

CHAPTER III

RESEARC HMETHOD

A. The Research Design

The design of this research is experimental research. According to Gay and Airasian experimental research is the only type of the research that can test hypothesis to establish cause and effect relationship.¹ Meanwhile, Creswell states that in experiment research is testing an idea (practice or procedure) to determine whether it influences an outcome or dependent variable.² The method used in this research was quasi-experimental research that was pre-test and post-test non-equivalent control group design. Quasi-experimental designs have experiment group and control group. The researcher assigned intact groups the experimental and control treatments. In this research, there were two variables. The first was independent variable symbolized by “X” and the second was dependent variable symbolized by “Y”. The use of Free Voluntary Reading Strategy was as X variable and students’ comprehension text as Y variable.

In conducting the research, there were two classes involved. The first was experimental class and the second was control class. The experimental class means

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

² John W Creswell, *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research Ed 3* (New Jersey: Education International, 2008), p. 299

the students who were given the treatment by using Free Voluntary reading Strategy, while the control class was not given Free Voluntary Reading Strategy.

The research design can be seen in the table below (*Quasi-Experimental Designs*):³

Table III.1
The Research Design

Group	Pre – test	Treatment	Post – test
Experimental	Test 1	✓	Test 2
Control	Test 1	X	Test 2

E = Experimental Group

C = Control Group

T1 = Pre – Test to experimental Group and Control Group

X = Receive the treatment using outlining technique

T2 = Post – Test to Experimental and Control Group

B. Time and Location of the Research

This research was conducted at MAN Kampar Timur located in Pekanbaru - Bangkinang Street, Kampar regency. The duration of this research was around two months, started from January to February.

³John W Creswell *Ibid*, p. 314

C. Subject and Object of the Research

The subject of this research was the second grade students of MAN Kampar Timur and the object of this research was Free Voluntary Reading Strategy and reading comprehension.

D. Population and sample of the Research

Population is a group of individuals who have same characteristics.⁴ The population of this research was the second grade students at MAN Kampar Timur. There were 5 classes which consisted of 3 classes for social and 2 classes for science major. The total number of the eleventh grade students was 150 students. Arikunto states that the number of the subject is less than 100, it is better to take all the population and if the number of the subject is more than 100, it is better to take sample about 10-15% or 20-25% of the population.⁵ So, the population above was large enough to be taken all as sample of the research.

Based on the limitation of the research, the researcher took only two classes of social department after doing cluster sampling; XI social 1 was as a control class and XI social 2 was as an experimental class. According to Gay, All the members of selected groups have similar characteristics.⁶ Therefore, the researcher took two classes to represent the population having similar characteristics.

⁴*Ibid*, p. 151

⁵Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik* (Jakarta: Rineka Cipta, 2006), p. 134

⁶Gay, L.R. and Peter Airasian, *op. cit.* p. 129

The similar characteristics were intended for the both of classes: in which the students were taught by the same teacher of English, the students had the same level, and the number of the students' mean score of reading skill was not much different.

The total population of the second grade students at MAN Kampar Timur 2013-2014:

Table III.2
Population of Research

Class	Male	Female	Total
XI IPS ¹	10	20	30
XI IPS ²	12	18	30
XI IPS ³	8	22	30
XI IPA ¹	8	22	30
XI IPA ²	10	20	30

(Source: document of MAN Kampar Timur academic year 2013/2014)

Table III
The Total Sampling of the Second Grade students of MAN Kampar Timur

NO	GROUP	CLASS	TOTAL
1	Experimental	XI IPS ¹	30
2	Control	XI IPS ²	30
Total			60

Based on the table above, that the writer took two classes of social department, they was XI IPS¹ as an experimental class, and XI IPS² as a control class. Where, the number of students in XI IPS¹ was 30, and the number of students in IX IPS² was 30. So, the total number of sample in this research was 60 students.

E. Technique ofCollecting Data

Collecting data is the most important one in research in order to support the research. In this research, the writer used test as instrument to collect data. Testing is the way in which the information about people language ability can be gathered. The test was used to find out the students' comprehension. The data of this research were the score of the students' reading comprehension obtained by using reading test.

