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CHAPTER III

METHOD OF THE RESEARCH

A. The Research Design

The method that used in this research was experimental research. According to Creswell (2008: 60) experimental research is a research in which the investigator determines whether an activity or material make a difference in result participants. In addition, Ross (2005:3) states that experimental research is used in settings where variables defining one or more causes can be manipulated in systematic fashion in order to discern effects on other variables.

The design of this research was quasi experimental research. According to Lodico et al (2006: 205) states that quasi experimental research involves random assignment of whole groups rather than individuals to treatments and requires pretesting and post testing participants. Ary (2010: 316) explains quasi-experimental design are similar to randomized experimental designs in that they involve manipulation of an independent variable but differ in that subjects are not randomly assigned to treatment groups.

Table III. 1
Research Design

Group	Pretest	Treatment	Posttest
Experiment	Y ₁	X	Y ₂
Control	Y ₁	-	Y ₂



B. Location and Time of the Research

The research was conducted on August 2016 at the tenth grade of Senior High School 5 Pekanbaru at Bawal Street no 3, Sukajadi, Pekanbaru.

C. Subject and Object of the Research

1. The Subject of the Research

The subject of this research was the students at the tenth grade of Senior High School 5 Pekanbaru.

2. The Object of the Research

The object of this research was using Paired Reading Strategy on students reading comprehension of narrative text at the tenth grade of Senior High School 5 Pekanbaru.

D. Population and Sample of the Research

1. Populations of the Research

The population of this research was the students at the tenth grade of the Senior High School 5 Pekanbaru in academic year 2016. The number of population was 280 students. It can be seen in the following table:

Table III.2
Number of the Tenth Grade Students of the
Senior High School 5 Pekanbaru.

Number	Population	
	Class	Total
1	X. 1	34
2	X. 2	34
3	X. 3	35
4	X. 4	36
5	X. 5	36
6	X. 6	34
7	X. 7	36
8	X. 8	35
Total		280

The populations of 280 students are large enough to be taken as sample. Because all population have the same characteristic such as their age and the place and time when they study, thus the writer will use cluster random sampling. According to Cohen (2007: 110) cluster sampling is used for two reasons; the first is that each number of populations under study has an equal chance of being selected, and the second is that when the population is large and widely dispersed. It is also explained by Singh (2006:89) that in cluster random sampling, the sample units contains groups of elements (clusters) instead of individual members of items in the population. In addition, Fraenkel et al (2012:96) explains that simple random sampling is more effective with larger numbers of individuals; cluster random sampling is more effective with larger numbers of clusters.

2. Sample of the Research.

The target population of this research was the tenth grade students of Senior High School 5 Pekanbaru. They consisted of eight classes (280

students). Considering the population of the research was bigger, thus, the researcher took the sample of the population only two classes by using cluster random sampling. According to Lodico (2006: 153) states that cluster random sampling is the random selection of the entire groups instead of individuals.

In this research, there were experimental and control classes. The experimental class was X.1 and the control class was X.2. Both experimental and control group were treated in the same test.

E. Technique of Collecting Data

The technique of data collection was by test. According to Ross (2005: 36) test is an instrument or procedure that proposes a sequence of tasks to which a student is to respond. The results are then used to form measures to define the relative value of the trait to which the test refers.

For the first step to start the research, the researcher did the preliminary research which was aiming at knowing what the students need to make the research clearly. The researcher took pre-test first, and then, after the strategy has applied, the researcher took post-test to measure the students' reading comprehension. The type of the test was multiple choice tests which consisted of 25 items. Every multiple choice item consisted four possible answer (a, b, c, and d).

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F. Validity, Reliability, and Normality of the Test

1. Validity

According to Fraenkle et al (2012: 147) validity refers to the appropriateness, meaningfulness, correctness, and usefulness of the inferences a researcher makes. In other words, validity is the degree to which correct inferences can be made based on results from an instrument; depends not only on the instrument itself but also on the instrumentation process and the characteristics of the group studied. Before the items were used to get the data, all of them were tried out first. The purpose of try out was to obtain validity and reliability of the test. It was determined by finding the difficulty level of each item. The formula for item difficult is as follows:

$$FV = \frac{R}{N}$$

Where:

- FV : Index of difficulty
- R : The number of correct answer
- N : The number of students

Adopted in Heaton (1988: 178)

The standard level of difficulty used is <0.30 and >0.70. It means that an item is accepted if the level of difficulty is between 0.30-0.70 and it is rejected if the level difficulty is less than 0.30 (the item 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 data

