

## CHAPTER III

### RESEARCH METHOD

This chapter describes Time and location of research, population and sample, research methods and procedures, research instruments, data analysis techniques, and statistical hypotheses.

#### 3.1 Time and Location of the Research

This research was conducted in Tenth MA Muhammadiyah 01 Medan in Academic Year 2023/2024. The research takes time for one month, for the meeting there, consisting of the first week of meeting to carry out the pre-test then the second and third week of the meeting will be held a treatment then the meeting in the fourth week is held by a post-test.

NO	DATE	ACTIVITY
1	1 Mei 2023	Pre-test
2	8 Mei 2023	Treatment I
3	15 Mei 2023	Treatment II
4	29 Mei 2023	Post-test

Table 3.1 Schedule of the Research

#### 3.2 Population and the Sample of the Research

##### 3.2.1 Population of Study

According to Ali (1984), population is the total number of respondents to the study. According to Sukandarrumidi (2004), the population consists of all of the subjects of the study. To put it another way, all of the people whose information is gathered constitute the population. This study's participants are tenth-grade students' at Ma Muhammadiyah 01 Medan during the 2023/2024 school year. there 80 students' were divided into grade X IPA and grade X IPS .

<b>Class</b>	<b>The Number of Student</b>
X- IPA	33 Students
X-IPS	47 Students
<b>Total</b>	<b>80 Students</b>

**Table 3.2 Table of population**

### 3.2.2 Sample of Study

As per Ali (1984), the example addressed the populace. According to Fraenkel (1993), the group from which information is collected is also known as the sample. It is favored that the example was picked so as to address a more prominent gathering or populace.

"Totally sampling" was used in this study as a method of sampling. Examining strategy where the quantity of tests is equivalent to the populace (Sugiyono, 2007). Sugiyono (2007) states that because the total population is greater than or equal to one hundred, total sampling is used as a research sample.

Used as sample The research sample for this study consisted 2 class . the first class is X-IPA considered as experimental class and are tough by spotify application and the second class is X-IPS considered as controlled class and were taught without application or conventional method . Both classes have the same english instructor.

<b>Class</b>	<b>The Number of Student</b>	<b>Method</b>
X-IPA	33 Students	Experimental Class
X-IPS	47 Students	Control Class
<b>Total</b>	<b>80 Students</b>	

**Table 3.3 the Sample of Study**

### 3.3 Research Methods and Procedures

### 3.3.1 Method of Research

Arikunto (2006) says that an exploration strategy is a technique that the scientist makes to assist them with doing the examination on the grounds that the reason for this study was to decide the impact of the Spotify application on understudies' listening perception. To determine the associative causation of two variables in order to obtain data from a specific location naturally and without manipulation, this study employed a quantitative research design with a quasi-experimental approach (Sugiyono, 2013; 2008, Priyono). A test, in particular, will be administered by the researcher to differentiate students' listening comprehension. Furthermore, to figure out how critical the impact of the Spotify application is on understudies' listening abilities, the scientist then will direct a pretest and posttest. As supporting data for research and documentation, test results will be gathered.

This study aims to determine whether or not using Spotify music or podast to teach listening comprehension to tenth-grade students at MA Muhammadiyah 01 Medan is effective. The experimental group will be asked for treatment results on the pre-test and post-test as instruments for data collection. To determine their scores, students take a pre- and post-test. Thus, researchers will discover significant differences prior to and following the use of Spotify music or podcash to teach listening by comparing the pre-test and post-test.

The design in this research is conducted by Ali (1984) as follows:

Group	Pre-tests	Treatment	Post-test
Controlled	T1	Dictation	T2
Experimental	T1	Spotify	T2

**3.3 Table Research Design**

Note:

T1: Pre-test

X1: Treatment with Dictation Method

X2: Treatment with Spotify Application

T2: Post-test

### **3.3.2 Procedures of Research**

The information that utilized in this study are quantitative information. It shows that utilizing mathematical or factual information suggests information (Nerve, 2003). To ascertain how students' listening comprehension was affected by the spotify application, the researcher employed a quasi-experimental research design. Tests are the technique used to gather information. The test has 35 multiple-choice questions. What's more, the understudies have an hour to answer each inquiry. The researcher gathered information by administering a pre- and post-test.

