CHAPTER III

RESEARCH METHODOLOGY

A. The Research Design

Because of this research found out the effect of using Reading Guide-O-Rama Metacognitive strategy on the students' comprehension in reading narrative text. So, this research was an experimental research. According to Gay, "Experimental research is a research that can test hypotheses to establish cause and effect relationships."[1] The design of this research was quasi-experimental design. According to Nunan: "Quasi-experimental design has both pre- and post-tests and experimental and control groups, but no random assignment of subjects".[2] This research consisted of two variables; the independent variable is symbolized by "X" that is using Reading Guide-O-Rama metacognitive strategy and the dependent one is "Y" that refers to students' comprehension in reading narrative text at the tenth grade at Senior High School Muhammadiyah 1 Pekanbaru.

Creswell states that quasi-experiment is experimental situation in which the researcher assigns participants to groups, but not randomly[3]. The researcher used intact groups, the X Science 3 as experimental class and X Science 1 as control clas. Furthermore, quasi-experimental design is used when the

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[1] Gay, L.R. & Peter Airasian, *Educational Research: Competencies for Analysis and Aplication* (sixth edition), New Jersey: Prentice-Hall,Inc.2000 P.367.

[2] David Nunan. *Research Methods in Language Learning.*New York:Cambridge University.1992.P. 41.

[3]Cresswell, John W. *Educational Research (Third Edition).*Canada: Pearson Prentice-Hall. 2008,p. 313

researcher keeps the students in existing classroom intact and the entire classrooms are assigned to treatments[4].

Therefore, the researcher determined that the research was a quasi-experimental research, especially non-equivalent control group design. It was structure like a pretest-posttest randomized experiment, but its lack the key feature of the random assignment. In the non-equivalent control group design, we used intact groups that we think are similar to the treatment and control groups. It is also supported by Campbell and Stanley who state that non-equivalent control group design involves an experimental group and a control group both of them are given a pretest and a posttest, but in which the control group and the experimental group did not have pre-experimental sampling equivalence[5].

Table III. 1
THE RESEARCH DESIGN

Class	Pre-test	Treatment	Post-test
Experimental	O_1	X	O_2
Control	O_3	—	O_4

Note:

O_1 : Pre-test to experimental class

O_2 : Post-test to experimental class

O_3 : Pre-test to contol class

O_4 : Post-test to control class

X : Treatment, that is using Reading Guide-O-Rama Metacognitive strategy

[4] L.R. Gay, and Peter Airasian. *Educational Research: Competencies for Analysis and Application (Sixth Edition).* New Jersey: Pearson Prentice-Hall. 2000, p.394

[5]Donald T. Campbell and Julian C. Stanley.*Experimental and Quasi-Experimental Design for Research [Electronic Book]*.London: Houghton Mifflin Company. 1963. p. 47.

— : No treatment

In conducting this research, the researcher assigned intact groups the experimental and control treatments, using pre-test and post-test to both of groups, conducting experimental treatment activities with the experimental group only. The pre-test was used to measure the students' reading comprehension before being taught by using Reading Guide-O-Rama Metacognitive strategy and to know how much significant effect of using Reading Guide-O-Rama Metacognitive strategy on students' comprehension in reading narrative text.

B. The Location and the Time of the Research

The research was conducted at Senior High School Muhammadiyah 1 Pekanbaru, in 2013/2014 of academic year. The research was done from April-Mei 2014.

C. The Subject and Object of the Research

The subject of the research was the tenth grade students at Senior High School Muhammadiah 1 Pekanbaru. The object of the research was the effect of using Reading Guide-O-Rama strategy on the students' reading comprehension at Senior High School Muhammadiah 1 Pekanbaru.

D. The Population and the Sample of the Research

The population of the research was the tenth grade students at Senior High School Muhammadiyah 1 Pekanbaru in 2013/2014 academic years which consisted of 5 classes, 184 students.

In this research, the researcher used the cluster sampling as the way to choose the sample of population. In cluster sampling, the researcher selected sample based on the knowledge about the group itself. According to Kothari, cluster sampling is defined as follow[6];

> "If the total area of interest happens to be a big one, a convenient way in which a sample can be taken is to divide the area into a number of smaller non-overlapping areas and then to randomly select a number of these smaller areas (usually called clusters), with the ultimate sample consisting of all (or samples of) units in these small areas or clusters."

