

CHAPTER III

RESEARCH METHOD

This chapter discuss about research design, subject of the research, research variable, research instrument, validity and reliability testing, normality and homogeneity testing, data collection method, and data analysis.

A. Research Design

The researcher uses Quasi-Experimental research. Quasi-Experimental research is one of experimental research design which suggests casual relationship in result finding. This is one of quantitative research that is different from other types of research. The researcher controls or manipulates one or more independent variables then, measure how the treatment effective each group (Lodico et al., 2006:204).

According to Antonius (2003:27) experimental research is procedures that allow the observation of people's perceptions to a treatment under controlled circumstance. Mc Milan and Schumacher (2001:32) states that in an Experimental model inquiry the writer manipulates what the subject will experience. The writer makes comparison between subjects who have not had the imposed conditions or between subjects who have experienced difference conditions.

Based on Lodico et al., (2006:185) this model is probably a common type of experimental study, this one involve random assignment of whole group to treatment. To ensure that the groups are similar, researchers often administer a pretest to both groups.

In this research, the researcher uses design of experimental research design; Nonrandomized control group, pretest-posttest design (Ary et al., 2010:316). Experimental Nonrandomized control group, pretest-posttest design is conducted with two groups; experimental group and control group, which both group is given pretest and posttest. Lodico et al., (2006:183) states the control group is a separate group that receives no treatment or a different treatment, while the experimental group is the group which will receive a treatment. The design as follows:

**Table 3.1 Nonrandomized Control Group, Pretest-Posttest Design
(Ary et al., 2010:316)**

Group	Pretest	Independent Variable	Posttest
E	Y_1	X	Y_2
C	Y_1	-	Y_2

Note:

E : Experimental group

C : Control group

Y_1 : Pretest in experimental group before treatment (XI MIA 3)

Y_1 : Pretest in control group (XI MIA 2)

Y_2 : Posttest in experimental group after treatment (XI MIA 3)

Y_2 : Posttest in control group (XI MIA 2)

X : Treatment in Experimental group (XI MIA 3)

- : The group without treatment or using conventional strategy (XI MIA 2)

According to the table above, there are two groups. The first is E group, namely experimental group. The students in experimental group receive communicative drilling technique as the treatment of the study. The second group

is group, namely control group. In other hand, the students in control group receive a conventional strategy without treatment. It means that the researcher want to know if there is any significant differences in students' pronunciation achievement by using communicative drilling and without using communicative drilling. The researcher will use communicative drilling in experimental class but do not use it in controlled class. Finally, both experimental and control group will be gave test before (pretest) and after (posttest) the treatment.

B. Population, Sample and Sampling

This sub-chapter represents population, sample, and sampling that are used by the researcher, there are:

1. Population

According to Ary, et al (2010: 148) states that population is defined as all members of any well-defined class of people, events or objects. The population of this study is the eleventh grade students of MAN 3 Tulungagung in 2017/2018 Academic year that consists of 278 students. The eleventh grade of MAN 3 Tulungagung consists of 8 classes that is divided into 3 class types based on students' interest, there are MIA (Sains), IIS (Social), and IIK (Religion).

Table 3.2 List of Population

Class	Male	Female	Total
XI MIA 1	8	25	33
XI MIA 2	7	26	33
XI MIA 3	10	22	32
XI IIS 1	13	20	33
XI IIS 2	16	16	32
XI IIS 3	13	22	35
XI IIS 4	13	15	28
XI IIK	12	35	47
Total			278

2. Sample

Sample is sub group of target population that the researcher plans to study for generalizing about the target population (Creswell, 2008: 152). According to Chaudhury (2010), a sample is any part of the fully defined population. Another definition of sample is given by Hanlon & Larget (2011), a sample is a subset of the individuals in a population; there is typically data available for individuals in samples.

In this study, the researcher takes two classes from 8 classes. The sample class is class XI MIA (MIA 2 and 3) as a sample which the samples are class XI MIA 3 as experiment class and class XI MIA 2 as control class. The reason of the researcher is they have a same level of knowledge in learning English and the students of this class are difficult to follow pronunciation learning in English subject.

3. Sampling

Sampling is the process of taking sample. The researcher uses purposive sampling to take sample from population and it represents the entire population. Ary (2002:169) states “Purposive sampling-also referred to as judgment sampling-sample elements judged to be typical, or representative, are chosen from the population.”

