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CHAPTER III

RESEARCH METHODOLOGY

A. Research Design

In this research, the researcher used the quantitative research. It was designed as a comparative research which was intended to find out the significant difference in reading comprehension of recount text by using CIRC and JIGSAW at the Seventh Grade of Junior High School Muhammadiyah 1 Pekanbaru. In line to the statement stated by Fraenkle (1993, p.317), comparative research is an effort which decides differences. It is to compare two or more variables in order to know which one is better and see the cause.

Comparative tends to emphasize the differences or contrast rather than similarities. In relation to the statement above, James H (2006, p.219) stated that comparative research aims at attempting the differences between one variable to another one by simpli examining. The technique is called comparitional technique. Regarding the statement above, Gay (2000, p.353) stated that comparative research has two variables (independent and dependent variable), independent variable was divided into two different groups which were compared to the dependent variable. In this research, dependent variable was students' reading comprehension (Y) and independent variables were CIRC (X_1) and JIGSAW (X_2). In conducting this research, the

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researcher took two classes as the sample; control group, which was taught by using CIRC and experimental group, which was taught by using JIGSAW. After applying the techniques, the researcher administered a test to both of them in order to know the comparison of reading comprehension of the students taught by using the different techniques. The model of research design can be illustrated as follows:

Table III.1
The Comparative Design

Group	Independent Variable	Dependent Variable
E	X ₁	O
C	X ₂	O

Where:

E : Experimental group

C : Control group

X₁: CIRC (Cooperative Integrated Reading and Compositision)

X₂: JIGSAW technique

O : Reading Comprehension

This design as can be seen from the table. The treatment in this design was given to the two groups; (X₁) is the treatment for the experimental group that is CIRC, while (X₂) is the treatment for the control group that is JIGSAW.

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B. Location and Time of the Research

The location of this research is Junior High School Muhammadiyah 1 Pekanbaru, which is located on K.H. Ahmad Dahlan Street. This research was conducted on October 2017.

C. Subject and Object of the Research

The subject of the research was the seventh grade of State Junior High School Muhammadiyah 1 Pekanbaru. While the object of the research was comparison between students' reading comprehension of recount text taught by using CIRC and JIGSAW at the seventh grade of state junior high school muhammadiyah 1 pekanbaru.

D. Population and Sample of the Research

1. Population of the research

The population is the group interest to the researcher, the group to whom the researcher would like to generalize the results of the study (Fraenkel & wallen, 2009, p.91). The population of this research was the students at the seventh grade of State Junior High School Muhammadiyah 1 pekanbaru. Below is a table of population.

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Table III.2

**Population of the Seventh Grade of State Junior High
School Muhammadiyah 1 Pekanbaru**

No	Class	Population	Male	Female
1	VII 1	30	14	16
2	VII 2	30	16	14
3	VII 3	33	18	15
4	VII 4	25	11	14
5	VII 5	30	16	14
6	VII 6	26	16	10
7	VII 7	30	9	21
	Total Population	204	100	104

2. Sample of the research

According to Fraenkel & wallen (2009, p.91), a sample in a research study is the group on which information is obtained. The researcher took only two classes for the samples by using purposive sampling technique. Cohen (2007, p.115) stated that purposive sampling is the sample that has been chosen for a specific purpose. The researcher chose the class of VII 1 and VII 7 as the sample of the research.

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Table III.3

Sample of the Seventh Grade Students at State

Junior High School Muhammadiyah 1 Pekanbaru

No	Class	Male	Female	Numer of Students
1	VII 1	14	16	30
2	VII 7	9	21	30
TOTAL				60

E. The Technique of Collecting Data

In order to get some data that were needed to support this research, the researcher applied the technique of collecting the data by using Test technique. The researcher used test to find out the result of the comparison between reading comprehension by using CIRC and JIGSAW at the seventh grade of State Junior High School Muhammadiyah 1 Pekanbaru.

According to Hughes (2003, p.143), there are many techniques that can assess the students' reading comprehension; one of them is multiple choice techniques. With reference to the statement above, the researcher used multiple choice that was designed by using four choices and the students chose one of the correct answers. There were twenty questions about recount text that had to be done by the students in 2x45 minutes. In giving the test, the researcher correlated it to the goal of the reading in curriculum. Before that, the researcher gave try

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out to another class besides experimental class and control class in order to prove whether the test was valid and reliable or not. The final score was analyzed by using the following formula:

$$\text{Final Score} = \frac{\text{Total Correct Answer}}{\text{Total Questioner}} \times 100$$

1. Blue Print

The Blue print of the test is as follows:

Table III.4

Blue Print of the Test

No	Indicators	Total Item	Number of Item
1	Students are able to understand the words meaning in recount text	5 items	4, 5, 9, 12, 13
2	Students are able to understand the topic in recount text	5 items	1, 10, 11, 14, 16
3	Students are able to identify generic structure of recount text	5 Items	6, 15, 18, 19, 20
4	Students are able to identify the specific information of recount text	5 items	2, 3, 7, 8, 17

2. Validity and Reliability of the Test

Before the test was given to the sample, the test had been tried out to 30 students of the seventh grade. The purpose of try out was to obtain validity and reliability of the test.

