CHAPTER III

RESEARCH METHOD

This chapter discusses some items, namely, research design, subject of the research instrument, data collection and data analysis.

A. Research Design

The design of this study is experimental study. In this study, the researcher wants to look whether the usage of the classical music has effect to increase students' English achievement at the first year students of STM Ar-Rahmah. The researcher also wants to know if there is the difference between students' English achievement that is taught using classical music with the students' English achievement that is not taught using classical music.

"Experimental method that is used to find whether there is the influence between two variables that includes causal effect relationship".[25]

Table 3.1 Two groups, randomized subjects, pre test, post test design.

Student Group	Pre test	Treatment	Post test
1	Xm1	M	Xm2
2	Xw1		Xw2

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[25] Sukardi, Metodologi Penelitian Pendidikan, (Jakarta: Bumi Aksara, 2004), 179

The steps applied in this research are:

a. Choosing two groups of subject, one group will use classical music in the learning process and another will not use classical music.

b. Collecting data. It will be gotten from the test for experimental and control group.

c. Comparing the scores between $\overline{X}m_1$ and $\overline{X}m_2$ of experimental group

d. Comparing the scores between $\overline{D}m(\overline{X}m_2 - \overline{X}m_1)$ and $\overline{D}w(\overline{X}w_2 - \overline{X}w_1)$

e. The difference of the scores is interpreted as the influence of the independent variable on the dependent variable.

B. Variable of Research

In this study, the researcher decides three variables to support the study. Those variables are:

a. Independent variable is classical music.

b. Dependent variable is English achievement.

c. Extraneous variable are the researcher and another factors that influence students achievement which is explained in chapter II. In this research, researcher as a teacher with the consideration, to make the researcher easy to operate the kind of classical music in experimental class.

C. Population and Sample

1). Population

In determining the population of this research, the researcher takes STM Ar-Rahmah Papar Kediri and chooses the first year students. It consists of five classes, each of which has at least 35 students. So, there are 175 students at the first year students of STM Ar-Rahmah.

2). Sample

In this case the researcher uses random sampling. There are many ways to do random sampling. The easier one is lottery[26]. The researcher makes 5 rolled papers that are filled with the class names. Then researcher takes two rolled paper (straw the rolled papers which will become the sample). So, there are two classes which consist for about 70 students will be taken as the sample. First class is MO 3 (Mesin Otomatif 3) will get the classical music in the learning process. The second class is MO 1 (Mesin Otomatif 1) does not get the classical music.

D. Treatment

The treatment here is using classical music in the learning process. Before giving the treatment in the learning process, the researcher is going to presents the aim of using classical music to the teacher and the students as well.

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[26] Eriyanto, *Teknik Sampling* (Yogyakarta: Penerbit LkiS, 2007), p.75.

The following table is the researcher's activity in the learning process in the classroom.

Table 3.2 Researcher's activity in the classroom

NO	Control Group	NO	Experimental Group
	Opening Class		**Opening Class**
1.	Greeting	1.	Greeting
2.	Introduction, because it was the first meeting in this class	2.	Introduction. Here, the researcher gave the explanation about how the learning process would run using classical music
3.	Pre test	3.	Pre test
	Teaching Learning Process		**Teaching Learning Process**
1.	Ice breaking to make the students fresh after they did pre test	1.	The researcher played the classical music. Here, the whole activity in the teaching learning process will be accompanied by classical music
2.	Discussion 2.1 Dividing the class into 4 groups. The researcher gave the time to the students to discuss and make resume	2.	Ice breaking to make the students fresh after they do pre test

	about Tag question.		
3.	One of the students from each group explained the resume in front of the class	3.	Discussion 3.1 Dividing the class into 4 groups. The researcher gave the time to them to discuss and make resume about Tag question.
4.	The researcher gave the explanation more and made the conclusion about Tag question.	4.	One of the students from each group explained the resume in front of the class
5.	Giving the time for the students to ask about tag question	5.	The researcher gave the explanation more and made the conclusion about Tag question
6.	The researcher asked the students to make 5 Tag questions	6.	Giving the time for the students to ask about tag question
7.	The researcher asked the students to write the tag question in the blackboard and discuss together	7.	The researcher asked the students to make 5 Tag questions
8.	The students did the work sheet	8.	The researcher asked the students to write the tag question in the blackboard and discussed together

9.	Discussing the worksheet	9.	The students did the work sheet
		10.	Discussing the worksheet
	Closing The Class		**Closing The Class**
1.	Remained to prepare the post test	1.	Remained to prepare the post test
2.	Salam	2.	Salam

E. Instruments

In this study, researcher uses some instruments to get the data. Those are test, laptop and speaker active. For test the researcher do pre test and post test.

