CHAPTER III

RESEARCH METHOD

In this chapter, In this chapter, the researcher presents the research design, the population and sample of the research, research instrument, validity and reliability testing, normality and homogeneity testing, data collecting method, data analysis and hypothesis testing.

A. Research Design

Before conducting the research, the researcher should identify what kind of the research and need to make plan how the research will be conducted. The researcher needs to decide the research problem. To conduct this study, the researcher uses quantitative research approach. According to Perry (2005:75) quantitative mainly comes from psychology field and emphasis by statistic to make generalization from samples of populations. Quantitative research is methodology to study phenomena by collecting numeric data in the field, then analyze by using statistic program.

This study conducted in experimental research design to know The Effectiveness of Using Herringbone technique towards the 10th grade student's reading comprehension at MA Darul Huda Wonodadi. In this case, the researcher uses Pre-Experimental design means using one class

as single group who get the treatment and the group gets pre-test and post-test to know the result of treatment. According to Donald (2010: 302), Pre-Experimental design does not have random assignment of subject to groups or other strategies to control extraneous variables. It means in this research, the researcher does not have an authority to choose the sample. In experimental, the researcher needs to know the cause effect between two variables. Herringbone technique in teaching as an independent variable and Student's reading comprehension as a dependent variable. To know the result whether the dependent is influenced well positively, the researcher use pre-test and post-test to measure that. The design of the research can be summarized as follows:

There are three steps of this design, are:

1. Administering a pre-test measuring the dependent variable.
2. Applying the treatment X to the experimental group.
3. Administering a post-test measuring the dependent variable.

Table 3.1: The Illustration of Research Design

Pretest	Independent	Posttest
Y1 (DV)	X (IV)	Y2 (DV)

Y1 (Dependent Variable)   : Student's reading comprehension before taught by using Herringbone technique.

Y2 (Dependent Variable)   : Student's reading comprehension after taught by using Herringbone technique.

X (Independent Variable)   : Herringbone technique.

B. Population, Sampling and Sample

1. Population

Population is entire subjects where data is collected. Seltman (2015) as cited in Joko (2018: 45) states population as the entire set of actual or potential observational units. In other word, population is all subjects where the data will be gathered. The population of this research is the whole students of the 10th grade students of MA Darul Huda Wonodadi in the academic year 2018-2019 that consist of two classes. The total population of the 10th grade students of MA Darul Huda Wonodadi in the academic year 2018-2019 consists of 54 students.

Table 3.2: The Illustration of Research Design

| NO	Class	Male	Female
1	X IIA	7 students	13 students
2	X IIS	8 students	26 students

2. Sampling

To determining the one group of sample, the researcher use purposive sampling. Purposive sampling is a type of non-probability sampling where the researcher consciously selects subjects for addition in a study so as to make sure that the elements will have certain characteristics pertinent to the study. Purposive sampling is sample which is taken because the researcher believes that X-2 could give sufficient information. The researcher uses purposive sampling because the class consists of various background of class and English proficiency. Thus, the researcher believes that 10 IIS class of MA Darul Huda Wonodadi can give sufficient information because of its heterogeneous class.

3. Sample

The researcher choose 10 IIS class to be a sample that consist of 34 students, there are 8 male and 26 female at MA Darul Huda Wonodadi in academic year 2018/2019.

C. Research Instrument

Instrument of research are the tools to measure something that we observe in order to obtain the data and answer the research problems (Sugiyono: 2011). The instrument used in this research is a test which it is given before and after taught by using Herringbone technique. The instrumentation will be developed through the following steps.
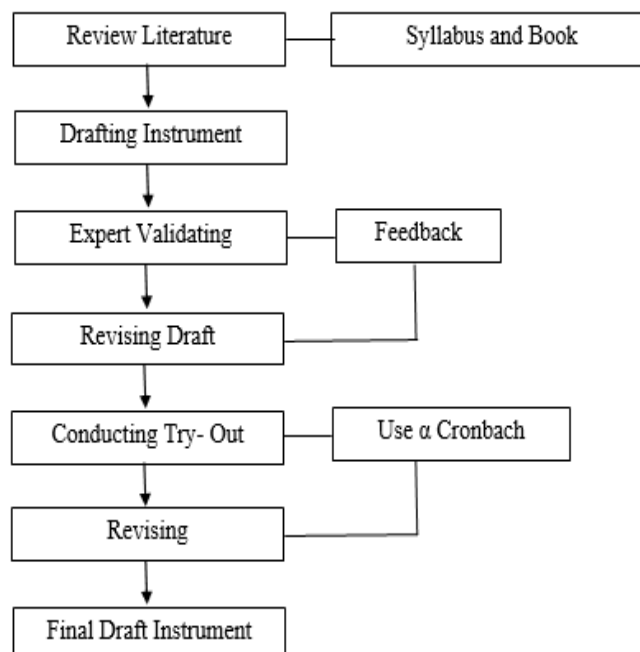
The steps of instrumentation are:

1. Review Literature

    The first steps to get valid and reliable Herringbone technique especially in MA Darul Huda Wonodadi. Therefore, the

researcher reviewed some literatures from syllabus and book used in MA Darul Huda Wonodadi to get some important information as sources to drafting instrument that related with the materials of MA Darul Huda Wonodadi.

1. Drafting Instrument

    After get some information from reviewing literature, the researcher started to draft instrument that appropriate with the materials of MA Darul Huda Wonodadi.

2. Expert Validating

    After finishing the drafting instrument, the instrument should be validated by the expert like English teacher or lecturer where reading comprehension. The purpose of the expert validating is to know how much valid the instrument is either related with its construct validity, face validity, or content validity. So, in this steps the researcher will be get feedback and validation guide (See Appendix 5, page 15).

3. Revising Draft

    In revising draft of the instrument, the researcher uses feedback collected from the expert validation.

4. Conducting Try- Out

    After revising the draft of the instrument, the researcher conducts try the instrument out to the eighth grade students of

MA Darul Huda Wonodadi who share common characteristics with the subjects of this research. The result of try out which is analyzed using Alpha Cronbach is used to revise the draft to be the valid instrument because the reliability and validity of the instrument can be objectively computed by using the formula of Alpha Cronbach.

5. Revising

In revising, it part to revising the instrument again based on the feedback to get the final draft instrument. So, I will revise the instrument to make the questions ideal or not easy or too easy, difficult or too difficult.

6. Final Draft Instrument

The last step is final instrument means that the instrument has good or best quality where the instrument is appropriate (See Appendix 2,3,4, page 5,11,13).

In this study, the researcher applied pre-test and post-test. Pre-test was given before giving treatment by using Herringbone technique, in this pre-test students were given task and giving treatment to the students. The next treatment will give at the next meeting. Post-test which give after teaching by Herringbone technique in this post-test the students given task by using Herringbone technique.

To get the data, which is 10 IIS class that becomes an experimental group the researcher as a teacher teaches the students during three meetings.

Teaching Procedure

First meeting, in the teaching learning process the teacher give pre-test to know their reading comprehension. Second meeting, the teacher teaches English learning by using Herringbone technique based on learning material in teacher's lesson planning. In the end, the teacher gives post-test in after teaching by using Herringbone technique to the students.

Step in applying Herringbone technique (Deegan, 2006):

1. The teacher selects a text at the appropriate reading level.

2. The teacher constructs a visual diagram of the herringbone.

3. The teacher tells the student to record the answers to the questions on the diagram. He will look for answers to:

    a. Who is the author talking about?

    b. What did they do?

    c. When did they do it?

    d. Where did they do it?

    e. How did they do it?

4. Why did they do it? The student reads to find the answers and records the answers on the diagram.

5. After the information is recorded, the teacher shows the student how each answer fits into a slot in a main idea sentence.

6. The student writes a main idea, using the information from the herringbone diagram.

7. The teacher duplicates sheets with the diagram, and students complete diagram on their own.

8. The diagram becomes a tool for story discussion. During the discussion, the teacher and students compare their answers and their rationales.

Table 3.4: Fish Skeleton Diagram

WHO?   DID WHAT?

MAIN   IDEA   WHEN?

WHY?

