

CHAPTER III

RESEARCH METHODOLOGY

A. Research Design

The type of this research was an experimental research. Creswell stated that an experimental research was testing an idea (practice or procedure) to determine whether it influences an outcome or dependent variable.¹ This research consisted of two variables; independent variable (variable X) referred to the Creative Mapping strategy and dependent variable (variable Y) referred to the reading comprehension. In conducting this research, the writer used two classes. The first class was used as an experimental class which was taught by using Creative Mapping strategy and the second class was used as control class which was taught without Creative Mapping strategy.

The design of this research was a quasi-experimental design. Creswell states that quasi-experiment was experimental situation in which the researcher assigns participants to groups, but not randomly.²

The type of quasi-experimental design of this research was the non-equivalent control group design. In the non-equivalent control group design, the experimental and control classes were given pre-test and post-test. And only the experimental class was treated by using Creative Mapping strategy. The non-equivalent control group design can be shown below:³

¹Creswell, John W, *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*, New Jersey: Pearson Educational International, 2008, p. 299.

²*Ibid.* p. 313

³Donald, T. Campbell and Julian C, Stanley, *Experimental and Quasi-Experimental Design for Research* : Houghton Mifflin Company, 1963, p. 47

Table III.1
Nonequivalent Control Group

| Class | Pre-test | Treatment | Post-test |
|------------------|----------------|-----------|----------------|
| Experiment group | O ₁ | X | O ₂ |
| Control group | O ₃ | - | O ₄ |

Where :

O₁ : Pre-test for experimental group and control group

X : Receiving particular treatment

- : Without particular treatment

O₂ : Post-test for experimental group and control group

B. Time and Location of the Research

The research was conducted from August to October 2013, the location of this research was at Senior High School SMAN 1 Tempuling, Sungai Salak, Inhil regency

C. The Subject and the Object of the Research

The subject of this research was the first year students of SMAN 1 Tempuling. The object of this research was the effect of using creative mapping strategy on students' reading comprehension in narrative text.

D. The Population and Sample of the Research

The population of the research was the first grade at senior High School 1 Tempuling in 2013-2014 academic years. They consisted of four classes. The total number of the students were 110. Because the population of the students was large, the writer used clustersampling. The writer took 2 classes as a sample in this research. The total sample was 60 students that consisted of X1 and X2. The number of population and sample can be seen in the following table:

Table III. 2
Population and Sample

| No | Class | Population | Sample |
|--------------|--------------|-------------------|---------------|
| 1 | X1 | 30 | 30 |
| 2 | X2 | 30 | 30 |
| 3 | X3 | 30 | - |
| 4 | X4 | 20 | |
| Total | | 110 | 60 |

E. Technique of Collecting Data

To find out the effect of using creative mapping strategy toward reading comprehension, the writer used Test. Test was used as instrument to collect data. The test was divided into two ways:

1. Pre-test was used to determine students' reading comprehension before getting treatment.

2. Post-test was used to determine students' reading comprehension after getting the treatment. Post-test was carried out once, after treatment, to get the maximum result.

According to Hughes, there are many techniques that can assess the students' reading comprehension; one of them is multiple choice techniques.⁴ Then, the writer used multiple choice techniques consisting of 20 items. Multiple choice technique was a technique designed by using four choices and the participant choose one correct answer. This test could assess the students' reading comprehension.

After the students did the test. The writer then took the total score from the result of the reading comprehension test. The classification of the students' score can be seen below.⁵

Table III.3
Classification of Students' Score

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

⁴ Arthur Hughes. *Op. Cit.*, p. 143

⁵Suharsimi Arikunto, *Dasar-DasarEvaluasiPendidikan*, (Jakarta: BumiAksara, 2009). P.