In purposive sampling, the researcher uses expert judgment to take some representatives or typical cases from population. First, identify important variation sources of population. Then, choose the cases that are suitable with the variation sources. According to an English teacher, all the students have similar characteristics; their mastery on English is average. Furthermore, communicative drilling has never been used in teaching speaking to the classes. Based on this condition, the researcher chooses class XI MIA 3 was selected as experimental class and class XI MIA 2 as control class. The both classes were chosen because they have the same amount of experience in English experience and the same amount of class members.

C. Research Variable

A variable is a characteristic or attribute of an individual or an organization that writers can measure or observe and varies among individuals or organizations studied (Creswell, 2012:112). There are two variables in this research, there are:

1. Independent Variable

According to Creswell (1994: 128) independent variable is called treatment conditions or factors in an experiment. These treatment conditions are under the control of the researcher and typically are manipulated in experiment. Arikunto (2010: 162), independent variable is a variable that has function to cause the other variable that will be researched / observed. In other words, independent variable is causes, in this research the independent variable is communicative drill technique.

2. Dependent Variable

According to Arikunto (2010: 162), dependent variable is a variable that depend on the independent variable. In order word, dependent variable is the effect variable. In this research the dependent variable is the students' pronunciation achievement. Creswell (1994: 129) state that the dependent variable is the response or the criterion variable presumed to be "caused" or influenced by the independent treatment condition.

D. Research Instrument

Instrument of the research is a tools which be used by the researcher in collecting data. It means any research needs instrument for gathering data. According to Arikunto (2010:192) there are many kinds of instruments such as test, questionnaire, interview, rating scale, observation, and documentation. The instrument that is used in this research is test. Test is a set of stimuli presented to an individual in order to elicit responses on the basis of which a numerical score

can be assigned (Ary, 2010:201). It means, from a test the teacher will get quantitative score which can be analysed by the tester.

In collecting the required data, the research adapted the speaking performance Scale for UCLA Proficiency Test for Nonnative TAs the pronunciation part (Celce: 1996, 404) there were two kinds of tests in this study, they were pre-test and post-test. Pre-test was intended to measure students' pronunciation achievement before the treatment given. While, post-test was to measure students' pronunciation achievement using the treatment given.

Table 3.3 Student's Pronunciation Score

Pronunciation	Vowel	1	Right
		0	Wrong
	Diphthong	1	Right
		0	Wrong
	Consonant	1	Right
		0	Wrong

E. Validity and Reliability Testing

1. Validity Testing

Based on Gary (2005:13) validity is the complement to reliability and refers to the extent to which what we measure reflects what we expected to measure. From Ary et al. (2010:226) statement, the process of gathering evidence to support (or fail to support) a particular interpretation of test scores is referred to as validation. We need evidence to establish that the inferences, which are made on the basis of the test results, are appropriate.

According to Lodico et al., (2006:188-189) validity is generally divided into two concepts: internal validity and external validity. Internal validity is the

degree or extent to which the differences in the dependent variable are due to the experimental manipulation and not some extraneous variable therefore, external validity is the degree to which the results are generalizable beyond the sample used for a study.

There are four types of validity, such as content validity, criterion-related validity, construct validity and face validity. The researcher use content validity, construct validity and face validity in analyze the test. The aim is to measure whether the test has a good validity.

a. Content validity

Content validity is the test that the content is relevant with the purpose of the test. According to Ary et al. (2010:226) the question on a test is representative of some defined universe or domain of content. It means the researcher must seek evidence that the test to be used represents a balanced and adequate sampling of all the relevant knowledge, skills, and dimensions making up the content domain. Content validity is the test that if has a good content is looked at from the content of test. It means a test has valid if the content of test is a representative among lesson given. The researcher will combine both between the content of test and the material of test to know the test is valid or not. In this study, the content validity refers to the Curriculum of 2013 as the school has implemented when the researcher conducted this research. The test was designed based on main competence and basic competence in the Curriculum of 2013. The content validity can be seen in the table 3.4

Table 3.4 Content Validity

Kompetensi Inti	Kompetensi Dasar
4. Mengolah, menalar, dan menyaji, dalam ranah konkret dan ranah abstrak terkait dengan pengembangan dari yang dipelajarinya di sekolah secara mandiri serta bertindak secara efektif dan kreatif, dan mampu menggunakan metoda sesuai kaidah keilmuan.	4.8 Menangkap makna secara kontekstual terkait fungsi sosial, struktur teks, dan unsur kebahasaan teks explanation lisan dan tulis, terkait gejala alam atau sosial yang tercakup dalam mata pelajaran lain di kelas XI.