#### **1. Pre-test**

The students' prior listening comprehension will be evaluated using the pre-test before the treatment begins. In this instance, the researcher instructs the students to listen to podcasts on a particular topic.

#### **2. Treatment**

Following the completion of the pre-test, the researcher will use the Spotify app on their smartphone to administer the treatment. The treatment will complete by the specialist in two gatherings. In this instance, the researcher will ask the students to download the Spotify app to their smartphones from the Play Store. One podcast is made by the researcher using the application. During treatment, the researcher first discusses treatment-related information. The researcher then walks the students through the application and demonstrates how it works.

#### **3. post-test**

The scientist will then, at that point, possess energy for the question and answer session segment. From that point onward, the specialist plays a digital recordings for the understudies to pay attention to. The listening test must be completed by students three times per day. The specialist will direct treatment at the accompanying social occasion.

All understudies will step through the post-exam, which indistinguishable from the pre-test and expected to measure their advancement and interest in listening cognizance. Students will receive this to assess their listening progress following treatment.

### **3.4 Instrument of Study**

Researcher will use listening test research instruments. The researcher used a test in the form of a filled-in test. The filling test is a form of connecting sentences, in which students are asked to fill in the blank sentences. This type of the test to fill in some missing word. the researcher chose "**verb**" as the word to be removed to fulfill the requirements of the test. then The test consists of 35 blank words. Students will have a time limit for answering all questions of around 60 minutes and the answer sheets are will use as a medium for answering the test.

#### **3.4.1 Validity Test**

Validity is a metric that indicates the extent to which an instrument is valid. High and low number calculation validity shows the high and low of the data collected through instruments on the variables studied. The reliability used relates to the tools used to make measurements (measuring instruments or collecting instruments data). To determine valid item items, the correlation formula is used Product Moment with rough numbers, namely:

$$r_{x,y} = \frac{N \cdot \sum XY - (\sum X)(\sum Y)}{\sqrt{(N \sum X^2 - (\sum X)^2)(N \sum Y^2 - (\sum Y)^2)}}$$

information:

$r_{x,y}$  = Product moment correlation coefficient

N = The number of students

X = Question item score

Y = Student question score.

It is valid if the probability of correlation is less than or equal to 0.05 percent, while it is invalid if it is greater than or equal to 0.05 percent.

The content must be tested for content validity in this study, and the test must be appropriate for the class. To ensure that the test did not lack content, the researcher based it on the syllabus's objectives. Additionally, this exploration preliminary had content legitimacy since things were taken from hotspots for 10th grade understudies in Mama Muhammadiyah.

"An instrument is said to be valid if it can measure what is desired," states Arikunto (2003). The high and low legitimacy of the instrument shows the degree to which the information gathered doesn't go astray from the portrayal of the expected legitimacy.

The SPSS 22 application was used by the researcher to calculate the instrument's validity. Here is the result of the validity as follow:

no	Indicators	Number of items	pearson correlation	R Table	Sig. (2-tailed)	Result
1	The main idea of the text	1	0,623	0,396	0,567	Valid
2	Asking for the setting of	2	0,691	0,396	0,585	Valid

	the place					
3	Asking for the time setting/asking the purpose from the story	3	0,632	0,396	0,445	Valid
4	Determining explicit information	4	0,539	0,396	0,407	Valid
		5	0,437	0,396	0,789	Valid
5	Matching words	6	0,398	0,396	0,576	Valid
		7	0,512	0,396	0,851	Valid
		8	0,458	0,396	0,776	Valid
6	Showing evidence	9	0,427	0,396	0,495	Valid
		10	0,568	0,396	0,576	Valid
7	Characters in the story	11	0,546	0,396	0,425	Valid
		12	0,498	0,396	0,503	Valid
		13	0,623	0,396	0,723	Valid
8	Conclution from the story	14	0,462	0,396	0,432	Valid
		15	0,606	0,396	0,421	Valid
9	true or false question	16	0,668	0,396	0,445	Valid
		17	0,432	0,396	0,578	Valid
		18	0,411	0,396	0,408	Valid
10	Moral value from the story	19	0,413	0,396	0,492	Valid
		20	0,825	0,396	0,405	Valid

**Table 3.4 the Instrument of Validity Result**

### 3.4.2 Reliability Test

Sugiyono (2016) says that research where there are data similarities at different times leads to reliability. The ideal test ought to be both dependable and substantial. In this examination, the specialist additionally utilized SPSS 22.0 for windows, this strategy performed with Cronbach

Alpha, which the instrument solid if the mark of Cronbach Alpha more than 0.06. A formula can be used to estimate the test's overall reliability (Sugiyono, 2017). as follow:

$$r_{11} = \left( \frac{n}{n-1} \right) \left( 1 - \frac{\sum \sigma_i^2}{\sigma_t^2} \right)$$

information:

$r_{11}$  = Instrument reliability sought.