In addition, Kumar states that to select the intact group as a whole is known as a Cluster sampling. In Cluster sampling the sample units contain groups of elements (clusters) instead of individual members or items in the population.[7]The researcher did lotery to get 2 classes after doing lotery, the researcher got X Science 3as experimental class and X Science 1as control clas

Table III.2
THE SAMPLE OF THE RESEARCH

No	Classes	Sample		Total
		Male	Female	
1	XI Science 2	11	15	26
2	XI Science 3	10	16	26
	Total Sample			52

[6] C. R. Kothari. *Research Methodology Methods and Techniques [Electronic Book]*. Jaipur: New Age International Publication, 2004. p. 65

[7]Yogesh Kumar Singh. *Fundamental of Research Methodology and Statistics [Electronic Book]*. New Delhi: New Age International Publisher. 2006. p. 89

E. The Technique of Collecting Data

In this research, the researcher used test. The test was multiple choice, the question consisted of 25 items based on the indicator. The researcher administred pretest and posttest. Then, the researcher took the total score from the result of the reading comprehension test.

1. Procedures of Collecting Data for Control Class

In control class there were three procedures of collecting data:

a. Pre test: Pre test was a test that was given to the students before they were taught by using conventional method. It was used to measure the students' comprehension in reading before they were taught by using conventional strategy.

b. Teaching by using conventional strategy: In this case,the students were taught by using conventional strategy. The researcher explained to the students about narrative text, and the topic, and then taught them by using conventional strategy.

c. Post test was a test that was given to the students after they were taught by using conventional method. It was used to measure whether the students were able to comprehend narrative text.

2. Procedures of Collecting Data for Experimental Class

In the experimental class there were three procedures of collecting data:

a. Pre test: Pre test was a test that was given to the students before they were taught by using Reading Guide-O-Rama Metacognitive strategy. It

was used to measure the students' reading comprehension before they were taught by using Reading Guide-O-Rama Metacognitive strategy.

b. Treatment: In treatment,the students were taught by using Reading Guide-O-Rama Metacognitive strategy. The researcher explained to the students about narrative text, and the topic, and then taught them by using Reading Guide-O-Rama Metacognitive strategy.

c. Post test: Post test was a test that was given to the students after they were taught by using Reading Guide-O-Rama Metacognitive strategy. It was used to measure whether the students were able to comprehend narrative text.

Table III.3
THE BLUE PRINT OF THE READING COMPREHENSION ON NARRATIVE TEXT

No	Indicators	Number of Items	Number of Item
1	The students are required to be able to identify the main idea of narrative text.	5 Items	1,6,11,16, 21
2	The students are required to be able to identify the generic structure of narrative text.	5 Items	2,7,12,17, 22
3	The students are required to be able to make reference of narrative text.	5 Items	3,8,13,18, 23
4	The students are required to be able to analyze the meaning of certain words on narrative text.	5 Items	4,9,14,19, 24
5	The students are required to be able to identify facts such as the names of characters, the time of the story or the place of the story on narrative text.	5 Items	5,10,15,20, 25
TOTAL		**25 Items**	**25 Items**

Based on the table III.3, the proportion indicators of reading text are main idea in reading text, that can be found in item number 1,6,11,16, 21 identifying generic structureis found in item number 2,7,12,17, 22 identifying reference word of text is found in item number 3, 8, 13, 18, 23 analyzing the meaning of word is found in item number 4, 9, 14, 19, 24 and identifying the facts from the texts (characters, place, and time) is found in item number 5, 10, 15, 20, 25.