1. Procedures of collecting data for control class

In control class there are three procedures of collecting data:

a. Pre test

Pre test was given by the researcher before the students are taught by using conventional strategy. It was used to know students' comprehension before being taught by using free voluntary reading strategy.

b. Teaching by using conventional strategy

In this case, the researcher started by giving topic to the students and then the researcher asked the students to read the passage.

- c. Post test was given to the students after they are taught by using conventional strategy. It was used to know whether the students are able comprehend the text.

2. Procedures of collecting data for experimental class

In the experiment class there are three procedures of collecting data:

- a. Pre test

Pre test was given to the students before the students were taught by using Free Voluntary Reading strategy. It is was to measure the students' comprehension text before they were taught by using Free Voluntary Reading strategy.

- b. Treatment

In treatment, the students were taught by using Free Voluntary Reading strategy. The researcher explained to the students about the topic, and taught them by using Free Voluntary Reading strategy.

- c. Post test

Post test was a test that was given twice to the students after they were taught by using Free Voluntary Reading strategy. It was used to know whether the students were able to comprehend the text easily by using Free Voluntary Reading strategy.

Meanwhile, The type of the test was multiple choice test. According to Hughes, one of the techniques that can assess the students' comprehension is multiple

choices test.⁷The test was be given to the experimental class and control class in order to find out the effect of using Knowledge Free Voluntary Reading strategy toward reading comprehension.The researcher distributed the test about reading comprehension. The materials of the test were not only adopted from the book of the second year students at MAN Kampar but also from internet sources.

Then the writer took the total score from the result of the reading comprehension test. The classification of the students' scores are shown below:

TABLE III.4
The Classification of Students' Score:⁸

Score	Categories
80-100	Excellent
60-79	Very good
40-59	Good
20-39	Enough
Less than 20	Bad

Finally, the result of the test in control and experiment class was compared. By this result, the researcher can identified, whether the Free Voluntary Reading strategy was an effective strategy that could be used in improving students' reading comprehension.

⁷H. Douglad Brown. *Language Assessment: Principles and Classroom Practice*. San Fransisco: San Fransisco State University, 2004, p. 206

⁸ David Haris P. *Teaching English as Second Language* .(New York: Mc. Graw Hill Book company.1969,p.79

F. The Validity and Realibility

1. Validity

Before getting the data, the writer used all of items in try out. The test was tried out to 31 students of the second grade students on the other class out of the samples. Try out was intended to know the value of the test. The value itself was used to find out the level of difficulties of each item. The standard of value used was 0.30 and 0.70.⁹The items that could not fulfill the standard value were replaced. The facility value under 0.30 is considered “difficult” and above 0.70 is considered “easy”. The level of difficulty was used to show how “easy” or “difficult” an item was. It was calculated by using the formula:¹⁰

$$P = \frac{B}{JS}$$

Where =

P : Index of difficulty

B : the number of the correct answer

JS :the number of students

The difficulty level of an item shows easy or difficult a particular item in a test. The items that do not reach the standard level of difficulty are excluding from the test and they are changed with new items that are propriate .

⁹Suharsimi Arikunto, *Ibid.* p. 208

¹⁰*Ibid* , p.208

The standard level of the difficulty used is >0.30 and <0.70 , it means that the level of difficulty is between 0.30 and 0.70 and it is rejected if the level of difficulty is less than 0.30 (the item is too difficult) and over than 0.70 (the item is too easy). The proportion of correct is represented by “p”, whereas the proportion of incorrect is represented by “q”. The calculation of item difficulty can be seen from the following table.

Table III.5
The students are able to state the main idea on narrative text

Variable	Main Idea					N
Item no	1	6	11	16	21	30
Total of correct item	11	18	16	13	19	
P	0.37	0.60	0.35	0.43	0.63	
Q	0.63	0.40	0.47	0.57	0.37	

Based on the table III.5 the item numbers for finding the main idea are 1, 6, 11, 16, and 21. It shows that the proportion of correct answer of number 1 is 0.37, the proportion of correct answer of number 6 is 0.60, and the proportion of the correct answer of number 11 is 0.35, and the proportion of correct answer of number 16 is 0.43, and the proportion of correct answer of number 21 is 0.63. Based on the standard difficulty “P” is > 0.30 and < 0.70 . So, the items of difficulties for finding main idea are accepted.