I. Test

The instrument of this study is test. The test is used to get the data about the students' proficiency in English. The test is given in a written test. Before the instrument is given in the real situation, it is tried out first. The test was tried out in the first class MO 4 of STM AR-RAHMAH on 20 April 2009. There are 35 students join in that try out.

The aim of conducting try out is to check time allocation, to know the validity, reliability, and effectiveness of the test items. If there are the items that are not satisfy, they will be deleted.

The time allocation in try out is 75 minutes. The try out consist of 60 questions of multiple choices. After the try out is done, the researcher determines

the validity, reliability, and effectiveness of the test items, then researcher divides that test items for pre test and post test.

All good tests must be valid, reliable, and effective.

1.1 Validity

Validity is defined as the degree to which of test measure what it claims to measure[27]. Validity refers to extent to which an instrument measure what is intended to measure. It means that a valid test of a subject would measure the subject it self and not other than it. Content validity is concerned with what goes into the test. Thus, the degree of content validity in classroom test is related to how well the test measures the subject that is studied.

1.2 Reliability

Reliability (R) is the characteristic of a test that has the ability to produce constant measurement. Reliability means the degree to which a test consistently measure whatever it means[28]. So, reliability means the stability of test score. A test can not measure anything well unless it measures consistently. In this study, the reliability of the test is measured by an internal consistency technique using K-R.21[29]. This technique is easier because it can avoid the error counting. In K-R.21 we just need the total score; Varians from total score (Sd^2 from total score).

[27] James Dean Brown, *Understanding Research in Second Language Learning* (USA: Cambridge University Press, 1998)

[28] Heaton J. B, *Classroom Testing*, (New York :Longman Group UK, 1990) p. 56

[29] Toha, Chabib *Teknik Evaluasi Pendidikan* (Jakarta: PT Raja Grafindo Persada, 1996) p. 136.

This is the formula of K-R.21[30].

$$K - R.21 = \left(\frac{K}{K-1} \right) \left(1 - \frac{X(K-X)}{K.Sd^2} \right)$$

In which:

X : Mean of the test score

K : The total test items

Sd : Total Varians

Table 3.3 Reliability of the test

No	Row Score (X)	X^2
Aan Andrianto	60	3600
A'an Wijaya	55	3025
Abdul Latif	42	1764
Abid Soiekan	56	3136
Achmad Muja'i	50	2500
Ahmad Apriyono	40	1600
Ahamad Musyafa'	54	2916
Aris Nur Pratama	42	1764
Awab Abdullah	47	2209

[30] Soenardi Djiwandono, *Tes Bahasa Dalam Pengajaran* (bandung: Penerbit ITB Bandung, 1996) p.148

Bagus Junaidi A	40	1600
Dheni Lestari	52	2704
Edi Wicaksono	39	1521
Eko Sumarsono	51	2601
Eko Suprapto	45	2025
Eko Wahyudianto	46	2116
Febri Catur B	55	3025
Hadi Prasetyo	47	2209
Hoby Maulana	49	2401
Ilham Iswantantoro	44	1936
Imam Bukori	53	2809
Khoirul Anwar	47	2209
M. Habibi Sholikin	43	1849
M. Ngubaidilah	49	2401
M. Wahyu Adi Wibowo	45	2025
M. Zulfan Arif	44	1936
Miftahul Ulum	57	3249
Moh.Harun Perdana	60	3600
Moh. Salim	57	3249
Mohammad Ibnu Rouf	59	3481
Mohammad Irawan	55	3025

Much. Ikhsan	46	2116
Nurrohman	40	1600
Rendra Syahbuddin A	58	3364
Rizadi Joko Santoso	45	2025
Samsul Arifin	53	2809
Total	1725	86399

1.2.1 Mean

$$\overline{X} = \frac{X}{N}$$

In which:

X   · The total of test score

N   : Numbers of testes

$\overline{X}$ = $\frac{1725}{35}$

$\overline{X}$ = **49, 29**

1.2.2 Varians[31]

$$Sd^2 = \frac{\sum x}{N}$$

in which $\sum x$ is Total quadrate score X and X^2

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[31] Anas Sudijono, *Pengantar Evaluasi Pendidikan*, (Jakarta, PT Raja Grafindo Persada, 1998) p.257

$$\sum x = X^2 - \frac{(X)^2}{N}$$

$$\sum x = 86399 - \frac{(1725)^2}{35}$$

$$\sum x = 86399 - 85017,86$$

$$\sum x = 1381,14$$

$$Sd^2 = \frac{\sum x}{N}$$

$$Sd^2 = \frac{1381,14}{35}$$

$$Sd^2 = 39,46$$

1.2.3 Reliability

$$K - R.21 = \left(\frac{K}{K-1}\right)\left(1 - \frac{X(K-X)}{K.Sd^2}\right)$$

$$K - R.21 = \left(\frac{60}{60-1}\right)\left(1 - \frac{49,29(60-49,29)}{60.39,46}\right)$$

$$K - R.21 = \left(\frac{60}{59}\right)\left(1 - \frac{527,8959}{2367,6}\right)$$

$$K - R.21 = 1,02(1 - 0,22)$$

$$K - R.21 = 0,79$$

Based on this criterion, the reliability estimate for 60 the test items is 0, 79. So, the test is reliable.

1.3 The effectiveness of the test

The effectiveness of the test can be measured from two points. They are items difficulty and discrimination power. According to Haris, item are said to be statically satisfactory if they meet two requirements. They are of suitable level of difficulty and discrimination power[32].

1.3.1 The index of an item difficulty

The index of difficulty of an item simply shows how easy and difficult the particular item in this test. It is calculated with this formula:

$$P = \frac{R}{N}$$

In which, R = the testee who can answer correctly the test items

N = total of testee

1.3.2 The discrimination power

The discrimination power means how the test items are able to distinguish the upper students and the lower students. It is important to

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[32] David P Haris, *Testing English As Second Language* (New York, MC Graw Hill Book Company, 1969) p. 103

know the discrimination power of test because the students have different ability so, the test should show difference of the testee's ability.

The formula that is used to count the discrimination power is:

$$D = \frac{U - L}{N}$$

In which, U = the numbers of the students in the upper group that answered the item correctly.

L = the numbers of the students in the low group

N = testee who answer the items correctly

The measurement of index difficulty and index discrimination power can be seen on the following table.

Table 3.4 Item analysis

No	U	L	U+L	U-L	P	D	Comment
1	14	6	20	8	0,57	0,40	Used
2	18	10	28	8	0.80	0.29	Used
3	14	6	20	8	0.57	0.40	Used
4	15	9	24	6	0.69	0.25	Used
5	17	10	27	7	0.77	0.26	Used
6	17	7	24	10	0.69	0.42	Used
7	11	3	14	8	0.40	0.57	Used
8	25	9	34	16	0.97	0.47	Deleted

9	17	11	28	6	0.80	0.21	Used
10	17	9	26	8	0.74	0.31	Used
11	20	11	31	9	0.89	0.29	Deleted
12	12	8	20	4	0.57	0.20	Used
13	15	6	21	9	0.60	0.43	Used
14	19	9	28	10	0.80	0.36	Used
15	27	17	44	10	1.26	0.23	Deleted
16	20	8	28	12	0.80	0.43	Used
17	23	14	37	9	1.06	0.24	Deleted
18	17	11	28	6	0.80	0.21	Used
19	16	10	26	6	0.74	0.23	Used
20	17	7	24	10	0.69	0.42	Used
21	8	5	13	3	0.37	0.23	Used
22	30	15	45	15	1.29	0.33	Deleted
23	13	5	18	8	0.51	0.44	Used
24	24	9	33	15	0.94	0.45	Used
25	25	3	28	22	0.80	0.79	Used
26	16	7	23	9	0.66	0.39	Used
27	22	17	39	5	1.11	0.13	Deleted
28	18	11	29	7	0.83	0.24	Deleted
29	17	7	24	10	0.69	0.42	Used

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30	18	10	28	8	0.80	0.29	Used
31	9	5	14	4	0.40	0.29	Used
32	19	7	26	12	0.74	0.46	Used
33	23	14	37	9	1.06	0.24	Deleted
34	16	7	23	9	0.66	0.39	Used
35	22	10	32	12	0.91	0.38	Deleted
36	18	11	29	7	0.83	0.24	Deleted
37	10	5	15	5	0.43	0.33	Used
38	8	3	11	5	0.31	0.45	Used
39	16	10	26	6	0.74	0.23	Used
40	21	7	28	14	0.80	0.50	Used
41	13	3	16	10	0.46	0.63	Used
42	17	5	22	12	0.63	0.55	Used
43	20	7	27	13	0.77	0.48	Used
44	11	4	15	7	0.43	0.47	Used
45	17	5	22	12	0.63	0.55	Used
46	10	2	12	8	0.34	0.67	Used
47	9	3	12	6	0.34	0.50	Used
48	11	5	16	6	0.46	0.38	Used
49	18	10	28	8	0.80	0.29	Used
50	14	5	19	9	0.54	0.47	Used

