable when considered individually.

6. The Effect Size

The final step in this analysis test in order to measure how we are strengthening the technique or the media, the

researcher used cohen's 33 formulation based on cohen was cited by Daniel Muijs as follows (Muijs, 2004) :

$$d = \frac{(mean\ of\ group\ A\ mean\ of\ group\ B)}{Pooled\ Standard\ Deviation}$$

Pooled Standard Deviation=

(The sum of the standard deviations of group 1 and group 2)

Whereas the criteria of the effect size level are:

1) 0,00-0,195 very weak effect
2) 0,20-0,395 weak effect
3) 0,40-0,595 modest effect
4) 0,60-0,749 = strong effect
5) 0,80-1,00 = very strong effect

7. Stastical Hypothesis

The writer sought to determine whether local cultural content has any impact on students' listening skills. Furthermore, the author computed the data from both the experimental and control groups using the T-test formula, as outlined below:

1) The null hypothesis (Ho) is invalidated and the alternative hypothesis (Ha) is supported, indicating a substantial impact of Local Culture Content on Students' Speaking Proficiency.
2) The null hypothesis (Ho) is upheld and the alternative hypothesis (Ha) is rejected, indicating that there is no statistically significant impact of Local Culture Content on Students' Speaking Proficiency