**CHAPTER III**

**RESEARCH METHODOLOGY**

**A. Research Design**

It is important to do a research in order to know the truth about something, and so is with this research. In this research, the researcher used experimental research with pretest–postest control group design. Experimental research is the only type of research that can test hypotheses to establih cause– effect relations. It represents the strongest chain of reasoning about the links between variables.[[1]](#footnote-1) Therefore, experimental research is the general plan that can test thypotheses and represents the stronges chain of reasoning about the links between variables. In this research, the researcher used quasi-experimental research design. Quasi experiments include assignment, but not random asignment of participants to groups. This is because the experimenter cannot artificially create groups for the experiment.[[2]](#footnote-2) In this research, the researcher used two classes of students that consists of the one class as the experimental class and another class as the control class.

The design was illustrated as follows :

**Table 2**

**Pre and Post test Design**

|  |  |  |  |
| --- | --- | --- | --- |
| Select Control Group | Pretes | LRD Strategy | Posttest |
| Select Experimental Group | Pretes | Semantic Mapping Strategy | Posttest |

In this research, the students were give pretest to know their basic skill in reading comprehension of report text before treatment and posttest after the treatment by semantic mapping. The pretest and posttest gave for control and experimental class. In the control class, the treatment used LRD strategy that is usually used by the teacher in teaching learning process. But in the experimental class, the researcher used semantic mapping as the experimental treatment.

**B. Variable of the Research**

A variable was a characteristic or attribute of an individual or an organization that the researcher can measure or observe and varies among individuals or organization study.[[3]](#footnote-3) There are two variables in this research namely: independent variable and dependent variable. Independent variable is the major variable which investigated. It is the variable that is selected, manipulated and meas ured in the research. While the dependent variable is a variable which is observed and measured to determine the effect of the independent variable.

The variables in this research were :

a. The independent variable in this research is semantic mapping (X).

b. The dependent variable in this research is students’ reading comprehension of report text (Y).

**C. Operational Definition of Variable**

The operational definition of variable is used to describe the characteristics of the variable investigated by the researcher is as follow:

1. **Independent Variable (X)**

Semantic mapping is a kind of strategy that can be used for teaching reading comprehension by allowing the students to make a point of of the ideas.

It is a strategy which students will decide the topic of a text and connecting ideas in their comprehension. Therefore, it will make them easy to comprehend the text.

1. **Dependent Variable (Y)**

Students’ reading comprehension of report text is a process done by the reader to get information contained in the text namely by understanding an existing text reading. The aspects are main idea/ topic sentence, expression/ idiom/ phrases in context, inference (implied detail), grammatical features, detail (scanning for a specially stated detail) excluding facts not written (unstated detailss) supporting idea, and vocabulary in context.

**D. Population, Sample, and Sampling Technique of the Research**

**1. Population of the Research**

A population is defined as all members of any well-defined class of people, events, or objects.[[4]](#footnote-4) According to Cres well, a population is a group of individuals who have the same characteristic.[[5]](#footnote-5) The population were the students of the ninth grade of Junior High School Muhammadiyah 3 Bandar lampung in the academic year of 2018/ 2019, and the total numbers of all the students were 248 students that divided into 6 classes. Based on the statement, all the classes were the population in this research.

The population can be seen from the Table 3.

**Table 3**

**The Total Number of the Students at the Ninth Grade of**

**Junior HighSchool Muhammadiyah 3 Bandar lampung**

**in the Academic Year of 2018/ 2019.**

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Class** | **Genre** | **Total** |
| **Male** | **Female** |
| 1. | IX A | 17 | 19 | 36 |
| 2. | IX B | 18 | 18 | 36 |
| 3. | IX C | 17 | 18 | 35 |
| 4. | IX D | 17 | 19 | 36 |
| 5. | IX E | 17 | 19 | 35 |
| 6. | IX F | 18 | 17 | 35 |
| 7 | IXG | 17 | 18 | 35 |
| Total | 119 | 129 | 248 |

*Source: junior high school Muhammadiyah 3 Bandar lampung in the academic year of 2018/2019.*

**2. Sample of the Research**

A sample is a subgroup of the target population that the res earcher plans to s tudy for generalizing about the target population.[[6]](#footnote-6) It means that sample is a group of individuals as a part of population which is chosen from the whole population. From the population, the researcher took two classes as the sample of the research, one as experimental class, which the students were taught by using semantic mapping strategy, and one as control class, which the students were taught by using LRD strategy used by the teacher. The experimental class was IX F and control class was IX E.