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obtained by using post-test were evaluated in five components. It can be seen from the following tables:

Table III.3
Students can identify the main idea of the text

Variable	Identify the main idea					N
Item no	1	6	11	16	21	34
Correct	24	22	25	24	23	
P	0.71	0.65	0.74	0.71	0.68	
Q	0.29	0.35	0.26	0.29	0.32	

$$FV = \frac{R}{N}$$

$$Q = 1.00 - P$$

The table III.2 above shows the portion of the correct answer. For item number 1 shows the proportion of correct 0.71, item number 6 shows the proportion of correct 0.65, item number 11 shows the proportion of correct 0.74, item number 16 shows the proportion of correct 0.71, and item number 21 shows the proportion of correct 0.68. Based on the standard level of difficulty “p” < 0.30 and > 0.70, it is pointed out that item difficulties is average of each item for identify the main idea of the text were accepted.

Table III.4
Students can identify the specific information of the text

Variable	Identify the specific information					N
Item no	2	7	12	17	22	34
Correct	23	25	25	21	25	
P	0.68	0.74	0.74	0.62	0.74	
Q	0.32	0.26	0.26	0.38	0.26	

$$FV = \frac{R}{N}$$

$$Q = 1.00 - P$$

The table III.3 above shows the portion of the correct answer. For item number 2 shows the proportion of correct 0.68, item number 7 shows the proportion of correct 0.74, item number 12 shows the proportion of

correct 0.74, item number 17 shows the proportion of correct 0.62, and item number 22 shows the proportion of correct 0.74. Based on the standard level of difficulty “p” < 0.30 and > 0.70, it is pointed out that item difficulties is average of each item for identify the specific information were accepted.

Table III.5
Students can identify the communicative purpose of the text

Variable	Identify the Communicative purpose					N
Item no	3	8	13	18	23	34
Correct	27	25	27	17	27	
P	0.79	0.74	0.79	0.50	0.79	
Q	0.21	0.26	0.21	0.50	0.21	

$$FV = \frac{R}{N}$$

$$Q = 1.00 - P$$

The table III.4 above shows the portion of the correct answer. For item number 3 shows the proportion of correct 0.79, item number 8 shows the proportion of correct 0.74, item number 13 shows the proportion of correct 0.79, item number 18 shows the proportion of correct 0.50, and item number 23 shows the proportion of correct 0.79. Based on the standard level of difficulty “p” < 0.30 and > 0.70, it is pointed out that item difficulties is average of each item for identify the communicative purpose were accepted.

Table III.6
Students can identify the generic structure

Variable	Identify the Generic Structure					N
Item no	4	9	14	19	24	34
Correct	23	25	23	23	27	
P	0.68	0.74	0.68	0.68	0.79	
Q	0.32	0.26	0.32	0.32	0.21	

$$FV = \frac{R}{N}$$

$$Q = 1.00 - P$$

The table III.5 above shows the portion of the correct answer. For item number 4 shows the proportion of correct 0.68, item number 9 shows the proportion of correct 0.74, item number 14 shows the proportion of correct 0.68, item number 19 shows the proportion of correct 0.68, and item number 24 shows the proportion of correct 0.79. Based on the standard level of difficulty “p” < 0.30 and > 0.70, it is pointed out that item difficulties is average of each item for students can identify the generic structure were accepted.

Table III.7
Students can identify inference of the text

Variable	Identify Inference of the text					N
Item no	5	10	15	20	25	34
Correct	25	27	24	23	24	
P	0.74	0.79	0.71	0.68	0.71	
Q	0.26	0.21	0.29	0.32	0.29	

$$FV = \frac{R}{N}$$

$$Q = 1.00 - P$$

The table III.6 above shows the portion of the correct answer. For item number 5 shows the proportion of correct 0.74, item number 10 shows the proportion of correct 0.79, item number 15 shows the proportion of correct 0.71, item number 20 shows the proportion of correct 0.68, and item number 25 shows the proportion of correct 0.71. Based on the standard level of difficulty “p” < 0.30 and > 0.70, it is pointed out that item difficulties is average of each item for students can identify inference were accepted.

Hartono in *Islah* (2016: 38) states the standard level of validity used is:

- a. If the standard level is 1.00 – 0.30 it is difficult.
- b. If the standard level is 0.30 – 0.70 it is accepted.

- c. If the standard level is 0.70 – 1.00 it is easy.

Based on the standard level of validity above, the researcher concluded that, the validity was average of each item for ability to identify the main idea, the specific information, the communicative purpose, the generic structure, and the inference of the text were accepted because they were in the middle of 0.30–0.70.