F. The Technique of Data Presentation

The data of the test from this research were presented into two ways. The first was classified based on absolute grading system formed by 100 score' scale combined with alphabet score' classification

The following is the absolute grading standard to interpret students'scores[8]:

Table III. 4
THE GRADING STANDARD FOR INTERPRETING STUDENTS' SCORE

Score (100 Scale)	Score (10 Scale)	Alphabet grade	Status
80-100	8.0-10	A	*Very Good*
66-79	6.6-7.9	B	*Good*
56-65	5.6-6.5	C	*Adequate*
40-55	4.0-5.5	D	*Less Adequate*
30-39	3.0-3.9	E	*Fail*

Besides, the researcher served the data based on the school's Minimum Passing Score. The graduation standard is 70. If the students' score is ≥ 70, the students are claimed as "*pass*" the subject. Then, if the students' score ≤ 70, the

[8]Daryanto, *EvaluasiPendidikan,* (Jakarta: PT. RinekaCipta, 2007), p. 201

students are categorized as "*no pass/fail*". Here the researcher just used the post-test score of experimental and control group to be classified based on absolute grading system and school's Minimum Passing Score.

Additionally, descriptive statistics of data would also be served to give a simple description or summary on the data finding or students' score. Descriptive statistics would summarize students' score in short. It consisted of mean (*M*), median (M_{dn}), mode (M_o), standard deviation (*SD*), and variance (S^2) of the data which were collected through test.

G. The Validity and Reliability of Instrument

1. Validity of Instrument

Every test should be as valid as the test constructor can make it. The test must aim at providing a true measure of the particular skill in which it is intended to measure.

Heaton states that the validity of a test refers to appropriateness of a given test or any of its component parts as measure of what it is purposed to measure. It means the test is valid to the extent that is measured what it is supposed to measure. There are three kinds of validity. They are face, content, construct and empirical validity[9]. This research used content validity. Content validity refers to whether or not the content of the manifest is right to measure the latent concept that we are trying to measure.[10]

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[9]J.B Heaton. *Writing English Language Test*. (New York: Longman Group UK Limited, 1988), p. 159

[10] Daniel Muijs. *Doing Quantitative Research in Educaton.*(London: Sage Publications, 2004), p.66.

The test given to students was considered too difficult or too easy. Item difficulty was determined as the proportion of correct responses. This is held pertinent to the index difficulty; it was generally expressed as the percentage of the students who answered the questions correctly. The formula[11] for item difficulty is as follows:

$$P = \frac{\sum B}{N}$$

Note

P : proportion of correct answer= index difficulties

∑B : the number of correct answer

N : the number of students taking the test

The formula above was used to find out easy or difficult test items that researcher gave to the respondents. The items did not reach the standard value of difficulty were modified. the standard value of the proportion of correct can be seen in the table bellow:[12]

Table III.5
THE INDEX DIFFICULTY LEVEL OF INSTRUMENTS

Proportion correct (p)	Item category
P > 0.70	Easy
0.30 ≤ P ≤ 0.70	Average
P < 0.30	Difficult

The facility value under 0.30 is considered difficult and above 0.70 is considered easy. The items categorised in the level of easy or

[11]Hartono.*Analisis Item Instrumen*, (Bandung: Zanafa Publishing, 2010), p.38.
[12]Hartono*Ibid.*

difficult (p < 0.30 or p > 0.70) should be modified. Therefore, the standard value of the proportion of correct is between 0.30 and 0.70

2. Reliability of Instrument

A test must be reliable as measuring instrument. Reliability is a necessary characteristic of any good test. Heaton explains that reliability is of primary importance in the use of public achievement, proficiency and classroom tests.[13] The mean and standard deviation of the test must be known for obtaining the reliability of the test. To know the reliability of the test, the researcher used the formula KR-20[14]:

$$rii = \frac{k}{k-1} \quad \frac{s^2 - \sum pq}{s^2}$$

Note

rii : Instrument reliability

k : Number of items

S : Deviation standard

P :The proportion of the students making correct answers was divided by the total number of the students

q :The proportion of the students making incorrect answers was divided by the total number of the students.

[13]Hatono *op.Cit*. p.159

[14]SuharsimiArikunto, *ProsedurPenelitian*: *SuatuPendekatanPraktek*, (Jakarta: PT RinekaCipta, 2006),p.187

H. The Technique of Data Analysis

The sources of data interval or score for this research were divided into two. They were from experimental group and control group. Their scores were analyzed and compared by using the parametric statistical analysis formula which is so called simple linear regression.

