

CHAPTER III

METHODS AND PROCEDURES

This chapter presents: (1) research design; (2) variable of the study; (3) operational definition; (4) subject of the study; (5) data collection; (6) data instruments analysis; (7) research treatment; (8) data analysis; and (9) hypotheses testing

3.1 Research Design

In this study, the writer used quasi experimental design. Fraenkel ,Wallen and Hyun(2012)state that “quasi-experimental designs do not include the use of random assignment”(p. 275). One of quasi experimental design is pretest-posttest non-equivalent group design will be applied in this study. Pretest and posttest non-equivalent group is a design that divides a treatment group and comparison group which are compared using pretest and posttest measures. In this design, there are two groups as sample: experimental and control group which both of them will be given pretest and posttest. The experimental group is given treatments by using Concept Map Technique, but the control group is not. Cohen (2012), “defines the figure of Pretest and Posttest Groups Design as follows”(p. 283).

Treatment	O₁	X	O₂
Control	O₃		O₄

Where:

O1 : Pretest in experimental group

O3 : Pretest in control group

X : Treatment in experimental group using Concept Map

O2 : Posttest in experimental group

O4 : Posttest in control group

---- : Dashed line (Non random)

3.2 Research Variables

Based on Fraenkel et, al. (2012), “variable is a concept or a noun that stands for variation within a class of objects, such as chair, weight, gender, color, size, shape, achievement, motivation” (p. 77). In this study there are two variable, they are independent variable and dependent variable. Creswell (2012) argues that “dependent variable is an attribute or characteristic that is dependent on or influenced by the independent variable. An independent variable is an attribute or characteristic that influences or affects an outcome or dependent variable” (p. 115). Therefore the independent variable in this study is Concept Map technique and the dependent variable is the students’ recount writing ability.

3.3 Operational Definitions

The title of this study is “Using Concept Map Technique to Improve the Tenth Grade Student’s Recount Writing Ability” to the Tenth Grade students SMA Aisyiyah Palembang”. In order to avoid misunderstanding about the terms used in this study, it is necessary for the writer to define them. They are:

1. **Writing Ability** is the process of using symbols (letter of the alphabet, punctuation and spaces) to communicate thoughts and ideas in a readable form. In this research the students will be taught by using concept map technique.
2. **Recount Text** is a text that contains retelling events that happened in the past. A recount text usually uses the past tense and past continuous tense in its content and its sequence of events told. Its generic structure is the orientation, series of events, and re-orientation. In order to find the students’ recount writing ability, a text in recount

writing will be used. In this research recount text will be applied on students' at SMA Aisyiyah Palembang.

3. **Concept Map Technique** are tools for organizing and representing knowledge. They include concepts, usually enclosed in circles or boxes of some type, and relationships between concepts or propositions, indicated by a connecting line between two concepts. In this research experimental class will be taught by this technique but the control is not. And this technique will be applied to the students at SMA Aisyiyah Palembang.

3.4 Population and Sample

3.4.1 Population

According to Creswell (2012), "population is a group of individuals who have the same characteristic, if someone wants to investigate all of the elements in a research area, his research is population research" (p. 142). The population of this study is the tenth grade students' of SMA Aisyiyah Palembang consisting of three classes. The total of the students is 68 students.

Table 1

The population of the study

No	Class	Number of Student
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1	X IPA 1	24
2	X IPA 2	24
3	X IPS1	24
Total		68

(Source: SMA Aisyiyah Palembang in academic year 2019/2020)

3.4.2 Sample

In accordance with Fraenkel, et. al.(2012),“a sample in a research study is the group on which information is obtained. In this research, the researcher uses purposive sampling technique”(p. 91). According to Frankael and Wallen (2012), “purposive sampling is different from convenience sampling in that researcher do not simply study whoever is available but rather use their judgement to select a sample that they believe, based on prior information, will provide data they need” (p. 100).This technique is chosen because of some consideration, such as: 1) they had same level, 2) some students had same difficulties in writing activity, 3) they were taught by same teacher and 4) they had same total of students in the class.

Table 2. Distribution of sample

No	Class	Number of student	Groups
1	X IPA 1	24	1
2	X IPA2	24	2
Total		48	

(Source: SMA Aisyiyah palembang in academic year 2019/2020)

3.5 Technique for Collecting the Data

3.5.1 Test

Brown (2004), states that “test is a method of measuring a person’s ability, knowledge, or performance in a given domain”(p. 3).A test on recount writing is used by the

writer be used to measure the students' recount writing both for pretest and posttest of the experimental and control group.

1. Pre-test

Pre-test will be done before the treatments in the experimental. Pre-test will be given to the experimental group in order to identify the students' master of writing comprehension in each number of sampling carrying out the experiment. It is done before treatment is given. The writer will ask the students to write recount text by choosing one of the topics which is given by the researcher in 60 minutes.

2. Post-test

In this study, the writer will give post-test to the experimental after conducting treatments. Creswell (2012) states that "a post-test is a measure on some attribute or characteristic that is assessed for participants in an experiment after a treatment" (p. 297). The treatment which will be given to the experimental group is by using Concept Map Technique. The type of posttest will be the same as the pretest. The aim of giving posttest to the students is to measure students' ability in writing after implementing Concept Map Technique. The result of this test will be compared with the result of pretest in order to know the effect of teaching writing by using Concept Map Technique to students' Recount writing achievement. From the posttest, the writer can get the data that will be used to measure the students' progress taught by using Concept Map Technique.