Table 3.5 Content Validity of Test

Competence Indicators	Test Items	
	Pre-test	Post-test
Students are able to pronounce correctly.	Pronunciation test	Pronunciation test

From the table above, the test has a content validity because there is appropriateness between the test and the indicator. It is appropriate with course objectives based on syllabus of the eleventh grade of vocational school.

b. Construct validity

Construct validity shows how far the tests are suitable with the theory in composing those tests. According to Muijs (2004: 68) construct validity is a slightly more complex issue relating to the internal. The instrument is constructed concerning aspects that will be measured. In this research, the researcher administered a writing test and the technique of scoring the students' pronunciation is based on the three aspects of pronunciation they are vowel,

diphthong, and consonant. To measure the construct validity, the researcher made a blueprint.

c. Face validity

Face validity is a term sometimes used in connection with a test's content (Ary, 2010:228). Face validity refers to a test can looks measure what is supposed to measure. It means that the test should look clear or the instruction must be understandable for the students. The test in this research was designed to measure students' pronunciation achievement. Thus, to achieve face validity, the researcher provides the instructions on the paper test to ask students to pronounce. In this study, the face validity was done through validator by the expert. The purpose of face validity which is used in this research is to check some aspects that are consideration in the test, they are:

- a. To check that the instruction must be clear and understandable for the students.
- b. The test is suitable with syllabus and their level.
- c. Time allocation must be given clearly.

2. Reliability Testing

According to Ary et al., (2010:236-237), the reliability of a measuring instrument is the degree of consistency with which it measures whatever it is measuring. People who use such measuring instruments must identify and use techniques that will help them determine to what extent their measuring instruments are consistent and reliable. On a theoretical level, reliability is

concerned with the effect of error on the consistency of scores. In this world measurement always involves some error. There are two kinds of errors: random errors of measurement and systematic errors of measurement. Reliability is concerned with the effect of such random errors of measurement on the consistency of scores. But some errors involves in measurement are predictable or systematic.

To know how far the reliability of the instrument, the researcher made test to be tried out to students before giving pretest and posttest. In this research, the writer uses inter rater reliability where the result of the test was scored by two scorers or two raters to get reliability coefficient. Then, the two sets of scores gotten from the two raters are calculated to get the correlation coefficient. Finally, SPSS 16.0 for windows program is used to compute the reliability of instruments. Here the result of try out test:

Table 3.6 and 3.7 The Statistical Correlation of *Person Product Moment* from IBM SPSS Statistical 16.

Table 3.6 The Value of Reliability Pre Test

		rater1	rater2
rater1	Pearson Correlation	1	.672**
	Sig. (2-tailed)		.000
	N	32	32
rater2	Pearson Correlation	.672**	1
	Sig. (2-tailed)	.000	
	N	32	32

** . Correlation is significant at the 0.01 level (2-tailed).

Table 3.7 The Value of Reliability Post Test

		rater1	rater2
rater1	Pearson Correlation	1	.785**
	Sig. (2-tailed)		.000
	N	32	32
rater2	Pearson Correlation	.785**	1
	Sig. (2-tailed)	.000	
	N	32	32

** . Correlation is significant at the 0.01 level (2-tailed).

Table 3.6 shows that Pearson Correlation of both rater 1 and 2 were 0.672. Meanwhile, table 3.7 shows that Pearson Correlation of both rater 1 and 2 were 0.785. In this case, if the Pearson Correlation was closer to +1, it can be said has strong correlation. Based on the both of table above, the result is closer to +1, so the data has strong reliability. It can be concluded that it is reliable.

F. Normality and Homogeneity Testing

In this part the researcher discussed about the result of normality and homogeneity testing.

1. The result of Normality Testing

Normality testing is conducted to determine whether the data are normal distribution or not. The researcher used SPSS.16 One- Sample Kolmogorov-Smirnov test by the value of significance (α) = 0.050. Basic decisions making in normality testing are as follows:

1. If the significance value > 0.050 , then the data has normal distribution
2. If the significance value < 0.050 , then the data does not have normal distribution

Here, the researcher conducted normality testing for experimental class and control class. The result can be seen below:

1.1 Normality Testing of Experimental Class

**Table 3.8 The Result of Normality Testing of Experimental Class
One-Sample Kolmogorov-Smirnov Test**

		Pretest	posttest	Unstandardiz ed Residual
N		32	32	32
Normal Parameters ^a	Mean	65.44	74.31	.0000000
	Std. Deviation	7.890	5.948	4.25130086
Most Extreme Differences	Absolute	.153	.143	.099
	Positive	.108	.141	.099
	Negative	-.153	-.143	-.085
Kolmogorov-Smirnov Z		.868	.809	.561
Asymp. Sig. (2-tailed)		.439	.530	.911
a. Test distribution is Normal.				

