

CHAPTER III
RESEARCH METHOD

This chapter present research design, research setting, population and sample, research instrument, source of data, normality and homogeneity, data collecting method, and data analysis.

A. Research design

This research used Pre-Experimental Design because there is only one class have the problem in reading skill, and the population of the class will be the sample of the research so that the researcher used One-Group Pretest-Posttest Design to know the effect of QAR Strategy on students' reading comprehension Sugiyono (2013:109). In this design, the first that the students will be given the pretest and then the teacher will be using QAR Strategy in teaching reading. After getting the treatment students will be given the posttest to know the result of students' reading comprehension after getting the treatment using QAR Strategy.

The design of this pre-experimental research can be described as follow:

Where:

Table 3.1 One Group Pretest-Posttest Design

Pretest	Treatment	Posttest
Y_1	X	Y_2

Y_1 : Pretest score observation of students' reading comprehension before treated using QAR Strategy.

Y_2 : Posttest score observation of students' reading comprehension using QAR Strategy.

X : Treatment of QAR Strategy

B. Research setting

This research will be conducted at SMA Darul Hijrah for male in academic year 2017/2018, this school located in JL. Karang Tengah, Banjarbaru, South Kalimantan.

C. Population, Sampling and Sample

1. Population

Before the sample was collected, the researcher had to determine the population. Arikunto (2006: 108) says that a population is a set or collection of all elements processing one or more attributes of interest. The population that the researcher selected was the XI grade of Darul Hijrah Putera. The total populations were of three classes. Each class consisted 30-32 students.

2. Sampling and Sample

Sampling is the process of selecting a number of individuals for a study in such a way that the individuals represent the large group from which they were selected, LR Gay et al (2012:129). In selecting the sample, it must be representative to a population. According to Arikunto (2006:109), a sample must be representative to a population. Based on Ary (2002:163) a sample is a person of a population. It means that good sample

must be representative of the entire as possible, so that the generalization of the sample of this research.

Selection of the sample is very important step in conducting a research study. Sample is a part of population which will to be analyzed. Sample must be representative as one is to be able to generalize with confidence from the sample to population. The researcher decided to choose IX Science II class that consists of 30 students. The researcher decided to choose IX Science II class because many students face some problems in answering reading questions. The students feel difficult to understand the text and it becomes a burden for them.

D. Variable of Research

Variable is research object or something that becomes view point of research. Based on the title of the thesis, the study had two variables; they were independent variable and dependent variable.

1. Independent Variable

Independent variable is the variable which influence dependent variable, in the other words independent variable is causes variable. According to Donald Ary et al (1979:96), independent variable is an antecedent to the dependent variable. Independent variable is variable selected by the researcher to their effect on or influence with dependent variable. Independent variable in this research was Short Story

2. Dependent Variable

Dependent variable is the variable which is influenced by independent variable. In the other word dependent variable is effect variable. According to Donald Ary, et al (1979:30) dependent variable is the consequence of or dependent variable upon antecedent variable. Dependent variable in this research was the students' reading comprehension.

Variable X (independent) is a variable that affect or be a cause of variable Y (dependent), while variable Y (dependent) is affected or which become due, due to the variable X.

This research has two variables, they are QAR Strategy and student's reading comprehension Which are QAR Strategy will be variable X, and student's reading comprehension will be variable Y.

E. Technique of Data Collection

To find out the solution of the problem, the writer will need some data. The required data and information are obtained from the experiment and the writer will use two techniques for collecting data as follows:

1. Test

Test technique is used to collect the data of student's reading comprehension. The researcher will use two tests in this research, pretest and posttest. This pretest will be given to students in the class before they treated using QAR Strategy. Students will be given text with 10 multiple choices, 1item every correct items will scored 10 points so, the maximal total score is

100 points. Furthermore, the posttest will be given to students after they treated using QAR Strategy.

2. Documentary

This technique is aimed to look for all written reports or documents which perhaps keep students' answer sheet and description about their reading score before, etc.