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a. Validity of The Test

According to Hughes (2003, p.22), the test is said to be valid if it measures accurately what it is intended to measure. A test is used to measure the ability, knowledge, achievement or performance of a person. A valid test should be useful, meaningful, and appropriate in terms of the purpose of the assessment. In line to the statement above, Creswell (200, p. 169) states that validity means the score of individual was taken from an instrument that makes sense, meaningful, and the researcher can draw good conclusion.

According to Arikunto (2011, p.65), the validity has two kinds; there are logical validity and empirical validity. In this research, the researcher used logical validity. Logical validity is the validity stated based on the result of experience. It means that the instrument of the research is stated valid if the instrument has been examined from the experience such as try out. It was determined by finding the difficulty level of each item. The formula of item difficulty is as follows:

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

Where,

P : index of difficulty or facility value

B : the number of correct answers

JS : the number of examinees or students taking test

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The standard level of difficulty used is $0.30 < 0.70$. It means that the item test is accepted if the level of difficulty is between 0.30 – 0.70 and it is rejected if the level of difficulty is below 0.30 (difficult) and over 0.70 (easy). Then, the proportion of correct answer is represented by “P”, whereas the proportion of incorrect answer is represented by “Q”. It can be seen in the following tables:

Table III.5

Identifying the Words Meaning of the Text

Indicator	Identifying the Words Meaning of the Text					JS
Item No	4	5	9	12	13	30
Correct item (B)	20	17	15	19	16	
P	0.67	0.57	0.50	0.63	0.53	
Q	0.33	0.43	0.50	0.37	0.47	

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

$$Q = 1.00 - P$$

Based on the table III.5, the item numbers for identifying the words meaning of the text are 4, 5, 9, 12, and 13. It shows that the proportion of correct answer for item number 4 obtained 0.67, item number 5 obtained 0.57, item number 9 obtained 0.50, item number 12 obtained 0.63, and item number 13 obtained 0.53. Thus, Based on the standard level

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of difficulty the test items for identifying the words meaning of the text are accepted.

Table III.6

Identifying the Topic of the Text

Indicator	Identifying the Topic of the Text					JS
Item No	1	10	11	14	16	30
Correct item (B)	18	20	16	17	14	
P	0.60	0.67	0.53	0.57	0.47	
Q	0.40	0.33	0.47	0.43	0.53	

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

$$Q = 1.00 - P$$

Based on the table III.6, the item numbers for identifying the topic of the text are 1, 10, 11, 12, 14, and 16. It shows that the proportion of correct answer for item number 1 obtained 0.60, item number 10 obtained 0.67, item number 11 obtained 0.53, item number 14 obtained 0.57, and item number 16 obtained 0.47. Thus Based on the standard level of difficulty, the test items for identifying the topics of the text are accepted.

Table III.7

Identifying the Generic Structure of the Text

Indicator	Identifying the Generic Structure of the Text					JS
Item No	6	15	18	19	20	30
Correct item (B)	20	19	14	20	18	
P	0.67	0.63	0.47	0.67	0.60	
Q	0.33	0.37	0.53	0.33	0.40	

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

$$Q = 1.00 - P$$

Based on the table III.7, the item numbers for identifying the generic structure of the text are 6, 15, 18, 19, 20. It shows that the proportion of correct answer for item number 6 obtained 0.67, item number 15 obtained 0.63, item number 18 obtained 0.47, item number 19 obtained 0.67, and item number 20 obtained 0.60. Thus, Based on the standard level of difficulty, the test items for identifying the generic structure of the text are accepted.

