

CHAPTER III

RESEARCH METHOD

This chapter presents research design, source of data, variable, population and sample, formulation of hypothesis, research instrument and method of collecting data, and hypothesis testing.

A. Research Design

Ary (Ary, 2002:22) states the quantitative research uses objective measurement and statistical analysis of numeric data to understand and explain phenomena. In quantitative research there are experimental and non-experimental research design. Experimental research involves a study of the effect of the systematic manipulation of one variable on another variable and non-experimental research, the researcher identifies variables and may look for relationship among them, but does not manipulate the variable (Ary, 2002:24)

In this research, the researcher used pre-experimental design with quantitative approach. The research consists of one group as the sample in conducting both of pre-test and post-test. The pre-test and post-test were given to take the score of student's achievement.

Table 3.1 Randomized group, pre-test and post-test

Pre-test	Treatment	Post-test
Y1	X	Y2

Notes :

Y1 : pre-test

X : treatment using PQ4R technique

Y2 : post-test

This research was intended to investigate the effectiveness of using PQ4R strategy in the teaching student's reading comprehension of narrative text at the first grade of Senior High School. The uses of the treatment was aimed at proving whether the increase scores possibly got by the researcher. Thus, the effectiveness of that treatment was be known the significant score when the students taught using PQ4R strategy.

B. Population and sample

1. Population

According to Arikunto, population is whole subject in the research (2010:173). The population of this study is all the first grade of MA Darul Hikmah which consist of 4 male classess and 5 female classess.

2. Sample

Sample means apart of population that will be observed. Whose characteristics can represent and describe the real population (Sugiarto, 2003:2). In selecting the sample the researcher used purposive sampling technique thus the sample was chosen randomly. Since in this study used pre experimental design, so the researcher only needs one group/class as the sample. In addition, the researcher has checked the students transcript from their teacher in order to help determining the sample. Therefore in this study the A science class of MA Darul Hikmah is chosen as the sample because the class has average proficiency. The class consists of only boys because the school is islamic school that devides the students based on their gender. Since the study is pre-experimental design, so in this study only take one group as the sample.

C. Variable

A variable is any factor, condition, situation, treatment and all actions that can be used to influence the experimental (Sanjaya, 2013:95). This research that use PQ4R strategy in teaching students' reading comprehension had two variable, those variable were :

1. Independent variable (X)

Independent variable is the variable that is the cause or effect the onset or change in the dependent variable (Tanzeh, 2009:85). The independent

variable of this research is the use of PQ4R strategy in teaching students' reading comprehension on narrative text.

2. Dependent variable (Y)

The dependent variable is a variable that is affected or that become the result because of the existence of the independent variable (Arikunto, 2010:162). The dependent variable of this research is the improve of students' reading comprehension on narrative text.

D. Formulation of Hypothesis

The hypothesis of this research is :

a. Null Hypothesis (H_0)

There is no significant different on the student's reading comprehension in narrative text are taught before using PQ4R technique and after using PQ4R technique.

b. Alternative Hypothesis (H_a)

There is significant different on the student's reading comprehension in narrative text are taught before using PQ4R technique and after using PQ4R technique.

E. Research Instrument and Method of Collecting Data

In this research, the researcher used a test as an instrument to collect information on student's reading before and after giving treatment. The test is used to see the different result of students' reading comprehension before and after taught using PQ4R technique. In order to know the students ability in reading, the researcher conducted pre-test and post-test as the way to collect the data. Pre-test will be administered in order to know the students reading ability in overall. After getting the result of pre-test, the researcher gave treatment to all students. After doing treatment, the researcher gave post-test to all students. Post-test is used to know the students' reading comprehension in other word they understand about the narrative text after taught by PQ4R technique.

The test was constructed by the teacher (teacher-made test). The test was a multiple choice test which consist of 15 items for pretest and 15 items for posttest. The researcher determined the number of the test items based on the students' need. It means that the researcher has checked the reading test from the school that usually used as the student's reading task. Therefore, it was enough covered the student's reading material so the researcher formulated 15 test items for pretest and 15 test items for posttest. The test can be seen on appendix 1. Meanwhile, the scoring rule of the test, the researcher used the common manual computation:

$$\textit{Correct answers} \times 6 \textit{ points} + 10 = \textit{Rounded into 100 points.}$$

$$15 \times 6 + 10 = 100$$

This kind of test is also easier for the researcher in collecting the student's score. This kind of test used to measure the student's vocabulary mastery by using PQ4R technique. The test would be administrated during pretest and posttest section.