F. Source of Data

The data is taken from the sources as follows:

1. Respondents: the eleventh graders students that consist of 30 students and the writer took all of students due to the writer used *pre-experiment* design which requires one class.
2. Informants: students, head master SMA Darul Hijrah for male and English teachers of SMA Darul Hijrah.

G. Technique of Data Analysis

Before analysis the data the writer collects the data of students' pre-test and post-test, then were arranged in the form of frequency and percentages through score's criteria, by the following table:

Table 3.2 The Score's Criteria of the Students Before and After Using QAR Strategy

NO	Score's Criteria	Grade	Criteria
1	91-100	A	Excellent
2	81-90	B	Very good
3	71-80	C	Good

4	61-70	D	Average
5	41-60	E	Poor
6	0-40	F	Very poor

Before the writer calculates statistics and compares the score of students' reading comprehension, he determines mean of scores by using the rule follow:

1. Determine mean of pre-test of experimental class

$$M_x = \frac{\sum x}{N}$$

2. Determine mean of post-test of experimental class

$$M_y = \frac{\sum y}{N}$$

3. Determining mean of difference of pretest and posttest

$$M_D = \frac{\sum D}{N}$$

For getting research hypothesis from collected data, the writer calculates statistics and compares the score of students' reading comprehension before and after. The statistics calculation are pre-requisite and hypothesis test. Pre-requisite test consists of normality and homogeneity test.

1. Normality Test is used to know whether the analyzed data has distributed well or no, the data analysis will use SPSS program by using Shapiro technique – Wilk. If the calculation done manually, will use the formula:

$$T3 = \frac{1}{D} \left[\sum_{i=1}^k a_i (X_n - i + 1 - X_i) \right] 2$$

D = Based on the under rule = coefficient test Shapiro Wilk

X_{n-i+1} = rate to $n-i+1$ to the data

X_i = rate to i to the data

2. Homogeneity Test is used to know the similarities between two situation or population. To know the homogeneity data, the writer uses SPSS program.

Analyze – Compare Means – One Way ANOVA.

If the calculation done manually, will use the formula:

$$F_{hitung} = \frac{S^2b}{S^2k}$$

Where:

S^2b = the biggest variant

S^2k = the smallest variant

If $F_{hitung} \geq F_{table}$, so the data is not homogen, and if $F_{hitung} \leq F_{table}$, so the data is homogen.

3. Hypothesis Test

The hypothesis to be tested is:

$H_0 : \mu_1 = \mu_2$

$H_a : \mu_1 \neq \mu_2$

Where:

μ_1 = result of students' reading comprehension before treated by QAR Strategy.

μ_2 = result of students' reading comprehension after treated by QAR Strategy.

In this hypothesis test, the writer will also use SPSS program by using analysis technique *Paired Sample T-Test* to test the significance of differences two mean from two distributions. If the data has normality and homogeneity then formula that will be used is:

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

Where:

r = result of students' reading comprehension before and after.

n_1 and n_2 = the number of sample.

\bar{x}_1 = result of students' reading comprehension before treated by QAR Strategy.

\bar{x}_2 = result of students' reading comprehension after treated by QAR Strategy

s_1 = standard deviation before treated by QAR Strategy.

s_2 = standard deviation after treated by QAR Strategy.

s_1^2 = variant before treated by QAR Strategy.

s_2^2 = variant after treated by QAR Strategy.

To find *mean* (\bar{x}) and *variant* (s^2):

$$\bar{X} = \frac{\sum f_i x_i}{\sum f_i} \text{ and } s^2 = \frac{\sum f_i (x_i - \bar{x})^2}{n-1}$$

To find the *t-score* in the distribution table t with significant $\alpha = 5\%$ with $d_k = (n_1 + n_2 - 2)$. With criteria $t_{table} \leq t_{hitung} \leq t_{table}$ so H_0 accepted and H_a rejected. Whereas, if the data has normality but has not homogeneity, the formula that will be used:

$$t' = \frac{x_1 - x_2}{\sqrt{\left(\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}\right)}}$$