Based on the table above is known that the significance values of experimental class for pre-test and post-test are 0,439 and 0,530. The significance values of both pre-test and post-test are bigger than 0,050. It means that the data of experimental class has normal distribution.

1.2 Normality Testing of Control Class

**Table 3.9 The Result of Normality Testing of Control Class
One-Sample Kolmogorov-Smirnov Test**

		Pretest	posttest	Unstandardiz ed Residual
N		33	33	33
Normal Parameters ^a	Mean	57.45	57.76	.0000000
	Std. Deviation	9.608	8.983	6.83620550
Most Extreme Differences	Absolute	.146	.163	.144
	Positive	.114	.163	.144
	Negative	-.146	-.078	-.097
Kolmogorov-Smirnov Z		.839	.939	.829
Asymp. Sig. (2-tailed)		.482	.341	.497
a. Test distribution is Normal.				

Based on the table above is known that the significance values of experimental class for pre-test and post-test are 0,482 and 0,341. The significance values of both pre-test and post-test are bigger than 0,050. It means that the data of control class has normal distribution.

2. The result of Homogeneity Testing

Homogeneity testing is conducted to know whether the data has a homogeneous variance or not. To know the homogeneity, the researcher used Homogeneity of Variances Test by using SPSS.16. The value of significance (α) = 0.050. Basic decisions making in homogeneity testing are as follows:

1. If the significance value > 0.050 , then the data distribution is homogeneous
2. If the significance value < 0.050 , then the data distribution is not homogeneous

Here, the researcher conducted homogeneity testing. The result can be seen below:

**Table 3.10 The Result of Homogeneity Testing
Test of Homogeneity of Variances**

Levene Statistic	df1	df2	Sig.
.647	6	16	.692

Based on the table above is known that the significance value of post-test is 0,692. As on the basic decision making in homogeneity testing, if the significance value is bigger than 0,050, then the data distribution is homogeneous. It can be concluded that significance value that is 0,692 is bigger than 0,050 and the data distribution is homogeneous.

G. Data Collecting Method

The data collecting methods and instrument are needed to obtain the research data. The method of collecting data used in this research was administering test. According to Ary *et al.* (2010:201) the tests were valuable measuring instruments for educational research. He, then, defined test as a set of stimuli presented to individual in order to elicit responses on the basis of which a numerical score can be assigned. It meant that by conducting the test, the researcher would get numerical score to collect the data.

The test here consisted of pre-test and post-test. The function of pre-test was to know students' pronunciation achievement before getting the different treatment. Whereas the function of post-test was to know the result of the

experiment after the treatment had been given. The procedures in collecting the data were:

a. Pre-test

Pre-test refers to a measure or test given to the subject prior to the experimental treatment. This aims to know the basic competence and their earlier knowledge before they get the treatment in pronunciation. At the first meeting, the researcher gave pre-test to the students. It was done on April 4th 2018 in experimental class and was done on March 23th 2018 in control class. In this study, the pre-test was conducted in the first meeting, before treatment process. It was given to experimental group and control group as well to know students' achievement. The test which consist of 50 number item and the material about explanation text from syllabus. The time for every the students is 5 minutes. The time allocation 60 minutes to test.

The students' competence before given treatment that the mean of students' score of XI MIA 3 was 65,44. While the mean of students' score of XI MIA 2 was 57,45. So, the researcher chose XI MIA 3 was experimental class because XI MIA 3 has good competence.

b. Treatment

Treatment here meant that the researcher communicative drilling technique in teaching process. The process of this strategy described as follow: First, the researcher introduced the concept communicative drilling of by explaining each type of question, providing a clear example of each, and discussing the difference in each. Next, the researcher gave the procedures to

teach pronunciation using communicative drills. In pairs, students interview each other about what special skills each of them has. If the initial questions are not adequate for the students to get a comprehensive idea of the special abilities of his/her partner, the student is being interviewed should provide more information voluntarily. And the finally, the students report to the whole class what abilities his/her partner has.

This teaching strategy would be taught for experimental group while the control group would be taught without using Communicative Drilling Technique.