**3. Sampling Technique of the Research**

In this research, the researcher applied cluster random sampling. The selection of groups, or clusters, of subjects rather then individuals is known as cluster random sampling.[[7]](#footnote-7) Then, the researcher conducted the research at ninth grade which consistof six classes. Nevertheless, it is awkward to maintain all of the ninth grade students as sample of this research so the researcher selected two classes as the sample. Furthermore, the classes were chosen randomly by using lottery. Then, the researcher wrote the name of six of classes in a small paper and roll them. Next, they were shaken by hand and after that the researcher took two pieces. The first rolled paper come out was the experimental class that was IX F,and the second one were the control class that was IX E.

**E. Data Collecting Technique**

To know the result of the students’ reading comprehension, the researcher colleceted some data. The data were collected through tests. The one was be tested were students’ ability in reading report text before given a treatment (pre-test) and after being given the treatment (post-test). They are :

**1. Pre-test**

To know the basic of student’s reading comprehension, the researcher gave the test before giving the treatment. The test was in multiple choice questions. Then the researcher were take the score from the answer sheets.

**2. Post-test**

The researcher asked the students to answer some questions, It was given after the treatment. After knowing the students’ score at the post test, so the researcher could compare their scores before and after being given treatment to draw a conclusion about the use of semantic mapping strategy.

**F. Instrument of the Research**

An instrument is a tool for measuring, observing, or documenting quantitative data. It contains specific questions and response possibilities that you establish or develop in advance of the s tudy.[[8]](#footnote-8) In this research, the researcher used multiple choice questions to know students’ reading ability in comprehending report text. The test was aimed at measuring students’ reading ability in comprehending report text.

In measuring the students’ reading ability in reading comprehension, the test was administrated based on some creation according to brown theories. They are: main idea/ topic sentence, expression/ idiom/ phrases in context, inference (implied detail), grammatical features, detail (scanning for a specially stated detail) excluding facts not written (unstated detailss) supporting idea, and vocabulary in context.[[9]](#footnote-9)

**Table 4**

**The Test Spesifications for pretest and posttest before Validity**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Aspects** | **Indicator** | **Items numbers** | **Total** |
| **Pre-test** | **Post-test** |
| 1 | Main idea /Topic sentence | Students can find themain idea of the passages entitled | 1,13,22,29,33 | 5,8,10,15,20,23,28,35 | 13 |
| 2 | Expression / idiom / phrases in context | Students can understandthe meaning of expresions / idioms / phrases in context | 16,24,31,39 | 12,26,32 | 7 |
| 3 | Inference(implied detail) | Students can find what is inferred in the passage | 2,5,6,8,9,17,21,25,38 | 2,7,11,13,24,34,40 | 16 |
| 4 | Grammatical features | Students can match between the pronoun and what or who it stands for | 4,11,20,28,32 | 16,22,27,37,39 | 10 |
| 5 | Detail (s canning for a specially stated detail) | Students can scan for specially stated detail | 12,18 | 14,18,29,30,38 | 7 |
| 6 | Excludingfacts not written (uns tated details | Students canscan for unstated detail | 7,4,15,26,27,30,36 | 3,6,31,33,36 | 12 |
| 7 | Supporting idea    | Students can find thesupporting idea to support main idea |  3,23,34,35 | 1,9,19,25 | 8 |
| 8 |  Vocabulary in context  | Students can guess the meaning of difficult vocabularies from the context provided | 10,19,37,40 | 4,17,21 | 7 |
| **Total** | **40** | **40** | **80** |

**Table 5**

**The Test Spesifications for Pretest and Posttest After Validity**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Aspects** | **Indicator** | **Items numbers** | **Total** |
| **Pre-test** | **Post-test** |
| 1 | Main idea /Topic sentence | Students can find themain idea of the passages entitled | 1, 13, 33 | 5, 28, 35 | 6 |
| 2 | Expression / idiom / phrases in context | Students can understandthe meaning of expresions / idioms / phrases in context | 16, 24, 39 | 12, 26, 32 | 6 |
| 3 | Inference(implied detail) | Students can find what is inferred in the passage | 8, 9 | 13, 40 | 4 |
| 4 | Grammatical features | Students can match between the pronoun and what or who it stands for | 4, 20 | 22, 27 | 4 |
| 5 | Detail (s canning for a specially stated detail) | Students can scan for specially stated detail | 12, 18 | 14, 18 | 4 |
| 6 | Excludingfacts not written (uns tated details | Students can scan for unstated detail | 7, 15, 36 | 3, 6, 31 | 6 |
| 7 | Supporting idea    | Students can find thesupporting idea to support main idea | 2, 23, 34 | 1, 9, 19 | 6 |
| 8 |  Vocabulary in context  | Students can guess the meaning of difficult vocabularies from the context provided | 10, 19 | 4, 17 | 4 |
| **Total** | **20** | **20** | **40** |

