CHAPTER III

RESEARCH METHODOLOGY

A. The Research Design

The method of this research is experimental research. According to Gay, experimental research is the only type of research that can test hypothesis to establish cause-and-effect relationships.[1] This research is used when the writer wants to establish possible cause and effect between the independent and dependent variables.[2] The design of this research is quasi-experimental research. Gay and Airasian state that quasi-experimental design is used when the researcher keeps students in existing classroom intact and the entire classrooms are assigned to treatments.[3] The writer uses intact groups, the first class is experimental class and the second class is control class. Quasi-experimental design has many designs. In this research the writer applies quasi-experimental non-equivalent control group design. According to Gay, the non-equivalent control group design is the design that involves random assignment of intact groups of the treatments, not random assignment of individuals.[4]

According to Creswell, the design of the research can be illustrated as follows:

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[1]L.R. Gay and Peter Airasian. *Educational Research: Competencies for Analysis and Application (Sixth Edition). (*New Jersey: Prentice-Hall, 2000). p. 367

[2]Jhon W. Creswell. *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research.* (New Jersey: Pearson Education, 2008). p. 299

[3]L.R. Gay and Peter Airasian. *Op. Cit.* p. 394

[4]L.R. Gay and Peter Airasian.*Ibid.* p. 395

Table III.1
Quasi-Experimental Design

Control Group	Pre-test	Conventional Strategy	Post-test
Experimental Group	Pre-test	RAP Strategy	Post-test[5]

There are two variables that are used in this research, first is the effect of using Read, Ask question, and Put into your own words (RAP) strategy as independent variable, and dependent variable is students' reading comprehension. In conducting this research, two classes of the second year students of Senior High School Yayasan Lembaga Pendidikan Islam (YLPI) Pekanbaru participated. The first class was the experimental class and the other was the control class. Both of classes, the experimental class and control class got different treatment. The experimental class was treated by using "Read, Ask question, and Put into your own words strategy" and the control class was treated as usual, without using "Read, Ask question, and Put into your own words strategy". At the end of this research, the writer examined reading comprehension of the students who were taught by using "Read, Ask question, and Put into your own words strategy" and who were taught without using "Read, Ask question, and Put into your own words strategy". Their results were compared in order to determine the effect of the treatment.

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[5]John W Cresswell, *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research,* (New Jersey: Pearson Education, Ltd., 2008) p. 314

B. The Location and The Time of the Research

This research was conducted at Senior High School Yayasan Lembaga Pendidikan Islam (YLPI) Pekanbaru which is located at Kaharuddin Nasution Street, Marpoyan, Pekanbaru. It was conducted from February to March 2013.

C. The Subject and Object the Research

1. The subject of the research

The subject or source of the data of this research was the second year students of Senior High School Yayasan Lembaga Pendidikan Islam (YLPI) Pekanbaru academic year 2012-2013. The subjects consisted of three classes. Briefly, not all of the students who were studying at the second year of SMA Yayasan Lembaga Pendidikan Islam (YLPI) Pekanbaru were picked up to be the subject of this research, but only several of them.

2. The object of the research

The object of this research is the effect of using Read, Ask question, and Put into your own words (RAP) strategy toward students' reading comprehension.

D. The Population and Sample of the Research

1. Population

The population of this research was the second year students of Senior High School Yayasan Lembaga Pendidikan Islam (YLPI) Pekanbaru in 2012-2013 academic years. The total population of the second year students of Senior High School Yayasan Lembaga Pendidikan Islam (YLPI) Pekanbaru is

114 students which consisted of three classes. They were class XI. IPS, Class

XI. IPA1, and Class XI. IPA2.

TableIII.2
Distribution of the Research Population

No	Class	Population		
		Male	**Female**	**Total**
1	Class XI IPS	23	21	44
2	Class XI IPA1	4	31	35
3	Class XI IPA2	4	31	35
TOTAL 114				

2. Sample

Sampling is the process of selecting a number of individuals for a study

in a way in that represents the larger group from which they were selected.[6] In

obtaining the sample, the writer uses cluster sampling as the way to choose the

sample of population because the students are already formed into classes.

Cluster sampling is sampling in which groups, not individual, are randomly

selected[7]. Cluster sampling is a technique in selecting sample which consists of

a group of members collected in a group.[8] Based on the design of this research,

the writer only took two classes as the sample; they are XI IPA 1 as

experimental class and XI IPA 2 as control class.