F. The Item Difficulties, Validity, and Reliability

1. The Item Difficulties

Before getting the data, the writer used all of the items in try out. The test were tried out to 20 students of the first 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 0.70.⁶ The 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 and difficult an item was. It was calculated by using the formula:⁷

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

JS

Were:

P = Difficulty level

B = the number of correct answer

JS = Students tasking test

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 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

⁶*Ibid*, p. 208

⁷*Ibid*, p. 208

proportion of incorrect is represented by “q”. The calculation of item difficulty can be seen from the following table:

Table III. 4
Identifying the Main Idea of the Text

| Variable | Identifying the main idea | | | | N |
|----------|---------------------------|------|------|------|----|
| Item No. | 1 | 6 | 11 | 16 | 20 |
| Correct | 14 | 8 | 10 | 10 | |
| P | 0.70 | 0.40 | 0.50 | 0.50 | |
| Q | 0.30 | 0.60 | 0.50 | 0.50 | |
| | | | | | |

Based on the table above, the item numbers of question for identifying main idea were 1, 6, 11, and 16. It showed the proportion of correct answer of the test. The proportion of correct answer for item number 1 was 0.70, the proportion of correct answer for item number 6 was 0.40, the proportion of correct answer for item number 11 was 0.50, and the proportion of correct answer for item number 16 was 0.50. The total correct answer of identifying main idea was 0.52. Then, based on the standard level of difficulty “p” is > 0.30 and < 0.70 . So, the items of identifying main idea were accepted.

Table III. 5

Finding the New Vocabulary from the Text

| Variable | Find the new vocabulary from the text | | | | N |
|----------|---------------------------------------|------|------|------|----|
| Item No | 2 | 7 | 12 | 17 | 20 |
| Correct | 13 | 9 | 13 | 11 | |
| P | 0.65 | 0.45 | 0.65 | 0.55 | |
| Q | 0.35 | 0.55 | 0.35 | 0.45 | |
| | | | | | |

Based on the table above, the item numbers of finding the new vocabulary from the text were 2, 7, 12, and 17. It showed the proportion of correct answer of the test. The proportion of correct answer for item number 2 was 0.65 the proportion of correct answer for item number 9 was 0.45, the proportion of correct answer for item number 12 was 0.65, and the proportion of correct answer for item number 17 was 0.55. The total correct answer of finding the new vocabulary from the text was 0.57. Then, based on the standard level of difficulty “p” is > 0.30 and < 0.70 . So, the items of finding the new vocabulary from the text were accepted.

Table III. 6
Finding out the Specific Information in Narrative Text

| Variable | Find out specific information of the text | | | | N |
|----------|---|------|------|------|----|
| Item No. | 3 | 8 | 13 | 18 | 20 |
| Correct | 14 | 13 | 12 | 14 | |
| P | 0.70 | 0.65 | 0.60 | 0.70 | |
| Q | 0.30 | 0.35 | 0.40 | 0.30 | |

Based on the table above, the item numbers of finding out specific information of the text were 3, 8, 13, and 18. It showed the proportion of correct answer of the test. The proportion of correct answer for item number 3 was 0.70, the proportion of correct answer for item number 8 was 0.65, the proportion of correct answer for item number 13 was 0.60, and the proportion of correct answer for item number 18 was 0.70. The total correct answer of finding out specific information of the text was 0.66. Then, based on the standard level of difficulty “p” is > 0.30 and < 0.70 . So, the items of finding out specific information of the text were accepted.

Table III.7
Identifying the Reference of the Text

| Variable | Identifying the reference of the text | | | | N |
|----------|---------------------------------------|------|------|------|----|
| Item No. | 4 | 9 | 14 | 19 | 20 |
| Correct | 15 | 11 | 14 | 8 | |
| P | 0.75 | 0.55 | 0.70 | 0.40 | |
| Q | 0.25 | 0.45 | 0.30 | 0.60 | |
| | | | | | |

Based on the table above, the item numbers of question for identifying the reference of the text were 4, 9, 14, and 19. It showed the proportion of correct answer of the test. The proportion of correct answer for item number 4 was 0.75, the proportion of correct answer for item number 9 was 0.55, the proportion of correct answer for item number 14 was 0.70, and the proportion of correct answer for item number 19 was 0.40. The total correct answer of identifying the reference of the text was 0.6. Then, based on the standard level of difficulty “p” is > 0.30 and < 0.70 . So, the items of identifying the reference of the text were accepted.