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Table III.**Identifying the Specific Information of the Text**

Indicator	Identifying the Specific Information of the Text					JS
Item No	2	3	7	8	17	30
Correct item (B)	18	16	20	14	10	
P	0.60	0.53	0.67	0.47	0.33	
Q	0.40	0.47	0.33	0.53	0.67	

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

$$Q = 1.00 - P$$

Based on the table III.8, the item numbers for identifying the specific information of the text are 2, 3, 7, 8, and 17. It shows that the proportion of correct answer for item number 2 obtained 0.60, item number 3 obtained 0.53, item number 7 obtained 0.67, item number 8 obtained 0.47, and item number 17 obtained 0.33. Thus, Based on the standard level of difficulty, the test items for identifying the specific information of the text are accepted.

b. Reliability of the Test

Reliability is also an important component of a good test. According to Jacobs (1981, p.68) reliability refers to the extent to which a test yields consistent result. It means that

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reliability is used to measure the quality of the scores and the consistency of the test. In relation to the statement above, McMillan (2006, p130) remarks that reliability refers to the consistency of measurement, or the extent to which the scores are similar or different forms of the same instrument or occasions of data collection. Hence, a test would not be very valuable if it was inconsistent and produced different results every time. Thus, a test is considered reliable if we get the same result repeatedly. (Arikunto, 2011, p.100) In this research, the researcher used the Kuder Richardson 20 (K – R 20) formula to calculate the reliability of the test. The formula is as follows:

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

Where:

R_{11} : Reliability of the test

P : Proportion subject that answer the true of item

Q : Proportion subject that answer the false of item

$$(q = 1 - p)$$

$\sum pq$: Total equals between p and q

n : Total of the item

S : Standard Deviation

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The formula of standard deviation is as follows:

$$S : \sqrt{\frac{\sum X^2}{N}} = \sqrt{\frac{341}{30}} = \sqrt{11.37} = 3.37$$

$$N : 30$$

$$\sum pq : 4.75$$

$$\sum X^2 : 341$$

$$n : 30$$

So,

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

$$R_{11} = \left(\frac{30}{30-1}\right) \left(\frac{3.37^2 - 4.75}{3.37^2}\right)$$

$$= \left(\frac{30}{29}\right) \left(\frac{11.36 - 4.75}{11.36}\right)$$

$$= (1.034) \left(\frac{6.61}{11.36}\right)$$

$$= 0.60$$

Based on the statistical counting above, the score reliability of the test is 0.60. To know the reliability of the test must be compared with r product moment. R_{11} must be higher than r_t . Then r_t at 5 % level of significance is 0.334. While in the significance level of 1 % is 0.430. So, it can be analyzed that r_{ii} higher than r_t . **5 % < r_{ii} > 1%. (0.334 < 0.60 > 0.430)**. In the other words, the instrument is reliable.

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According to Heaton in Nurhikmah, the standard reliability was considered as follows :

0.00 – 0.20	= Reliability Low
0.21 – 0.40	= Reliability Sufficient
0.41 – 0.70	= Reliability High
0.70	= Reliability Very High

It means the reliability of the test is categorized into high level.

F. Technique of Data Analysis

For the technique of data analysis, the researcher used T-test (independent sample t-test) because this research compared the result of the test between control class and experimental class in order to find out whether there is or no a significant difference between reading comprehension of recount text by using CIRC and Jigsaw at State Junior High School Muhammadiyah 1 Pekanbaru. In relation to the statement, Hinton (2004, p.107) indicates that the independent sample T-test is undertaken when the samples are unrelated with different participant in each sample. This test is also called the unrelated T-test or the independent measure T-test.

According to Miles and Banyard (2007, p.137) also said that the independent groups T-test is the most powerful and is the test most likely to spot significant difference in the data. In analyzing the data,

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the researcher gave the classification of the students' score of reading comprehension below :

Table III. 9

The Classification of the Sudents' Score

Score	Categories
80-100	Very Good
66-79	Good
56-65	Enough
40-55	Less
30-39	Fail

The data were analyzed by using statistic software on SPSS 16.0 program for the inferential statistics in which the formula of t-test is as follows:

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

- Where,
- t_o : The value of T-obtained
 - M_x : Mean score of experimental sample
 - M_y : Mean score of control sample
 - SD_x : Standard deviation of experimental class
 - SD_y : Standard deviation of control class
 - N : Number of the students

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T-test is obtained by considering the degree of freedom (df) = $(N_1 + N_2) - 2$. Statistically, the hypotheses are:

H_0 is accepted if $t_{\text{obtained}} < t_{\text{table}}$ or there is no significant difference in reading comprehension between the students taught by using CIRC and Jigsaw at the seventh grade of State Junior High School Muhammadiyah 1 Pekanbaru.

H_a is accepted if $t_{\text{obtained}} > t_{\text{table}}$ or there is a significant difference in reading comprehension between the students taught by using CIRC and Jigsaw at the seventh grade of State Junior High School Muhammadiyah 1 Pekanbaru.