Simple linear regression was used to know whether there is a significant effect of using Reading Guide-O-Rama Metacognitive strategy on the students' comprehension in reading narrative text. This formula was computed by using SPPS.17. Here the researcher used *p*-value (Sig.) from ANOVA output to interpret the result and answer the hypotheses. The result would be interpreted as follow:

H_a is accepted:

If *p*-value (Sig.) < Alpha level ($\alpha = 0.05$) or there is a significant effect of using Reading Guide-O-Rama Metacognitive strategy on the students' comprehension in reading narrative text.

H_o is accepted

If *p*-value (Sig.) > Alpha level ($\alpha = 0.05$) or there is no significant effect of using Reading Guide-O-Rama Meacognitive strategy on the students' comprehension in reading narrative text.

Besides, the result of simple linear regression analysis which was computed by using SPSS.17 would be used to analyze the hypotheses testing, the coefficient of determination and the regression formula.

In addition, before applying simple linear regression analysis, the researcher should fill the 3 following assumption to analyze the parametric statistical analysis[15]:

a. The data must be interval
b. Normality of data
c. The variance of data must be homogenous

1. Normality Test of Data

Before analyzing the data by using t-test formula, the researcher had to find out the normality test of the data. The normality test of the data was analyzed by using Kolmogorov-Smirnove technique with SPSS 17 version.

Analysis:

H_o : population with normal distribution

H_a : population with not normal distribution

If the probability > 0.05 H_o was accepted

If the probability < 0.05 H_o was rejected

2. Analysis Data t-test

The technique of data analysis used in this research was T-test formula by using SPSS (Statistical Package for the Science Sciences) 17 Version. For analyzing the data, the researcher used the scores of post-test of experimental as well as control group.

The t-test was obtained by considering the degree of freedom (df) = N - nr. Statistically the hypotheses are:

[15]PunajiSetyosari, *Metode Penelitian Pendidikan dan Pengembangan*, (Jakarta: Kencana Prenada Media Group, 2010), p. 214

H_o: to<t-table

H_a: to>t-table

H_o is accepted if t_o< t table or there is no significant effect of using Reading Guide-O-Rama Metacognitive Strategy on the students' reading comprehension.

H_a is accepted if t_o> t table or there is a significant effect of using Reading Guide-O-Rama Metacognitive Strategy on the students' reading comprehension.

2. Homogeneity Test of Data

Levene test is a test that determines whether the variance of two groups is significantly different or significantly the same.[16] The Levene test was used to measure the homogeneity of variance of data. Data homogeneity test used to measure whether the data are collected from the population or not. Data homogeneity of variance test was calculated by using SPSS. 17. The data SPSS result for Levene test interpreted as follows:

p-value (Sig.) > 0.05 = the data is homogenous

p-value (Sig.) < 0.05 = the data is not homogenous

3. Effect Size

In this research, the researcher used effect size. According to Miles and Banyard: "in the case of the independent groups *t*-test, an appropriate measure of effect size is called Cohen's *d*.Cohen's*d* is a measure of how far

[16] Arthur Griffin, *SPSS for Dumemies,* (2nded: Indianapolis, Indiana: Willey Publishing, Inc., 2010), p. 332

apart the means of the two samples are; in standard deviation units".[17] To analiyze the effect size the researcher used the following formula:[18]

$$d = \frac{2t}{\overline{df}}$$

Where:
d :effect size
t : the result of the *t*-test
df : the degrees of freedom, which is N1 + N2 – 2

To interpret the effect size of the difference between the experimental and control group, the researcher used the following criteria:[19]

Table III.6
THE INTERPRETING OF THE STRENGHT OF A RELATIONSHIP (EFFECT SIZE)

No	General Interpretation of the Strength of a Relationship	The d family
1	Very large	≥ 100
2	Large	0.80
3	Medium	0.50
4	Small	0.20

[17]Jeremy Miles and Philip Banyard.*Understanding and UsingStatistics in Psychology*. London: SAGA Publication. 2007. P. 154
[18]ibid
[19]Nancy L. Leech, et.al. *SPSS for Intermediate Statistics Use and Interpretation.* New Jersey:Lawrence Erlbaum Associates Publishers. 2005. P. 56