WHERE?   HOW?
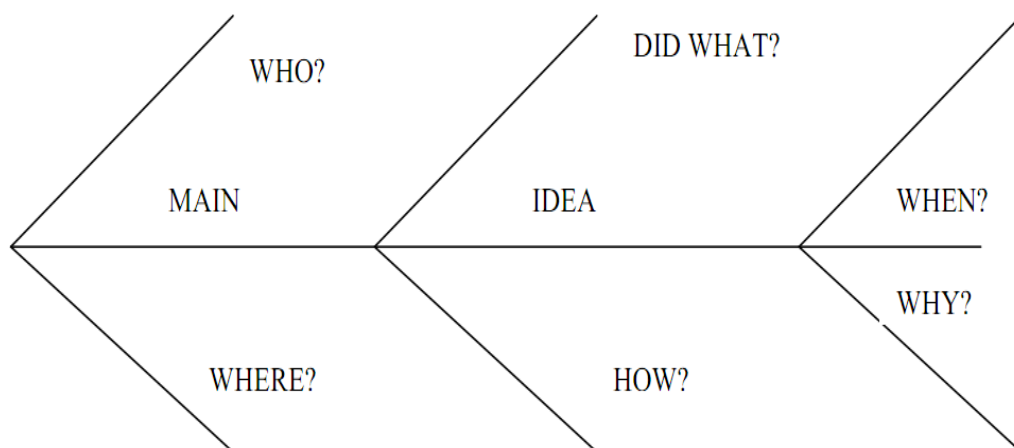
D. Validity and Reliability Testing

1. Validity

The validity of test as extent to which it measures what is supposed measure and nothing else (Heaton: 1989). To measure whether the test has a good validity, the researcher analyzed the test from content validity and construct validity. In experimental research, the researcher had to check validity and reliability of the instrument. Validity (in testing) is the degree to which a test measure what it is supposed to measure, or can be used successfully for the purpose for which it is intended (Richard, 1992:296). According to Brown, 2004:22 as cited by Isnawati, 2011:16 validity is the extent to which inferences made from assessment result are appropriate, meaningful and useful in terms of the purpose of the assessment.

a) Content Validity

The researcher made this test based on the course of objective in the syllabus of 10th grade of MA Darul Huda Wonodadi. In this study, the researcher made some indicators of the pre-test and post-test (See Appendix 2, page 3). They are: (a) The students are able to determine a main idea, (b) The students are able to identify the author

purpose, (c) The students are able to finding referring, (d) The students are able to guessing the meaning of unfamiliar word, (e) The students are able to finding explicit information, (b) The students are able to finding implicit information, (b) The students are able to drawing conclusion.

Content Validity of Pre-Test

INDICATORS	ITEM NUMBER
Main idea	8, 12, 17
Identify the author purpose	19
Finding referring	5, 10, 14, 15
Guessing the meaning of unfamiliar word	3, 20
Finding explicit information	2, 4, 7, 11, 13, 16
Finding implicit information	1, 6, 9, 18

Content Validity of Post-Test

INDICATORS	ITEM NUMBER
Main idea	2, 4, 6, 8, 9, 14, 19
Identify the author purpose	3, 11,15,16
Finding referring	7
Guessing the meaning of unfamiliar word	13,20
Finding explicit information	1, 18
Finding implicit information	12, 17
Drawing conclusion	5, 10

From the explanation above, it could be concluded that the test have a content validity.

b) Face validity

The researcher used face validity by consulting with the advisor and teacher to make sure that the test measures what must be measured. In this case, the test has measured reading comprehension.

c) Construct Validity

According to Taherdoost (2016) as cited at Fitriany (2019:45) construct validity refers to how well the researcher transformed a concept, idea, or behavior that is a construct into a functioning and operating reality, the operationalization. This type of validity is judgment based on the accumulation of evidence from numerous studies using a specific measuring instrument. It means that construct validity is one kind of validity that is measures the ability which is supposed to measure.

Based on the explanation above, in the test, the researcher asked the students to answer the multiple choice based on narrative text to measure the student's comprehension in reading and this fulfill the construct of reading test and therefore valid in term of construct validity.

2. Reliability

The reliability of the test is its consistency (Horizon : 1983). Thus, reliability is a measure of accuracy, consistency, dependability or fairness of scores resulting from administration or particular examination. Actually, the ideal test should be both reliable and valid. In this research, the researcher also used SPSS 24.0 for window to know the reliability of test instruments.

The criteria of reliability instrument can be divided into 5 classes as follows (Ridwan: 2004), those are:

1. If the *alpha cronbach* score 0.00 – 0.20: less reliable

2. If the *alpha cronbach* score 0.21 – 0.40: rather reliable

3. If the *alpha cronbach* score 0.41 – 0.60: enough reliable

4. If the *alpha cronbach* score 0.61 - 0.80: reliable

5. If the *alpha cronbach* score 0.81 – 1.00: very reliable

The reliability of the test or instrument can be seen from the result of conducting Try-Out test in different class (X IPA). To find out the reliability of the score obtained either from the Pre-Test and Post-Test, the researcher will calculate two scores of the students to calculate the correlation between them.