$\sum \sigma_i^2$  = Total variance score of each question.

$\sigma_t^2$  = Total variance.

$\sigma_i$  = Number of questions.

To provide an interpretation of  $r_{11}$ , the price of  $r_{11}$  can be compared with  $r_{table}$  the significance level of 5%. If  $r_{11} > r_{table}$ , then the item is reliable. Meanwhile, if  $r_{11} < r_{table}$ , then the item is said to be invalid.

Here is the after effect of solid testing by utilizing SPSS 22.0 from the tryout result should be visible from the table:

Cronbach's Alpha	N of Items
,739	21

**Table 3.5 Reliability Statistics Result**

Cronbach Alpha ( $\alpha$ ) > 60% (0,60) indicates that the research variable is reliable, while Cronbach Alpha ( $\alpha$ ) < 60% (0,60) indicates that the variable is not reliable.

### 3.5 Data Analysis Technique

#### 1. Techniques of Scoring Data

The understudies' accomplishment and execution on the pre-, treatment-, and post-tests are analyzed in this examination. The specialist



utilizes a coring guide, which incorporates rating scales for jargon, perception, and memory level, for both the pre-and post-tests.

The following formula was used by the researcher to convert the students' listening comprehension score in order to determine their listening English comprehension (Sudijono, 2011):

$$\text{Student's Score} = \frac{\text{the gain score}}{\text{the maximum score}} \times 100$$

Working out the mean score, standard deviation, recurrence table, and the worth of t-test in recognizing the contrast between pre-test and post-test by involving inferential examination in SPSS.

## 2. Normality Test

In the first place, what should be finished prior to leading exploration is to the test ordinariness of the information. The purpose of this is to ascertain whether or not the data follow a normal distribution. The lilliefors test was utilized in this study. As per (Sudjana 2005), testing the ordinariness of the information got in the review utilized the test steps utilizing the Liliefors test, specifically:

- a. Sort values  $x_i$  sorted from the smallest value to the largest value.
- b. observation  $x_1, x_2, x_3, \dots, x_n$  used as a standard number  $z_1, z_2, z_3, \dots, z_n$  by using a formula  $z_i = \frac{x_i - \bar{x}}{s}$  (  $\bar{x}$  and  $s$  are the mean and standard deviation of the sample, respectively).
- c. From each of these standard values can be searched for critical values  $z$  ( $z_{\text{table}}$ ) by using the standard normal distribution list, then the probability is calculated  $F(z_i) = P(z > z_i)$  provided that  $z_i$  negative, so  $F(z_i) = 0,5 - z_{\text{table}}$ , whereas if  $z_i$  positive, so  $F(z_i) = 0,5 + z_{\text{table}}$

d. next calculated proportions  $z_1, z_2, z_3, \dots, z_n$  which is smaller or equal to  $z_i$ .

$$S(z_i) = \frac{\text{banyaknya } z_1, z_2, z_3, \dots, z_n \text{ yang } \leq z_i}{n}$$

If this proportion is expressed by,

e. Calculate the difference  $F(z_i) - S(z_i)$  Then determine the absolute price.

f. Take the biggest price between the absolute prices of the difference, this price is referred to as  $L_{mutlak}$ .

Utilizing a table of the critical values of the Liliefors test with a significant level of  $\alpha = 5\%$ , compare  $L_{hitung}$  with  $L_{table}$  when making decisions. The sample is normally distributed if  $L_{hitung}$  is less than  $L_{table}$ , and the sample is not normally distributed if  $L_{hitung}$  is greater than  $L_{table}$ .