F. Validity and Reliability Testing

Historically, validity was defined as the extent to which an instrument measured what it claimed to measure. The focus of recent views of validity is not on the instrument itself but on the interpretation and meaning of the scores derived from the instrument (Ary, 2010:225). Heaton (1989:159) defines the validity of a test as extent to which it measures what it is supposed measure and nothing else. To measure whether the test has a good validity, the researcher analyzed the test from construct validity and face validity.

a. Construct Validity

Construct validity has traditionally been defined as the experimental demonstration that a test is measuring the construct it claims to be measuring. Construct validity is whether the test interrelate with the theory that has been constructed before as the measurement. According to Ary (2010:250) said that Construct-related evidence of validity focuses on test scores as a measure of a psychological construct. Therefore, in this study the researcher has constructed the blueprint for the test in order to determine the test's validity. The blueprint of the test can be seen on the table below:

Table 3.1. Blueprint of the Test

Reading Narrative Text

Construct	Dimension	Sub Dimension	Variable	Indicator	Item Number
Social Function	Narrative reading purpose	<ul style="list-style-type: none"> • Enter tain and infor m the reade r with a story 	<ul style="list-style-type: none"> • En gag e the rea der in an ima gin ativ e exp erie nce 	<ul style="list-style-type: none"> • Be able to deter mine certa in infor mati on in the readi ng text. 	1,2,11,
Narrative Text	Orientation	<ul style="list-style-type: none"> • Set the scen e: wher 	<ul style="list-style-type: none"> • Ma in ide a • Su 	<ul style="list-style-type: none"> • Be able to deter mine 	3, 13,14

		<p>e and</p> <p>when</p> <p>the</p> <p>story</p> <p>happ</p> <p>ened</p> <ul style="list-style-type: none"> • Intro <p>duce</p> <p>the</p> <p>parti</p> <p>cipan</p> <p>ts:</p> <p>who</p> <p>and</p> <p>what</p> <p>is</p> <p>invol</p> <p>ved</p> <p>in</p> <p>the</p> <p>story</p>	<p>ppo</p> <p>rtin</p> <p>g</p> <p>sen</p> <p>ten</p> <p>ce</p>	<p>the</p> <p>time</p> <p>and</p> <p>place</p> <p>that</p> <p>happ</p> <p>ened</p> <p>in</p> <p>the</p> <p>story</p> <p>.</p> <ul style="list-style-type: none"> • Be <p>able</p> <p>to</p> <p>deter</p> <p>mine</p> <p>the</p> <p>parti</p> <p>cipan</p> <p>t</p> <p>such</p> <p>as</p> <p>who</p> <p>and</p> <p>what</p>	
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				is invol ved in the story .	
	Complication	<ul style="list-style-type: none"> • Tells the beginning of the problems 	<ul style="list-style-type: none"> • Sequence of events • Plot • Setting • Characteristic 	<ul style="list-style-type: none"> • Be able to determine the problem in the story. 	5,6,12
	Resolution	<ul style="list-style-type: none"> • The probl 	<ul style="list-style-type: none"> • Un der 	<ul style="list-style-type: none"> • Be able 	7,8,9

		ems resol ved, eithe r in a happ y endi ng or in sad endi ng	sta ndi ng the con text of the stor y	to deter mine the probl em resol ved in the endi ng of the story .	
Reading	reading a narrative	<ul style="list-style-type: none"> Identify the appropriate title Identify the 		<ul style="list-style-type: none"> Be able to identify the appropriate title 	10,15

		<p>specific characters and place in the story .</p> <ul style="list-style-type: none"> • Describe of the characters and setting in the story . 		<p>in the story</p> <ul style="list-style-type: none"> • Be able to identify the characters of the subject in the story . • Be able to describe the 	
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		<ul style="list-style-type: none">• Decide moral value from the story		<p>characters of the subject in the story .</p> <ul style="list-style-type: none">• Be able to determine the moral value of the story .	
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b. Face Validity

Face validity is a term sometimes used in connection with a test's content. Face validity refers to the extent to which examinees believe the instrument is measuring what it is supposed to measure (Ary, 2010:228). This validity depends very much on the judgment of the validator/ the expert. In this study, the researcher use the face validity from an expert that is a teacher from the school where the research will be held. The researcher gave the test and the blueprint to the teacher and then let the teacher read and judge. If there is a revision, the researcher will revise until the test is valid for the collecting the data. The evidence of the expert validation can be seen on the appendix.