**G. Research Procedure**

There are three steps were done in conducting this research. They are :

**1. Planning**

a. Determining the subject of the research

The subjects of the research were the students at the first semester of the ninth grade of SMP Muhammadiyah 3 Bandar lampung.

b. Preparing try-out

The researcher prepared a kind of test (called try-out test) that were be given to the students in IX C on July, 27th 2018. The researcher prepared try-out test for pre-test and post-test. Then the researcher evaluate the test items that were tested in pre-test and post-test.

c. Preparing pre-test

The researcher prepared a kind of test (called pre-test) that was given to the students.

d. Determining the material to be taught

The researcher determined the material to be taught to the students that is reading comprehension of report text.

e. Preparing post-test

The researcher prepared a kind of test (called post-test) that were given to the students. By giving post-test, the researcher known whether the students can improve their reading ability in comprehending English text or not.

**2. Application**

After making the planning, the researcher applied the research procedure that already planned before. There are some steps in doing this research :

1. In the first meeting, the researcher was gave try out for C class. This test is multiple choice that consist of 40 items with 4 options a,b,c and d.

b. In the second meeting, the resrearcher was given pre-test. The test is multiple choice with 4 options a,b,c and d. The total number of the test items is determined by the validity and reliability analys is of the try out. It means that only the valid and reliable test items was used in the pre-test.

c. After giving the pre-test to the students, the researcher conducted the treatment in the control class and the experimental class. In the experimental class, at the s econd until fourth meeting, the researcher conducted the treatment with semantic mapping strategy.

**3. Reporting**

The last point has been in the research procedure was reporting. There were some steps in reporting. The steps are as follows :

a. Analyzing the data received from try out test

b. Analyzing the data received from the pre-test and the post- test

c. Making a report on the findings.

**4. Scoring System**

Before getting the score, the researcher determined the procedure used in scoring the students’ work. In order to do that, the researcher used Arikunto’s formula. The scores of pretest and post-test calculated by using the following formula : $s=\frac{s}{n}×100$

Notes :

S = The score of the test

r = The total of the right answer

n = The total item

**H. Validity of Test and Reliability of Instrument**

**1. Validity of Test**

The validity is an important quality of any test. It is a condition in which a test can measure what is supposed to be measured. According to Kotari, validity is the most critical criterion and indicates the degree to which an ins trument measures what it is supposed to measure. Validity can also be thought of as utility. In other words, validity is the extent to which differences found with a measuring instrument reflect true differences among those being tested.[[10]](#footnote-10) To measure that the test has good validity, there are two basic types of validity, content validity, and construct validity.

**a. Content Validity**

Best and Kahn say that content validity refers to the degree to which the test actually measures or is specifically related to the traits for which it was design, content, validity is based upon the careful examination of course textbooks, syllabus, objectives, and the judgments of subject matter specialists.[[11]](#footnote-11) It means that to get content validity, the test can be adapted from course textbooks, syllabus, objectives, and the judgments of subject matter specialists. To get content validity, the test adapts with the students’ book and based on the syllabus for the eighth grade of SMP Muhammadiyah 3 Bandar lampung. (see appendix 5)

1. **Construct Validity**

Best and Khan said that construcy validity is needed to the measuring instrument that have some indicators to measures one aspect or construct, in this research the researcher administered the test whose the scoring covered eight aspects of reading by Brown, they are : main idea, expression/ idiom/ phrases in context, inference, supporting idea, grammar, vocabulary, detail, excluding fact not written. To make sure, the researcher will consult the instrument of the test (pre-test and pos-test) to the English teacher of SMP Muhammadiyah 3 Bandar Lampung that is Mr. Pujiono, S.Pd as a validator, for determining whether the test has obtained construct validity or not. (See appendix 3)

1. **Item Validity**

Item validity is the extent to some an individual item measures what is supports to measure. The researcher gave some questions to know valid or not the questions that give the students. The item validity used to measure the validity of the test items. In this researcher used ANATES to calculated the data obtained from the try out to find the item validity of each item. From the result of validity analysis by using ANATES, there were 20 invalid items of pretest, they were number 2, 5, 6, 11, 14, 17, 21, 22, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 40. Meanwhile, they were number 2, 7, 8, 10, 11, 15, 16, 20, 21, 23, 24, 25, 29, 30, 33, 34, 36, 37, 38, 39 in posttest.