Table III.8
Identifying the Organization of the Text

| Variable | Identifying the organization of the text | | | | N |
|----------|--|------|------|------|----|
| Item No. | 5 | 10 | 15 | 20 | 20 |
| Correct | 12 | 10 | 12 | 14 | |
| P | 0.60 | 0.50 | 0.60 | 0.70 | |
| Q | 0.40 | 0.50 | 0.40 | 0.30 | |
| | | | | | |

Based on the table above, the item numbers of question for identifying the organization of the text were 5, 10, 15, and 18. It showed the proportion of correct answer of the test. The proportion of correct answer for item number 5 was 0.60,

the proportion of correct answer for item number 10 was 0.50, the proportion of correct answer for item number 15 was 0.60, the proportion of correct answer for item number 20 was 0.70, the. The total correct answer of identifying the organization of the text was 0.6. Then, based on the standard level of difficulty “p” is > 0.30 and < 0.70 . So, the items of identifying the organization of the text were accepted.

2. Validity

Every test, whether it is a short, informal classroom test, or a public examination should be as valid as the test constructor that can make it. The instrument of the test must aim at providing a true measure. The instrument of the test is valid if the instrument that is used can measure the thing that will be measured.⁸

The purpose of try out was to obtain validity and reliability to the test. It was determined by finding the difficulty level of each item. To find validity the test, researcher used correlation product moment. By using this following the formula:⁹

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}}$$

Where:

r_{xy} = correlation product moment x and y

$\sum xy$ = total x and y

⁸L.R. Gay and Peter Airaisian, *Educational Research Competencies for Analysis and Application (6th Edition)*, New Jersey: Prentice Hall, Inc, 2000, p. 23

⁹Hartono, *Statistik untuk Penelitian*, Pekanbaru: Pustaka pelajar, 2004, p. 75

$$X^2 = X \text{ quadrant}$$

$$Y^2 = Y \text{ quadrant}$$

$$r_{xy} = \frac{1541,5}{1963,7 \cdot 2230}$$

$$r_{xy} = \frac{1541,5}{\sqrt{4379051}}$$

$$r_{xy} = \frac{1541,5}{2092} = 0,73$$

According to Suharsimi Arikunto state the ranges of validity are¹⁰

Table III.9

The Standard of Validity of the Test

| NO | The Standard of Validity (r_{xy}) | Score |
|----|---------------------------------------|-------------|
| 1 | Excellent | 0,800-1,00 |
| 2 | Good | 0,600-0,800 |
| 3 | Fair | 0,400-0,600 |
| 4 | Poor | 0,200-0,400 |
| 5 | Very Poor | 0,00-0,200 |

The writer concluded if the validity test in 0.73, so the validity is **good**

3. Reliability

Arikunto stated that it is possible for the test that is reliable but it is not valid, whereas the test is valid automatically, it is reliable. To obtain the reliability of the test given, the writer used Spearman- Brown formula as follows¹¹:

¹⁰Suharsimi Arikunto, *Op. Cit.*, p.75

¹¹Suharsimi Arikunto, *Prosedur penelitian*, Jakarta: PT Rineka Cipta, 2010, p. 223

$$r_{11} = \frac{2 r_{1/2 1/2}}{1 + r_{1/2 1/2}}$$

In Which

r_{11} : Instrumen of reliability

$r_{1/2 1/2}$: r_{xy} that mean as correlation of index

$$r_{11} = \frac{2 \times 0.73}{1 + 0.73}$$

$$r_{11} = \frac{1.46}{1.73}$$

$$r_{11} = \mathbf{084}$$

To know the test is reliable or not, the value of r_{11} must be compared with r product moment. The value of r_{11} must be higher than r table. From the calculation above the value of r_{11} is 0.84. Then the r_t at 5% grade of significance is 0.423. While r_t at 1% grade significance is 0.537. So, it can be concluded that $0.304 < 0.84 > 0.393$. In other words, the instrument is reliable because the value of r_{11} is higher than r_t . In short, the test of try out was excellent.

G. The Techniques of Data Analysis

In analyzing the students' reading comprehension, the writer used graduated standard (KKM) of English lesson in SMAN 1 Tempuling. It was 70 for students' reading comprehension. It means that for those who got score 70, they pass the graduated standard (KKM). While for those who got score < 70 they don't pass the graduated standard (KKM).

In analyzing the data, the writer used the statistical calculation of independent sample T-test formula. The independent sample T-test was used to find out the significant effect of using creative mapping strategy toward students reading comprehension of the first grade students at state senior high school 1 Tempuling. The data were analyzed by using SPSS 16.0 Version.