The reliability of a measuring instrument is the degree of consistency with which it measures whatever it is measuring. This quality is essential in any kind of measurement (Ary, 2003:236). In this study, the researcher conducted a tryout session before conducted the real test. Tryout session is administered in order to calculate the reliability and also validity of the test instrument. The researcher used SPSS 21 for windows in calculating the tryout's session score. The researcher conducted tryout session for the twenty students at MA Darul Hikmah on November 8th 2018. The sample for pretest session is ten students. While, the posttest session also consisted ten students. The result of the tryout session can be seen on the table below:

Table 3.2. The student's Pretest and Posttest Tryout Score

No	Name	Pretest	Name	Posttest
1	SFR	70	ANM	70
2	MTH	94	AIM	82
3	KAS	82	MDA	82
4	MSF	70	UA	64
5	AM	64	MNO	82
6	MRN	58	MBU	70
7	MRS	64	NAAH	64
8	MAB	76	MKN	64
9	AW	58	AS	70
10	MIM	70	ASR	82

After knowing the tryout session result, the researcher can find the mean and standard deviation in order to calculate the reliability of the test. The researcher used SPSS 21 program to calculate it. The result can be seen below:

Table 3.3. Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std.	Variance
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
Pretest	10	58	94	70,60	3,516	11,118	123,600
Posttest	10	64	82	73,00	2,569	8,124	66,000
Valid N (listwise)	10						

Meanwhile, to find out the reliability of the test, the researcher used *Cronbach's Alpha* in Statistic 21 program to determine the reliability level. The criteria of validity of the instrument can be divided into 5 classes as follows (Ridwan: 2004);

- 1) If the *item-total correlation* score 0.00-0.20: less valid
- 2) If the *item-total correlation* score 0.21-0.40: rather valid
- 3) If the *item-total correlation* score 0.41-0.60: enough valid
- 4) If the *item-total correlation* score 0.61-0.80: valid
- 5) If the *item-total correlation* score 0.81-1.00: very valid

After collecting the tryout session score, the researcher used SPSS 21 program to calculate the score. The result can be seen below:

Table 3.4. The Result of Reliability Testing by Using Cronbach's Alpha

Reliability Statistics

Cronbach's Alpha	N of Items
,636	2

From the reliability statistics table above, the value of *Cronbach's Alpha* showed 0,636. Thus, the value is included in classification of the criteria score 0, 61 - 0, 80. In conclusion, the test instrument has valid criteria, therefore the test was reliable.

G. Normality and Homogeneity Testing

1. Normality

Normality testing is a testing to see whether the test has a normal distribution or not. In this study, the researcher used *One-sample Kolmogorov-Smirnov Test* to analyze the normality from the students' score of the first grade students. The normality interpretation can be seen from the result of Asymp. Sig (2-tailde). If Sig (2-tailde) > significant 0.05 in consequence the test has a normal distribution. The computation result from SPSS 21 program can be seen on the table below:

Table 3.4. Normality Testing

One-Sample Kolmogorov-Smirnov Test

		Pretest	Posttest
N		11	11
Normal Parameters(a,b)	Mean	70,00	67,27
	Std. Deviation	10,733	8,638
Most Extreme Differences	Absolute	,227	,194
	Positive	,227	,194

	Negative	-,132	-,142
Kolmogorov-Smirnov Z		,754	,644
Asymp. Sig. (2-tailed)		,621	,801

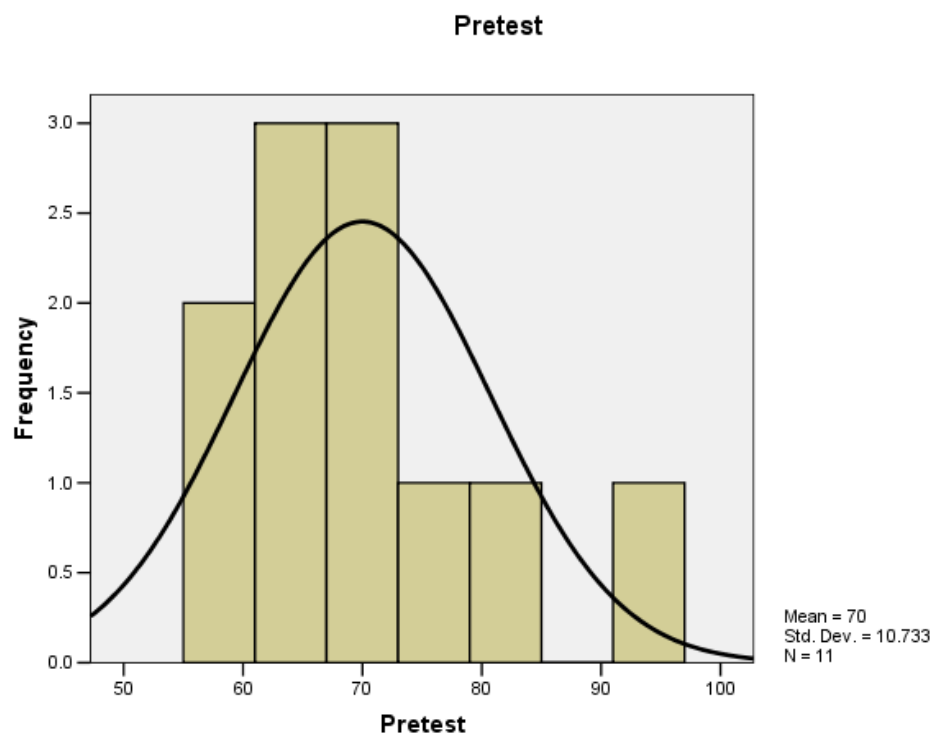
a Test distribution is Normal.