The Result Try-Out of X IPA

NO	Pre-Test	Post-Test
1	40	85
2	75	85
3	65	85
4	55	85
5	60	65
6	70	75
7	65	90
8	55	90
9	60	95
10	60	85
11	80	90
12	50	45
13	55	100
14	85	90
15	90	100
16	95	100
17	75	90
18	95	95
20	80	95

Total	1310	1645
Mean	65.5	82,25

Table 3.5: Reliability Statistic of Try-Out

Pre-Test

Reliability Statistics	
Cronbach's Alpha	N of Items
.673	20

Post-Test

Reliability Statistics	
Cronbach's Alpha	N of Items
.735	20

The pre-test table shows that the reliability of Conbrach's Alpha is 0.673. It means, that the reliability is reliable because the value is between 0.61 - 0.80 and the post-test table shows that the reliability is Conbrach's Alpha is 0.735. It means, the reliability is reliable because the value is between 0.61 - 0.80 which means reliable. From the evidence two tables above, it was found that the test is very reliable and reliable.

E. Normality and Homogeneity Testing

1. Normality Testing

Normality testing is conducted to know whether the gotten data is normal or not. The computation of normality testing in this

research using SPSS Statistics 24 is One-Sample Kolmogrov-Smirnov test by the value of significance (α) = 0.050. Testing of data normality is conducted by the rules as follow:

- If the value of significance > 0.050, so the distribution data is normal.

- If the value of significance < 0.050, so the distribution data is not normal.

If the distribution data is normal, so it will continue by homogeneity testing.

2. Homogeneity Testing

Homogeneity testing is conducted to know whether the gotten data has a homogeneous variance or not. The computation of homogeneity testing using SPSS Statistics 24 is One-Sample Kolmogrov-Smirnov test by the value of significance (α) = 0.050. Before doing homogeneity testing, the researcher decides hypothesis in this homogeneity as follow:

H_0: 1 variance (Experimental group) are same.

H_a: 1 variance (Experimental group) are different.

There is also certainty in taking decision of homogeneity testing, as follow:

The value of significance > 0.050, so H_0 is accepted means that the data of sample has same variance.

F. Technique of Data Collection

When we talk about the kind of methods and data, actually it is quite same when we talk about doing evaluation. It has the purpose to get data and then it can be measured by the researcher. The data collecting method is the method to obtain the data in the research. The aim of the data collecting in conducting scientific research was to get material that needed by the research. The researcher collects the data from the students' score of pre-test and post-test. The researcher gave students pre-test to know the students' reading comprehension before the researcher give treatment. Researcher gives post-test to the students after the researcher giving treatment. The result of pre-test and post-test and then the researcher compare them. The technique of collecting data was clarified as follow:

a. Pre-Test

A pre-test provides a measure on some attribute or characteristic that you assess for participant in an experimental before they receive treatment (Creswell: 2003). This test can be called as the pre-test before the treatment of this research. The pretest is aimed is to know the students' reading comprehension before the treatment carried out. This result of the test became the

evaluation before using Herringbone technique in teaching students reading comprehension

b. Post-Test.

Post-test is done after the students get treatments is taught by using Herringbone technique to students reading comprehension. From the score of this test, the researcher is intended to find out the effectiveness of using Herringbone technique to students reading comprehension. The result of the scoring then is compared with pre-test. In this case, the researcher knows how far is the effectiveness of using Herringbone technique to students reading comprehension.

G. Techniques of Data Analysis

Data analysis is a time consuming and difficult process, because typically the researcher faces massive amounts of field notes, interview transcripts, reflections, and information from documents to examine and interpret (Ary, 2002:465). The data obtained from research result is the results of student's test that were analyzed quantitatively. Quantitative analysis was done using statistics which is called statistical analysis or inferential statistics. The quantitative data of this research in analyzed using statistical computation. This strategy

was used to find the significant difference on the students' reading comprehension after being taught by using Herringbone technique.

H. Hypothesis Testing

The hypothesis of this study was as follow:

a. Null Hypothesis (Ho)

There is no significant different on the students' reading comprehension that are taught before using Herringbone technique and after using Herringbone technique.

b. Alternative Hypothesis (Ha)

There is significant different on the students' reading comprehension that are taught before using Herringbone technique and after using Herringbone technique.