Table III.6
The students are able to identify generic structure on narrative text

Variable	Generic Structure					N
Item no	2	7	12	17	22	30
Total of correct item	20	14	18	16	19	
P	0.67	0.46	0.60	0.53	0.63	
Q	0.33	0.54	0.40	0.47	0.37	

Based on the table III.6 the item number for identifying generic structure are 2, 7, 12, 17, and 22. It shows that the proportion of correct answer of number 2 is 0.67, the proportion of correct answer of number 7 is 0.46, and the proportion of the correct answer of number 12 is 0.60, and the proportion of correct answer of number 17 is 0.53, and the proportion of correct answer of number 22 is 0.63, based on the standard difficulty “P” is > 0.30 and < 0.70 . So, the items of difficulties for identifying generic structure are accepted.

Table III.7
The students are able to make inference on narrative text

Variable	Making Inference					N
Item no	3	8	13	18	23	30
Total of correct item	19	19	17	15	16	
P	0.63	0.63	0.57	0.50	0.53	
Q	0.37	0.37	0.43	0.50	0.47	

Based on the table III.7 the item numbers for making inference are 3, 8, 13, 18, and 23. It shows that the proportion of correct answer of number 3 is 0.63, the proportion of correct answer of number 8 is 0.63, and the proportion of the correct answer of number 13 is 0.57, and the proportion of correct answer of number 18 is 0.50, and the proportion of correct answer of number 23 is 0.53, based on the standard difficulty “P” is > 0.30 and < 0.70 . So, the items of difficulties for making inference are accepted.

Table III.8
The students are able to analyze the meaning of certain words state topic on narrative text

Variable	Finding Certain Words					N
Item no	4	9	14	19	24	30
Total of correct item	14	16	21	18	19	
P	0.47	0.53	0.70	0.60	0.63	
Q	0.53	0.47	0.30	0.40	0.37	

Based on the table III.8 the item numbers for analyzing the meaning of certain words are 4, 9, 14, 19, and 24. It shows that the proportion of correct answer of number 4 is 0.47, the proportion of correct answer of number 9 is 0.53, and the proportion of the correct answer of number 14 is 0.70, and the proportion of correct answer of number 19 is 0.60, and the proportion of correct answer of number 24 is 0.63. Based on the standard difficulty “P” is > 0.30 and < 0.70 . So, the items of difficulties for analyzing the meaning of certain words are accepted.

Table III.9
The students are able to identifylocate or facts on narrative text

Variable	Identifying facts					N
Item no	5	10	15	20	25	30
Total of correct item	13	17	10	12	20	
P	0.43	0.57	0.33	0.40	0.67	
Q	0.57	0.43	0.67	0.60	0.33	

Based on the table III.9 the item numbers for Identifying facts are 5, 10, 15, 20, and 25. It shows that the proportion of correct answer of number 5 is 0.43, the proportion of correct answer of number 10 is 0.57, and the proportion of the correct answer of number 15 is 0.33, and the proportion of correct answer of number 20 is 0.40, and the proportion of correct answer of number 25 is 0.67. Based on the standard difficulty “P” is > 0.30 and < 0.70 . So, the items of difficulties for Identifying facts are accepted.

2. Reability

A reliability measures one that provides consistent and stable indication of the characteristic being investigated.¹¹ Calculation of reliability uses various kinds of formula. They are Spearman-Brown formula, Flanagan formula, Rulon formula, Hoyt formula, Alfa formula, Kuder Richardson 20 formula and Kuder Richardson 21 formula. From all of these formula, the writer used the Kuder Richardson 20 (K-R 20) formula to calculate the reliability of the test. The formula is as follows:

¹¹Suharsimi Arikunto. *Dasar-Dasar Evaluasi Pendidikan*. Jakarta: Bumi Aksara. 2009.p. 87

$$R_{11} = \frac{n}{n-1} \frac{S^2 - \sum pq}{S^2}$$

Where :