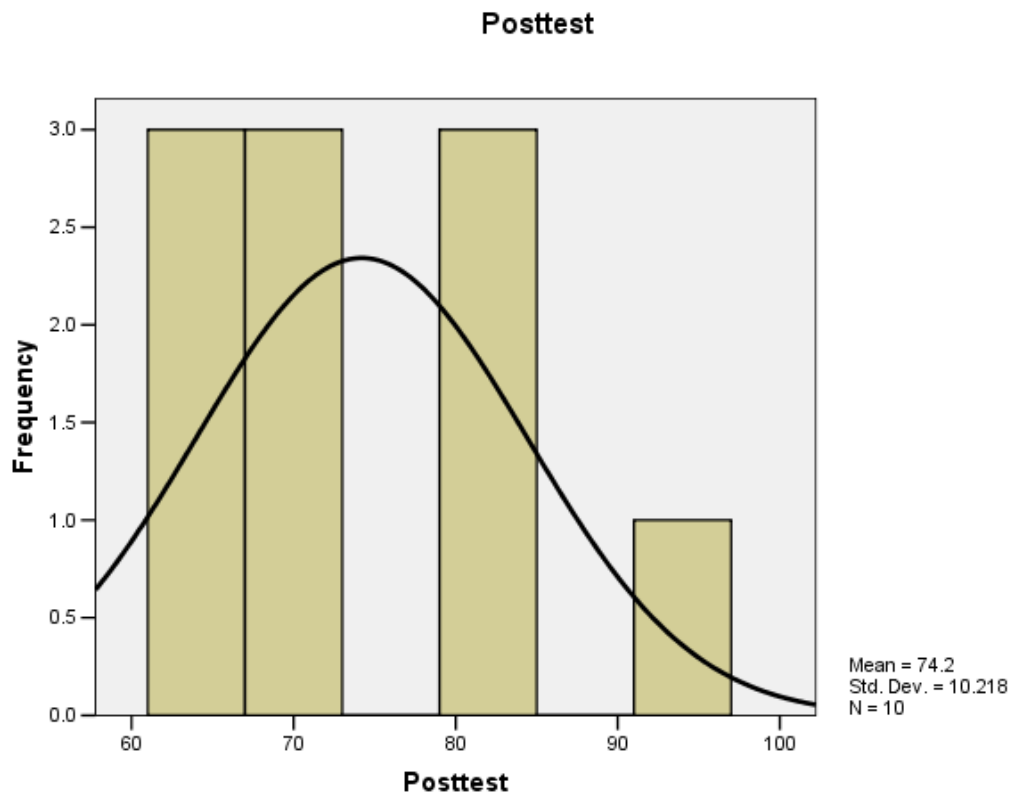
b Calculated from data.

From the computation result above, it showed that the value of pretest was 0,621 and the value of posttest was 0,801. It means that both of the values were bigger than significant 0.05. In conclusion, the test has normal distribution.

In addition, the researcher also added the histogram completed with normal curve. The histogram can be seen as follows:

Figure 3.1. Histogram and Curve for the Tryout Session





2. Homogeneity Testing

Homogeneity testing is used to know whether the subjects of this study is homogeneity class or not. Homogeneity testing is calculated to see the variance of the sample. The researcher used *One Way Anova in SPSS 21* program to calculate the variance, the computation result can be seen as follows:

Table 3.5. Homogeneity testing

Test of Homogeneity of Variances

Score			
Levene	df1	df2	Sig.
Statistic			
,093	1	20	,763

ANOVA

Score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	40,909	1	40,909	,431	,519
Within Groups	1898,182	20	94,909		
Total	1939,091	21			

As the test criterion, if the Sig bigger than significant 0.05, in consequence the variance of the sample group is equal. From the table above, it showed that the value was 0,763, it means $0,763 > \text{Sig } 0.05$. In conclusion, the sample group is equal.