(See Apendix 8)

**2. Reliability of test**

Fraenkel and Wallen said that reliability refers to consistency of the scores obtained how consistent they are for each individual from one administration of an instrument to another and from one set of items to another.[[12]](#footnote-12) Besides having high validity, a good test must have high reliability too. The researcher used ANATES to reliability of test.

The criteria of reliability test are:

0.91 – 1.00 =Very high reliability

0.71 – 0.90 =High reliability

0.41 – 0.70 =Medium reliablity

0.21 – 0.40 =Low reliability

1.0 – ≤ 0.20 =Very low reliability

Based on the ANATES, the researcher got the reliability of pretest and postest. In pretest the reliability was 0,82. It means that the pretest items had high reliability. Then, the reliability of the posttest was 0,86 that means the posttest also had high reliability. It can be seen in appendix (See Appendix 8)

**I. Data Analysis**

After collecting the data, the researcher analyzed the data by using independent sample t-test. There were two tests that must be done before analyzing the data by using independent sample t-test. They were normality test and homogeneity test.

**1. Fulfillment of the Assumptions**

Parametric statistical significance tests, such as analys was of variance and least squares regression, is widely used by researcher in many disciplines. It is including statistics parametric tests to produce accurate results. The assumptions underlying them such as normality and homogeneity test must be satisfied.

**a. Normality test**

The normality test was used to know whether the data in the experimental class and control classes are normally distributed or not.[[13]](#footnote-13) In this research the researcher used statistical computation by using SPSS (*Statistical Package for Social Science*) for normality. The test of normality employed are Kolmogorov – Smirnov and Shapiro Wilk.

The hypothes is for the normality test are formulated as follows :

$Ho:$ The data are normally distributed.

$Ha:$ The data are not normally distributed.

While the criteria of acceptance or rejection of hypothes is normality test were as follows :

$Ho:$ is accepted if Sig > α = 0.05

$Ha:$ is accepted if Sig < α = 0.05

**b. Homogeneity Test**

After the researcher get the conclusion of normality test, the researcher did the homogenity test in order to know whether the variance data is homogeneous or not. In this research the researcher used statistical computation by using SPSS (*Statistical Package for Social Science)*. The test of homogeneity employing Levene’s test.

The hypothesis for the homogeneity tests are formulated as follows :

$Ho$ = the variances of the data are homogenous

$Ha$ =the variances of the data are not homogenous

While the criteria of acceptance or rejection of hypothes was for homogeneity test were as follows:

Ho is accepted if Sig < α = 0.05

Ha is accepted if Sig < α = 0.05

**2. Hypothetical Test**

If the fulfillment of the as sumptions normally test and homogenity test were fulfilled, the researcher used independent sample t-test. In this case, the researcher used statistical computation by using SPSS (*Statistical Package for Social Science* ) version 17.0. For hypothetical of test. The purpose of using SPSS in this case is for practicality and efficiency in the study.

The hypotheses formulas were:

Ha: There is a significant influence of using semantic mapping strategy towards students reading comprehension of report text of the first semester at SMP Muhammadiyah 3 Bandar Lampung in the academic year of 2018/ 2019.

Ho: There is no a significant year of 2018 influence of using semantic mapping strategy towards students reading comprehension of report text of the first semester at SMP Muhammadiyah 3 Bandar Lampung in the academic / 2019.

While the criteria of hypothes is are:

$Ho$ is accepted if S ig < α = 0.05

$Ha$ is accepted if S ig < α = 0.05

1. L. R. Gay, Geoffrey E. Mills , and Peter Airas ian, *Educational Res earch, 10th edition*, (New York: Pears on, 2012), p. 250 [↑](#footnote-ref-1)
2. John W. Cres well*, Educational Res earch:Planning, Conducting, and Evaluating Quantitative and Qualitative Res earch, (*New York:Pears on Education, fourth edition, 2012), p. 309 [↑](#footnote-ref-2)
3. *Ibid. p.112* [↑](#footnote-ref-3)
4. Donal Ary, Lucy Ches er J acobs , and Chris S orens en, *Op. Cit.,* p.148 [↑](#footnote-ref-4)
5. J ohn W. Cres well, *Op.Cit., p.142* [↑](#footnote-ref-5)
6. *Ibid*. p. 142 [↑](#footnote-ref-6)
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8. John W. Cres well, *Educational Research:Planning, Conducting, and Evaluating Quantitative and Qualitative Research,* (New York: Pears on Education, fourth edition, 2012), p. 14 [↑](#footnote-ref-8)
9. Brown H. Douglass, *loc.cit*. p.206 [↑](#footnote-ref-9)
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13. Budiyno, *Statistica untuk penelitian,* (surakarta: University press, 2004),p. 170 [↑](#footnote-ref-13)