

CHAPTER III

RESEARCH METHOD

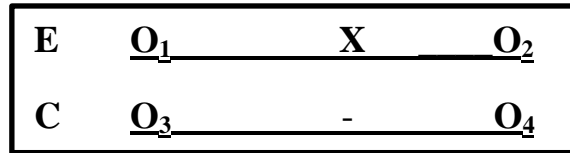
A. Research Design

This research is a quantitative research with a quasi-experimental method, which aims to know whether using Herringbone pattern is effective or not on students' reading comprehension. Creswell (2013, p. 185) states that an experimental method discussion follows a standard form: participants, materials, procedures, and measures. Cause and effect relationship demonstrate in the experimental design (Ary, 2010, p. 27). In this design, the pre-test and post-test in control and in experimental group will be used. Campbell and Stanley (1963, cited in Cohen, Manion, and Morrison, 2007, p. 276) state that the pre-test and post-test in control and in experimental group are the "true experimental" design. Both groups take a pretest and posttest and only the experimental group receives the treatment while the control group will give a conventional teaching method or strategy. Conventional teaching methods are traditional techniques that are often used by teachers in the learning and teaching process. In this research, the researcher used conventional technique by lecturing in front of the class. In this technique the teacher just stands in front of the class and explains the material according to the textbook.

Before giving treatment, the researcher gave pre-test. Then the researcher taught reading in experiment class by using Herringbone pattern. After three meetings, the researcher gave post-test to both classes. It was given to know the

effectiveness of Herringbone pattern to improve students' reading comprehension.

The design of experiment could be described as follows:



Based on the design above, experiment class in the top line and control class in the bottom line.

Note:

1. E is experimental class.
2. C is control class.
3. O₁ is the pre-test for experimental class in the form of written test to measure the students' reading comprehension on news item text before the treatment.
4. O₂ is the post-test for experimental class in the form of written test to measure the students' reading comprehension after the treatment.
5. O₃ is the pre-test for control class in the form of written test to measure the students' reading comprehension.
6. O₄ is the post-test for control class in the form of written test to measure the students' reading comprehension.
7. X is the treatment is teaching reading news item text using herringbone pattern for experiment class.

8. Conventional teaching method will be used in teaching reading news item text in control class.

B. Research Setting

This is a field research carried out at MAN 3 Banjarmasin. It locates at Jalan Batu Benawa 1 RT. 63 No. 61, Teluk Dalam, Kecamatan Banjarmasin Tengah, Banjarmasin City. South Kalimantan. Post Code 70115.

C. Population and Sample

1. Population

According to Sugiyono (2011, p. 80) population is generalization areas of subject that has certain qualities and characteristics of the applied research did. The population is the eleventh grade students at MAN 3 Banjarmasin. It has seven classes which consist of 39 to 40 students of each class. From seven classes (class XI IIK 1, XI IIK 2, XI IIS 1, XI IIS 2, XI MIA 1, XI MIA 2, XI MIA 3), there are 278 students taken as the population of research as in the following table:

Table 3.1 Population of Research

Class	Number of Students
XI IIK 1	40
XI IIK 2	39
XI IIS 1	39
XI IIS 2	40
XI MIA 1	40
XI MIA 2	40
XI MIA 3	40
Total	278

2. Sample

Sample is part of population (Sugiyono, 2011, p. 81). In this research, the researcher used purposive sampling. Purposive sampling means “selective sampling” or also known as judgmental, because the researcher take the sample based on the judgment of the researcher. Purposive sampling determines the sample based on certain consideration. The researcher considered several aspects in determining the sample. These aspects include in terms of the number of students and students' daily test scores. The sample consist of two classes, class XI IIS 1 as experiment class and class XI IIK 2 as control class. There are 32 students in experiment class and 32 students in control class.

D. Research Instrument

Fraenkel and Wallen (2009, p. 113) state that test is an instrument of the research. Here the researcher also used test, that is pre-test and post-test. The test consisted of several conditions which have validity and reliability.

1. Validity

Both of quantitative and qualitative or naturalistic research need a validation in the research. Validity is the most crucial idea to consider when preparing or selecting an instrument for being used. Validity refers to the appropriateness, meaningfulness, correctness and usefulness of the inferences a researcher makes. More than anything else, researchers want the information they obtain through the use of an instrument to serve their purposes (Fraenkel & Wallen, 2009). Through careful sampling technique,

appropriate instrument and appropriate statistical analysis, the validity of quantitative data will improve (Cohen, Manion, and Morrison, 2007, p. 133).

2. Reliability

Reliability is the degree to which an assessment tool produces stable and consistent result. Fraenkel and Wallen (2009, p. 157) stipulate that reliability refers to the consistency of the scores obtained.

E. Data Collection Procedure

Method of the data collection is the way used to collect the data. There are some data needed to fulfill in this research before the researcher gives the pre-test and post-test to the students. The test will be consulted first to the lecturer and the English teacher. After that researcher did a try-out instrument. Try-out instrument is conducted to measure the validity and reliability of the instrument before it is used in the research. Try-out instrument had conducted in different classes between experimental class and control class. In this research, XI IIS 2 is the class for try-out instrument, while XI IIS 1 is experimental class and XI IIK 2 is control class.

1. Pre-test

Before conducting the treatment for experiment class by using Herringbone pattern and conventional teaching method for control class, the teacher gave pre-test for experiment class and control class.