3.6 Research Instrument Analysis

3.6.1 Validity of the Test

Validity is concerned with the meaningfulness of research components (Drost, 2013, p.114). Validity test is carried out to measure whether the instruments for pretest or post-test activities are valid or not. There are two kinds of validity to be used. They are as follows:

1) Construct Validity

According to Brown (2004), states that “construct validity is a major issue in validating large-scale standardized tests of proficiency” (p. 25). In addition, Cohen, et.al (2007), argues that “a construct is an abstract; this separates it from the previous types of validity which dealt in actualities-defined content” (p. 138). The construct validity of this study involves items for pre-test and post-test and lesson plans for experimental group.

After constructing the instruments related to some aspect measured, then it is consulted to achieve some expert judgments from at least two validators to evaluate whether the components of the instrument are valid or not to be applied in research activities. There are some characteristics of validators, such as 1) English educational background, 2) Lecturer of English, and 3) Minimum 550 TOEFL score. In this study, the construct validity of the research instruments involves two types. They are writing test for pretest and posttest activities, and lesson plan for experimental group.

2) Content Validity

Yaghmaie (2003) explains that “content validity is used to measure the variables of interest” (p. 25). It can be used to measure the appropriate sampling of the content domain of items in a questionnaire. In order to judge whether or not a test has content validity, a specification of the skills or structures should be made based on the curriculum and syllabus. The instrument focused on recount text.

Table 3
Test of Specification Table

	Objectives	Writing Test	Evaluation	Time allocation (minutes)	Indicators
3.6.2. Reliability Test	To measure the students' recount text writing achievement	To use the format or method as an essay in which the aspects considered as parts of measurement in recount text writing. Such as content, organization, grammar, vocabulary and mechanics.	To write a recount text essay with the topic given as follow: - My holiday - The happiest day in my life - My bad day	90 minutes	Based on rubric or scoring which has some criteria. Such as content, organization, grammar, vocabulary and mechanics.

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" (p. 154). Reliability test measures whether or not research instrument used for activities of pretest and posttest are reliable. inter-rater reliability will be used to know whether the test is reliable or not. Inter-rater reliability occurs when two or more scores yield inconsistent scores of the

same test, possibility for lack of attention for scoring criteria, inexperience, inattention, or even preconceived biases (Brown, 2004, p. 21).

In this study, the writer will calculate the students' score by using Spearman rank order correlation. In scoring students' recount writing, the writer used scoring rubric which is adapted from *www.iRubric.com*. Before, the raters give students' score, the instrument of assessing written content will be given earlier to the raters. Then, three set of scores will be calculated by using this formula:

$$\frac{R_1 + R_2}{2}$$

The test will be reliable if the result of the data measurement is higher than 0.70. According to Fraenkel and Wallen (2012), state that "the reliability should be at least 0.70 and preferably higher" (p. 156).

3.7. Data Analysis

3.7.1. Data Description

Before the data is analyzed, distribution of the data is used to see the distribution of frequency the data and descriptive statistics. The procedure in distribution of the data is described as follow:

3.7.1.1. Distributions of Frequency Data

In distributions of frequency data, the students' score, frequency, percentage is achieved. The distributions of frequency data are obtained from students' pretest-posttest scores in experimental group.

3.7.1.2. Descriptive Statistics

In descriptive statistics, number of sample, the score of minimal, maximal, mean, and standard deviation are analyzed. Descriptive statistics are obtained from students' pretest and posttest scores in experimental group.

3.8. Prerequisite Analysis

Before analyzing the data, pre-requisite analysis will be done to see whether the data obtain are normal and homogenous. The procedures in pre-requisite analysis as follow:

3.8.1. Normality Test

Normality test is used to measure whether the obtained data is normal or not. According to Flynn (2003), states that "a value less than 0.05 indicate that the data are non-normal"(p. 17). In measuring normality test, the writer will use *1-Sample Kolmogorov Smirnov* in SPSS program. The normality test is used to measure students pretest and posttest scores in experimental and control group. Then, the result analysis in measuring the normality test of the students pretest and posttest scores in experimental and control group.

3.8.2. Homogeneity Test

Homogeneity test is used to measure whether the obtained data are homogenous or not. According to Flynn (2003), "the data can be categorized homogenous whenever it is higher than 0.05"(p. 18). The homogeneity test is used to measure students' pretest and posttest scores in the experimental group. In measuring homogeneity test, *Levene Statistics* in SPSS program software will be used.

3.9. Hypothesis Testing

In measuring significant improvement and significant difference on students' narrative writing achievement by using Concept Map Technique, as follows:

In measuring significant improvement, paired sample t-test will be used for testing the students' pre-test to post-test scores in recount writing achievement by using Concept Map Technique in experimental groups. Significant improvement is found whenever the p-output is lower than 0,05 and t-obtained is higher than t-table 2.068 (with df= 23).

To measure a significant difference, independent sample t-test is used for testing the students' post-test scores in writing recount text in control and experimental groups. A significant difference is found whenever the p-output is lower than 0.05 and t-obtained is higher than t-table 2.0117 (with df= 47).

In measuring significant difference more than two variables, two ways anova will be used. The significant difference is found whenever the p-output (sig.2tailed) is lower than 0.05 and t obtained is higher than t table 2.0129 (with df=46)