51	14	3	17	11	0.49	0.65	Used
52	21	5	26	16	0.74	0.62	Used
53	19	9	28	10	0.80	0.36	Used
54	12	3	15	9	0.43	0.60	Used
55	7	2	9	5	0.26	0.56	Used
56	15	7	22	8	0.63	0.36	Used
57	19	6	25	13	0.71	0.52	Used
58	19	9	28	10	0.80	0.36	Used
59	17	6	23	11	0 66	0.48	Used
60	13	4	17	9	0.49	0.53	Used

The test item that has a good difficulty level is showed between 0, 20-0, 80. The test items that are not included on that criterion are 8, 11, 15, 17, 22, 17, 11, 24, 27, 33, 35, and 36. Those items are not used in pre test and post test.

The item that has a good discrimination power is showed between 0, 20- 0, 70. The item that is not included on that criterion is 27. So, this item can not be used on pre test and post test are items number.

After the researcher analyzes those test items, the researcher finds 50 items that will be used in pre test and post test. Those items have the same

quality. So, the researcher random those items for pre test and post test, 25 items for pre test and 25 items for post test.

I.1 Pre Test

The test should indicate the capability of the students. It is done to know the students' basic ability before they get the treatment that is the use of classical music in the learning process. Here, the pre-test is done by both experimental and control groups. Pre-test consist of 25 numbers of multiple choice, and time allocation is thirty minutes.

I.2 Post Test

Post-test is also done by both of two classes. The number of questions of the post-test is the same as that of pre-test but in different items. Post-test is given after the students get the treatment. From this post-test, the researcher will get the score to know the students' English achievement in experimental group after they get classical music in the learning process and compare the Mean with that of the students' achievement in control group. It means that this test is used as the evaluation of the learning process.

II. Laptop and Speaker Active

To support this study, the other instruments that are used are laptop and speaker active. So, the researcher uses laptop and speaker active as media to support the learning process. Laptop is used to turn over the classical music in the

learning process. Because there are many kinds of classical music, the researcher avoids the use of tape recorder. Then the speaker active is used in order that the students can listen to the classical music. In this study, the researcher takes the speaker active in front of the class and in the back. So, all of the students can listen and enjoy the classical music in the teaching learning process.

G. Data Collection

The data will be collected through the test and observation. The test will be done two times, those are pre test and post test. And the observation was done before the class is given classical music and as long as the learning process runs with classical music.

H. Data Analysis

In analyzing the data, the researcher uses the comparative analysis to know difference between independent and dependent variable. We can call it test of significance.

In analyzing the data which is gathered by result of the test, the researcher uses t. test or students test for the significance of difference between two means of experimental group. The formula that is used as follow[33]

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[33] Suharsini Arikunto, *Prosedur Penelitian* (Jakarta: Penerbit Rineka Cipta, 2002) p.276

$$t = \frac{\overline{D}m}{\sqrt{\dfrac{\sum S^2 dm}{Nm(Nm-1)}}}$$

In wich, $\overline{D}m$ = Gain between post test and pre test of experimental

group

$S^2 dm$ = Quadrate of deviation of experimental group

Nm = Total testee in of Experimental Group

If calculate-t > t table it means that there is difference between pre test and

post test. So, that classical music can increase students' English achievement.

Then to know the difference between the increasing of students' English

achievement that is taught using classical music with the increasing of students'

English achievement that is not taught using classical music, the researcher looks

for $\overline{D}$.

$\overline{D}m$: Gain between score of post test and pre test in Experimental group

$\overline{D}w$: Gain between score of post test and pre test in Control group

So $\overline{D}m = \overline{X}m_2 - \overline{X}m_1$

$\overline{D}w = \overline{X}w_2 - \overline{X}w_1$

The next step is compare $\overline{D}m$ and $\overline{D}w$ using the following formula

$$T: \frac{\overline{D}m - \overline{D}w}{\sqrt{\left(\dfrac{S^2 d_m + S^2 d_w}{Nm + Nw - 2}\right)\left(\dfrac{1}{Nm} + \dfrac{1}{Nw}\right)}}$$

If calculated-t > t table, it means that there is the significant difference between the English achievement of the students that are taught using classical music with the English achievement of the students that are not taught using classical music. So, the increase of students' English achievement of experimental group is higher than the upgrading of students' English achievement of control group.