2. Reliability

According to Fraenkle et al (2012: 147) reliability refers to the consistency of scores or answers from one administration of an instrument to another, and from one set of items to another. To obtain the reliability of the test given, the researcher used the formula as follows:

$$KR20 : r_i = \frac{k}{(k-1)} \left\{ \frac{St^2 - \sum pq}{St^2} \right\}$$

Where:

K : The number of items in the instrument

P : Proportion of objects who answered the item correctly

Q : Proportion of subjects who answered the item with the wrong (1 – Pi)

$\sum pq$: The multiplication result between p and q

St^2 : Total variance

We should calculate first the total variance before:

$$St^2 = \frac{x^2}{n}$$

N : The number of respondent

Adopted in Sugiyono that quoted in Islah (2016: 39)

$$X^2 = \sum Xt^2 - \left(\frac{\sum xt}{n} \right)^2$$

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$$X^2 = 10786 - \left(\frac{604}{34}\right)^2$$

$$X^2 = 10786 - \frac{364816}{34}$$

$$X^2 = 10786 - 10729.9$$

$$X^2 = 56.1$$

$$St^2 = \frac{x^2}{n}$$

$$St^2 = \frac{56.1}{34}$$

$$St^2 = 1.65$$

$$ri = \frac{k}{(k-1)} \left\{ \frac{St^2 - \sum pq}{St^2} \right\}$$

$$ri = \frac{34}{(34-1)} \left\{ \frac{56.1 - 5.0380}{56.1} \right\}$$

$$ri = \frac{34}{33} \left\{ \frac{51.062}{56.1} \right\}$$

$$ri = 1.0303 \{0.9102\}$$

$$ri = 0.93778$$

The reliability coefficients for good reading comprehension test were expected to exceed 0.0 and closed to 1.00. Heaton (1988:168) the reliability of the test was considered is as follows:

1. 0.0 – 0.20 = reliability is low
2. 0.21 – 0.40 = reliability is sufficient
3. 0.41 – 0.70 = reliability is high
4. 0.71 – 1.00 = reliability is very high



From Heaton level above, it can be said that reliability was accepted which was $0.71 < 0.93778 < 1.00$ or higher than 0.70 and lower than 1.00. It also can be stated that reliability is **very high**.

3. Normality

The aim of test of normality of data is used to know whether the data distribution is normal distribution or not. According to Fraenkel (2012: 195) states the large majority of scores are concentrated in the middle of the distribution and the scores decrease in frequency. The normality of the data can be seen as follows:

Table III.8
Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
Experiment	.132	34	.140	.957	34	.197
Control	.139	34	.096	.935	34	.043

a. Lilliefors Significance Correction

According to Siregar (2013: 167) stated if probability (sig) > 0.05 , H_0 is accepted. It means that the data has normal distribution. If probability (sig) < 0.05 , H_a is accepted. It means that the data has not normal distribution.

From the statement of Siregar above, it can be said that H_0 was accepted which was sig of experiment class = $0.140 > 0.05$ and sig of control class = $0.096 > 0.05$.



G. Technique of Analyzing Data

In analyzing the data, the researcher used students' post-test score in experimental and control classes. This score was analyzed statistically. In this research the researcher used these formulas:

a. Independent sample t-test

Gay (2011: 484) stated that the t-test for independent sample is used to determine whether or not there is probably a significant difference between the means of two independent samples. Independent sample t-test was used to know whether there is a significant effect on students' comprehension in reading narrative text taught by using and without using Paired Reading Strategy.

In this research, the data was analyzed by using SPSS 18. The T-table was employed to see whether or not there is a significant difference among the mean scores both of experimental and control class.

b. Effect Size.

In this research, the writer used effect size. According to Gay (2011: 101) effect size is a numerical way of expressing the strength or magnitude of a reported relation, be it causal or not. For example, in an experimental study the effect size expresses how much better (or worse) the experimental group performed on a task or test as compared to the control group.

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To analyze the effect size the writer used the following formula stated in Cohen (2007: 522) as follows:

$$\text{eta squared} = \frac{t^2}{t^2 + (N_1 + N_2 - 2)}$$

Where:

t	=	The t-value (calculated by SPSS)
N ₁	=	the number in the sample of group one
N ₂	=	the number in the sample of group two

According to Cohen (2007: 521) to interpret the effect size of the difference between the experimental and control group, the writer used the following criteria:

Cohen (2007: 522) states the guidance here from:

0.01 = a very small effect;

0.06 = a moderate effect; and

0.14 = a very large effect.