E. The Technique of Collecting Data

In getting the data which were needed to support this research, the writer

used a test to measure the students' reading comprehension. In this technique, the

writer collected data by doing test. The same test was administered to the

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[6]L.R. Gay and Peter Airasian, *Op. Cit.* p. 121
[7]*Ibid.,* p. 129
[8]Hartono. *Metodologi Penelitian.* (Pekanbaru : Zanafa Publishing, 2011) p. 52

experimental and control class. Test was used to collect the data about the effect of using Read, Ask question, and Put into your own words (RAP) strategy toward students' reading comprehension. It is aimed to see if there is difference between the two classes. In this case, there were two tests; pre-test which was given before the treatment and post-test was given after the treatment.

To get the data about students' reading comprehension, the writer used the assessment based on the indicators of reading comprehension that have been explained in the operational concept. In this test, the writer used multiple choice tests in reading comprehension, consisting of 25 items.

Table III.3
Blue Print of Reading Comprehension

No	Indicators	Items Number	Number of Items
1	Finding Factual Information	1, 6, 11, 16, 21	5
2	Identifying Main Idea	2, 7, 12, 17, 22	5
3	Locating the Meaning of Vocabulary	3, 8, 13, 18, 23	5
4	Identifying Reference	4, 9, 14, 19, 24	5
5	Make to Identifying Inference	5, 10, 15, 20, 25	5
Total Items			**25**

F. The Validity and Reliability of the Test

1. Validity of the Test

Every test, whether it is a short, informal classroom test or a public examination should be as valid as the test constructor can make it. The test must aim in providing a true measure of the particular skill in which it is intended to measure.

According to Suharsimi Arikunto, there are two kinds of validity, namely logical validity and empirical validity. Logical validity is the validity stated based on the result of minds. The empirical validity is the validity stated

based on the result of experience.[9] It means that the instrument of the research stated valid if the instrument has been examined from the experience such as try out.

In this research, the instrument is multiple choice tests. So, the writer used product moment correlation as follow:

$$r_{xy} = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{\left[N\sum X^2 - (\sum X)^2 \,\middle|\, N\sum Y^2 - (\sum Y)^2\right]}}$$

The formula above was used to find out the validity of the each item tests that researcher gave to the students. The items that did not reach the standard level of validity were excluded from the test and they were changed with the new items. The standard of the validity can be seen in the following table:

Table III.4
The Standard of Validity of the Test

No	The Standard of Validity (r_{xy})	Category/Status
1	0.00-<0.20	Very Low
2	0.20-<0.40	Low
3	0.40-<0.60	Enough
4	0.60-<0.80	High
5	0.80- 1.00	Very High

(Adopted from: Suharsimi Arikunto)[10]

After analyzing the score of 20 students doing try out, the value of product moment (r_{xy}) can be seen in the following table:

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[9]Suharsimi Arikunto, *Dasar-Dasar Evaluasi Pendidikan (Edisi Revisi),* (Jakarta: Bumi Aksara, 2001) p. 65-66
[10]*Ibid.*, p.75

Table III.5
The Classification of Validity of Each Item

No	Items Number	The Value of Product Moment (r_{xy})	Interpretation/ Categories
1	Item 01	0.634	High
2	Item 02	0.599	Enough
3	Item 03	0.599	Enough
4	Item 04	0.231	Low
5	Item 05	0.599	Enough
6	Item 06	0.436	Enough
7	Item 07	0.436	Enough
8	Item 08	0.224	Low
9	Item 09	0.436	Enough
10	Item 10	0.599	Enough
11	Item 11	0.459	Enough
12	Item 12	0.599	Enough
13	Item 13	0.226	Low
14	Item 14	0.309	Low
15	Item 15	0.412	Enough
16	Item 16	0.417	Enough
17	Item 17	0.289	Low
18	Item 18	0.342	Low
19	Item 19	0.289	Low
20	Item 20	0.334	Low
21	Item 21	0.336	Low
22	Item 22	0.352	Low
23	Item 23	0.357	Low
24	Item 24	0.248	Low
25	Item 25	0.436	Enough

Based on the data obtained above, there was 1 item/question in the interval of high level, 0.60 - < 0.80. It is pointed out that 1 item/question is accepted in the standard validity of the test, while there were 12 items/questions were at the interval of enough level, 0.40 - < 0.60. It means that 12 items/questions were accepted. There were 12 items/questions in the interval of low level or score obtained 0.20 - < 0.40. It means that those 12

items/questions were accepted. It is pointed out that the value of product moment of each item number is accepted to use as the instrument of the test.

2. Reliability of the Test

A test must first be reliable as measuring instrument. Reliability is a necessary characteristic of any good test.