2. Post-test

After the teacher conducted treatment in experiment class and conventional teaching method in control class, the teacher gave both of classes post-test. It was given to know the students' comprehension and students' score in News Item Text after they were taught by using Herringbone pattern for experiment class and conventional teaching method for control class. The score of students can be calculated by using this following formula:

$$\text{Score} = \frac{\textit{The number of right answer}}{\textit{Total Item}} \times 100$$

The pre-test and post-test questions can be seen in the appendix. Pre-test was given to know the normality and homogeneity or equivalence of the experiment class before treatment and control class before teaching conventionally. While post-test was given to know whether there was a significant result after treatment in experiment class and after teaching conventionally in control class.

F. Data Analysis Procedure

This research used quantitative approach and data analyzing was the last step in this procedure of experiment. Data are measures of ability, knowledge, or performance of individual (Brown, 2010, p. 4). Therefore, quantitative approach is used to describe the effectiveness of Herringbone pattern to improve students' reading comprehension on news item text. The researcher analyzed validity and reliability of the instrument and calculated the result of the pre-test and post-test

by using *SPSS program ver. 22*. The analysis of the data purposes to answer the research questions and hypotheses.

1. Try-out Instrument

a. Validity

The important key of research is a validity. Validity in the test is the main process, because before the researcher applies the test items should checked whether it is valid to test. To check the validity of the test, researcher used Pearson Correlation. Calculation result of r_{count} is compared with r_{table} of Pearson Product Moment by 5% degree of significance. If r_{count} higher than r_{table} , the item of question is valid.

b. Reliability

Reliability in the test means the degree of confidence that will be put in the result of the data (Cohen, Manion, and Morrison, 2007, p. 432). The reliability of the test is tested by using the Cronbach's Alpha Coefficient. The range and the criteria of reliability test level can be classified as follows:

0.80-1.00 = Very Good

0.60-0.79 = Good

0.40-0.59 = Satisfied

0.20-0.39 = Poor

0.00-0.19 = Very Poor

c. Index Difficulty

To make a good question, the researcher needs to create test items that not very easy and not very difficult (Arikunto, 2010, p. 207). To know the item difficulty, the researcher counts the items by using *SPSS program ver.22* and after that looks at the mean of each item test on Item Statistics Table . The index of difficulty level can be classified as follows:

0.00-0.30 = Difficult

0.31-0.70 = Medium

0.71-1.00 = Easy

2. Data Analysis and Hypothesis Test

a. Pre-test Analysis

In this part, the researcher examined the score of students' pre-test, normality test of the data and homogeneity test of the sample in experiment class and control class.

1) Pre-test Score

The researcher displayed the score of both classes and examine the average score of the students whether experiment class and control class have significantly different average or not. The formula that is used as follows:

$$\text{Mean} = \frac{\text{Total}}{\text{Sample}}$$

2) Normality Test

Normality test is a process to know the data whether they distributed normally or not. To find out the normality of the data, the researcher used *Chi-square* test on *SPSS program ver. 22*. According to Kothari (2004, p. 237) if the calculated value X^2 is lower than the table value of X^2 ($X^2_{\text{count}} < X^2_{\text{table}}$) it can be interpreted that the data distribute normally and otherwise if $X^2_{\text{count}} > X^2_{\text{table}}$, the data do not distribute normally.

3) Homogeneity Test

Homogeneity test is a process to know the sample taken from population whether it has homogeneity or not. To know the result of homogeneity test, it can be interpreted with the criteria:

$P > 0.05$ = the data distribute homogeneously

$P < 0.05$ = the data do not distribute homogeneously

b. Post-test Analysis

In this part, the researcher examined the score of students' post-test. Normality test of the data, homogeneity test and examining the hypotheses were done in this research. These following steps are used:

1) Post-test Score

The researcher displayed the score of both classes and examined the average score of the students to see whether experiment class and control class have significantly different average or not. The formula that is used as follows:

$$\text{Mean} = \frac{\text{Total}}{\text{Sample}}$$

Based on this formula, it is also known the mean score of students' reading comprehension which described the level of achievement they had. To measure their score, the researcher used the following categories:

Table 3.2 Students' Achievement Category

Range	Categories
0 – 20	Very Poor
21 – 40	Poor
41 – 60	Fair
61 – 80	Good
81 – 100	Very Good

(Source: Arikunto, 2010, p. 269)

2) Normality Test

To find out the normality of the data, the researcher used *Chi-square* test on *SPSS program ver. 22*. To know the result of normality test, the criteria can be interpreted as follows If $X^2_{\text{count}} < X^2_{\text{table}}$, the data distribute normally and otherwise If $X^2_{\text{count}} > X^2_{\text{table}}$, the data do not distribute normally.

3) Homogeneity Test

Homogeneity test is a process to know whether the sample taken from population is homogeneity or not. To know the result of homogeneity test, it can be interpreted with the criteria:

$P > 0.05$ = the data distribute homogeneously

$P < 0.05$ = the data do not distribute homogeneously

4) Hypotheses Test

Hypotheses test is used to know whether there is a difference on post-test of experiment class and control class. To test the hypotheses, the researcher used T-test. There are two hypotheses in this research:

Ho (Null Hypotheses) = There is no significant difference between the students' reading comprehension on news item text by using Herringbone pattern in experiment class and without using it in control class at the eleventh grade of MAN 3 Banjarmasin.

Ha (Alternative Hypotheses) = There is a significant difference between the students' reading comprehension on news item text by using Herringbone pattern in experiment class and without using it in control class at the eleventh grade of MAN 3 Banjarmasin.

By applying testing criteria, it will be known that H_a is accepted if $t_{\text{count}} > t_{\text{table}}$ with determinate $df = (n_1 + n_2 - 2)$ and the significant $\alpha = 5\%$.