### 3. Test of Homogeneity.

The purpose of the homogeneity test was to ascertain whether the data from the two groups came from the same uniform condition. The F test was completed by looking at the biggest difference isolated by the littlest change. The following formula was utilized by the author (Sugiono, 2012)

$$F = \frac{\text{variance biggest}}{\text{variance smallest}}$$

variance biggest variance smallest The criteria of the homogeneity test describe as follow:

a) If  $F_{value} < F_{table}$ ,  $H_0$  is accepted.

b) If  $F_{value} > F_{table}$ ,  $H_0$  is Rejected

In this research, the data indicates that the Pre-test and Post-test variant data in experimental and controlled classes are homogenous. It because coefficient of Fcount is smaller than Ftable and the value of the Ftable at the level of  $\alpha = 0,05$ .

### 3.6 Statistical Hypothesis

The purpose of this study is to determine whether or not using the Spotify app to teach English music listening comprehension in the tenth grade at Ma Muhammadiyah 01 medan in the academic year 2023/2024 is effective. The researcher employs two hypotheses in this study: the null hypothesis ( $H_0$ ) and the alternative hypothesis ( $H_a$ ), respectively.

According to the researcher, the following rule was followed in this study's hypothesis:

1. The invalid speculation ( $H_0$ ) is dismissed and the elective speculation ( $H_a$ ) is acknowledged whether the huge worth is under 0.05. This shows that the utilization of the Spotify application in the 10th Grade of Mama Muhammadiyah 01 medan in the scholastic year 2023/2024 is successful for showing Listening Cognizance.
2. The elective speculation ( $H_a$ ) is dismissed and the invalid speculation ( $H_0$ ) is acknowledged whether the huge worth is more prominent than 0.05. This suggests that teaching Listening Comprehension in the tenth grade of Ma Muhammadiyah 01 medan in the academic years 2023 and 2024 using the Spotify app is ineffective.

#### 3.6.1 t-test

After conducting the normality and homogeneity tests, the writer needs to analyze the result of pre-test and post-test from experimental and controlled class. researcher using a one way hypothesis test to determine the difference.

- $H_0 : \mu_1 > \mu_2$  ( There is no difference after or before using spotify application to improve students listening comprehension)
  - $H_\alpha : \mu_1 < \mu_2$  (There is a difference after or before using spotify application to improve students listening comprehension )
- (a) The analyst saw if Spotify application was full of feeling or not. t-test is a factual examination procedure that can be utilized to decide if there are measurably massive contrasts between the example method for two gatherings. to choose whether to accept or reject a hypothesis. The ordinariness information was acknowledged by utilizing lilliefors test as per the standards:
- (b) (a) Whether  $H_0$  should be accepted or rejected by comparing it to the critical value of the level  $L_{table}$ , which is  $= 0,05$ . If  $L_o$  is lower than  $L_{table}$ , the criterion is accepted.
- (c) (b)  $H_a$ : the information conveyance isn't ordinary  $H_0$ : the information dispersion is ordinary In this exploration, the information shows that the information of Pre-test and Post-test in exploratory and controlled classes are typical appropriated on the grounds that  $L_o$  is lower than  $L_{table}$ . It was contrasted with the critical level  $L_{table}$  value of  $= 0,05$ .

The writer used Paired sample t-test formula as follow (Sugiono, 1997):

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2} - 2r \left( \frac{s_1}{\sqrt{n_1}} \right) \left( \frac{s_2}{\sqrt{n_2}} \right)}}$$

In Term:

$x_1$  = the mean score of the experimental class

$x_2$  = the mean score of the controlled class

$n_1$  = the number of experimental class

$n_2$  = the number of controlled class

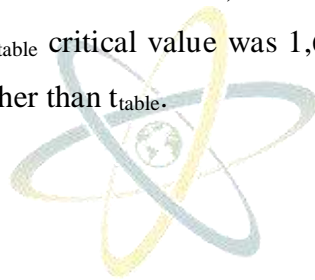
$s_1^2$  = variance of experimental class

$s_2^2$  = variance of controlled class

$s_1$  = standard deviation of experimental class

$s_2$  = standard deviation of controlled class

In this research,  $t_{table}$  was calculated with the degree of freedom 59 ( $df= N_1+ N_2 - 2$ ) at a significant level of 0,05. It indicates that  $t_{table}$  critical value was 1,671. It can be concluded that  $t_{observed}$  was higher than  $t_{table}$ .



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