The formula used to find out the reliability of the test in this research is coefficient Alfa ( ) from Cronbach[11].

$$r_{11} = \left[\frac{n}{n-1}\right]\left[1 - \frac{\sum \sigma_t^2}{\sigma_t^2}\right]$$

Where the formula of variants is $\sigma^2 = \frac{\sum x^2 - \frac{(\sum x)^2}{N}}{N}$

r_{11} = Reliability of the instrument

N   = the number of items

$\sum \sigma_t^2$ = The total number of variant of items

σ_t^2 = the total of variant

N   = the number of the student/respondent

According to Suharsimi Arikunto, the value of correlation coefficients as follows[12];

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[11]*Ibid.*, p. 109

a. Between 0.800 to 1.00   = Very High
b. Between 0.600 to 0.800   = High
c. Between 0.400 to 0.600   = Enough
d. Between 0.200 to 0.400   = Low
e. Between 0.00 to 0.200   = Very Low

After analyzing the validity of the test, the writer analyzed the reliability of the test. Before analyzing the reliability of the test, the writer found the variants of each item first. It can be seen in the following table:

Table II.6
Variants Items of Reliability

No	Items Number	Variants
1	Item 01	0.248
2	Item 02	0.21
3	Item 03	0.21
4	Item 04	0.24
5	Item 05	0.21
6	Item 06	0.21
7	Item 07	0.21
8	Item 08	0.248
9	Item 09	0.21
10	Item 10	0.21
11	Item 11	0.21
12	Item 12	0.21
13	Item 13	0.21
14	Item 14	0.25
15	Item 15	0.21
16	Item 16	0.248
17	Item 17	0.248
18	Item 18	0.21
19	Item 19	0.248
20	Item 20	0.248
21	Item 21	0.24
22	Item 22	0.25
23	Item 23	0.24
24	Item 24	0.248
25	Item 25	0.21
Total	**n = 25**	$^2_t = 5.682$

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[12]*Ibid.*, p. 75

K $\quad = 25$

$\sigma_t^2 \quad = 5.682$

$\sigma_t^2 \quad = 21.948$

N $\quad = 20$

$r_{11} \quad = \left[\dfrac{n}{n-1}\right]\left[1 - \dfrac{\Sigma\sigma_t^2}{\sigma_t^2}\right]$

$r_{11} \quad = \left[\dfrac{25}{25-1}\right]\left[1 - \dfrac{5.682}{21.948}\right]$

$\qquad = \left[\dfrac{25}{24}\right][1 - 0.259]$

$\qquad = \dfrac{25}{24} \times 0.741$

$\qquad = \dfrac{18.525}{24}$

$\qquad = 0.772$

It can be described that the value of "r_{11}" is 0.772 intended to prove whether each item of the test is reliable at the 5% level of significance or not. The value of "r_{11}" (0.772) and the "r" table were compared by getting the degree of freedom (df). To get the level of "df", the following formula was used:

df   = n – 2

          = 20 – 2

          = 18

The degree of freedom is 18 and the 5% level of significance refers to 0.444. So, it can be analyzed that the value of "r" is bigger than "r" table in the 5% level of significance. It can be read that $0.772 > 0.444$.

So, the writer can conclude that the instrument of the research is reliable and it can be used as the instrument of the research.

G. The Technique of Data Analysis

The technique of data analysis used in this research was T-test formula by using SPSS (Statistical Package for the Social Sciences). In analyzing the data, the writer used the checklist on the observation list and scores of post-test of experimental as well as the control group. These scores were analyzed statically. The writer used score of experimental class and control class.

To analyze the collected data, the writer established some categories to classify the result of the test as main instrument of this research, According to Hartono; the score range is as follows:

Formula :

$$to = \frac{Mx - My}{\sqrt{\left(\frac{SDx}{\sqrt{N-1}}\right)^2 + \left(\frac{SDy}{\sqrt{N-1}}\right)^2}}$$

Where:

to   : The value of t-obtained

Mx   : Mean score of experiment class

My   : Mean score of control class

SDx   : Standard deviation of experiment class

SDy   : Standard deviation of control class

N   : Number of students

The t-test was obtained by considering the degree of freedom (df) = (N1+N2)-2. Statistically the hypotheses are:

Ho: to < t-table

Ha: to > t-table

Ho is accepted if t_o < t – table or there is no significant effect of using Read, Ask questions, and Put into your own words strategy towards students' reading comprehension.

Ha is accepted if t_o > t $_{table}$ or there is significant effect of using Read, Ask questions, and Put into your own words strategy towards students' reading comprehension.