Table 3.11 Steps the Treatment of Communicative Drilling

First treatment on April, 11th 2018

Aspect	Teachers' activity	Students' activity
Pre-activity	<ul style="list-style-type: none"> • Greeting • Check the attendance • Give the stimulation for students with the questions 	<ul style="list-style-type: none"> • Give response of greeting • Answer the questions
Whilst-activity	<ul style="list-style-type: none"> • Introduce communicative drilling strategy will be the students easy to pronounce the words. • Give example the communicative drilling technique (ID Game) • Attach a picture to the back of each student. • The teacher then walk around the class asking each other yes/no questions. • The students can ask only one question to each student at a time until a students have enough information to guess correctly who their person is • The teacher was correct the pronunciation from the students' answer. 	<ul style="list-style-type: none"> • The students discuss together about communicative drilling technique. • Pay attention and give the response of example the communicative drilling technique. • The students practice to answers based on picture.

Post-activity	<ul style="list-style-type: none"> • Give the conclusion about the lesson. • The teacher gives a suggestion to more practice. • Closing. 	<ul style="list-style-type: none"> • Give response of closing.
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Second treatment on April, 18th 2018

Aspect	Teachers' activity	Students' activity
Pre-activity	<ul style="list-style-type: none"> • Greeting • Check the attendance 	<ul style="list-style-type: none"> • Give response of greeting
Whilst-activity	<ul style="list-style-type: none"> • Give example the communicative drilling technique (Family Tree T) • The teacher give question based on Family Tree T • The teacher was correct the pronunciation from the students' answer 	<ul style="list-style-type: none"> • The students discuss together about the communicative drilling technique (Family Tree T) • Pay attention and give the response of example based on Family Tree T • The students practice to answers based on Family Tree T
Post-activity	<ul style="list-style-type: none"> • Ask the students about difficult words and give feedback. • Inform and explain the next practice. • Closing. 	<ul style="list-style-type: none"> • Pay attention and response the teacher

Third treatment on April, 25th 2018

Aspect	Teachers' activity	Students' activity
Pre-activity	<ul style="list-style-type: none"> • Greeting • Check the attendance 	<ul style="list-style-type: none"> • Give response of greeting
Whilst-activity	<ul style="list-style-type: none"> • Give example the communicative drilling technique (Questionnaires) • The teacher give question based on Questionnaires • The teacher was correct the pronunciation from the students' answer 	<ul style="list-style-type: none"> • The students discuss together about the communicative drilling technique (Questionnaires). • Pay attention and give the response of example based on Questionnaires. • The students practice to answers based on

		Questionnaires.
Post-activity	<ul style="list-style-type: none"> • Ask the students about difficult words and give feedback. • Closing. 	<ul style="list-style-type: none"> • Concluded the lesson. • Give response of closing.

Four treatment on Mei, 2nd 2018

Aspect	Teachers' activity	Students' activity
Pre-activity	<ul style="list-style-type: none"> • Greeting • Check the attendance 	<ul style="list-style-type: none"> • Give response of greeting
Whilst-activity	<ul style="list-style-type: none"> • Give example the communicative drilling technique (A day in the life of) • The teacher give question based on A day in the life of • The teacher was correct the pronunciation from the students' answer 	<ul style="list-style-type: none"> • The students discuss together about the communicative drilling technique (A day in the life of) • Pay attention and give the response of example based on A day in the life of. • The students practice to answers based on A day in the life of.
Post-activity	<ul style="list-style-type: none"> • Give the conclusion about the lesson. • The teacher gives a suggestion to more practice. • Ask the students about difficult words and give feedback. • Closing. 	<ul style="list-style-type: none"> • Concluded the lesson. • Give response of closing.

(Adapted from Julia Pearson, the article appeared in the Summer 1998 newsletter)

The complete steps of Project Based Learning can be seen in lesson plan in appendix 2 & 3.

c. Post test

Post-test is one kind of test which given after treatment. A post-test was a measure on some attribute or characteristic that is assessed for participants after a treatment, Creswell (2008:201). Post-test was given in the last meeting of

teaching learning process. It was used to measure students' achievement after given treatment. It was done on May 2nd 2018 in experimental class and was done on April 27th 2018 in control class. In this study, the post-test was conducted in the last meeting, using treatment in experimental class and without treatment in control class process. The test which consist of 50 number item and the material about explanation text. The test which consist of 50 number item and the material about explanation text for syllabus. The time for every the students is 5 minutes. The time allocation 60 minutes to test. After the researcher knew about score of the test, the researcher compared both of the score.

H. Data Analysis

According to Marshall and Rossman in Vosloo (2014), describe data analysis as the process of bringing order, structure and meaning to the mass of collected data. It is described as messy, ambiguous and time-consuming, but also as a creative and fascinating process.

The researcher used quantitative data analysis by using statistical computation. The data collected was processed by comparing students' pre-test and the post-test score and see whether there would be significant different after given by treatment. To know the significant differences researcher used SPSS 16.0 version.