R11 = Reliability of the test

P = Proportion subject that answer the true of item

Q = Proportion subject that answer the false of item (q= 1-p)

pq = Total equals between p and q

n = Total of the item

S = Standard Deviation

Based on Suharsimi Arikunto, there is the interpretation of reliability as follows:¹²

Table III.11
Reliability Classification

SCORE	CATEGORIES
0.800 – 1.00	Very High
0.600 – 0.800	High
0.400 – 0.600	Enough
0.200 – 0.400	Low
0.00 – 0.200	Very Low

Where:

$$S = \sqrt{\frac{\sum X^2}{N}} = \sqrt{\frac{416}{30}} = \sqrt{13.86} = 3.72$$

¹²Suharsimi Arikunto. *Dasar-Dasar Evaluasi Pendidikan (Edisi Revisi)*. Jakarta: Bumi Aksara, 2008. P. 75

$$S = 3.72$$

$$n = 25$$

$$pq = 4.95$$

$$x^2 = 416$$

$$N = 30$$

So,

$$\begin{aligned} R_{11} &= \frac{25}{24-1} \frac{3.72^2 - 5.95}{3.72^2} \\ &= \frac{25}{24} \frac{13.83 - 5.95}{13.83} \\ &= 1.04 \cdot 0.56 \\ &= \mathbf{0.58} \end{aligned}$$

$$r_{ii} > r_t$$

The statistical counting above, the score reliability of the test is 0.58. To know the reliability of the test must be compared with r product moment. r_{ii} must be higher than r_t . Then r_t at 5% grade of significant is 0.355. While in the significant 1% is 0.456. So, it can be analyzed that r_{ii} higher than r_t . **5% $<r_{ii}>1%$. (0.456 $<0.58>$ 0.355).** On the other hand, the instrument is reliable. It means that the coefficient of reliability was enough.

G. The Technique of Data Analysis

In order to find out whether or not there is any significant effect of using Free Voluntary Reading strategy on students' reading comprehension, the data were analyzed statistically. In analyzing the data, the writer used scores of post-test of the experiment and control classes. Those scores were analyzed by using statistical analysis. In this research, the writer used T-test formula. In this term, it used independent samples T-test.

Hinton says that the independent sample T-test is undertaken when the samples are unrelated to different participant in each sample. This test is also called the unrelated T-test or the independent measure T-test.¹³ Jeremy also says that the independent groups T-test is the most powerful and is the test most likely to spot significant difference in the data. The independent groups T-test can be used for a non-experimental or quasi-experimental design.¹⁴

In this research, the writer used Independent sample t-test formula. The t-test for independent sample was used to determine the formulation of the problem, whether or not there is probably a significant difference between the means of two independent sample.¹⁵ The different mean in analysis by using T-test formula¹⁶ :

¹³Perry R. Hinton. *SPSS Explained*. 2004. New York: Routledge. P. 107

¹⁴Jeremy miles and Philip Banyard. *Understanding and Using Statistic in Psychology*. 2007. SAGE Publication: Los Angeles. P. 136-137

¹⁵L.R. Gay and Peter Airasian. *Opcit*, 484

¹⁶Hartono. "*statistic pendidikan* ". 2004. Pekanbaru: CV Jaya patama. P.193

$$t_o = \frac{M_x - M_y}{\sqrt{\left(\frac{SD_x}{\sqrt{N-1}}\right)^2 + \left(\frac{SD_y}{\sqrt{N-1}}\right)^2}}$$

Where :

t_o : The value of t- obtained

M_x : Mean score of experiment class

M_y : Mean score of control class

SD_x : Standard deviation of experiment

SD_y : Standard deviation of control class

N : Number of students

T-test is obtained by considering the degree of freedom (df) = (N1+N2) – 2.

Statistically, the Hypothesis are:

H_o is accepted if $t_o < t\text{-table}$ or there is no significant effect of Free Voluntary Reading strategy on students' reading comprehension.

H_a is accepted if $t_o > t\text{-table}$ or there is any significant effect of Free Voluntary Reading strategy on students' reading comprehension. Furthermore, in computing the data, the writer used Statistical Product and Service Solutions (SPSS) 16.0.