CHAPTER III
RESEARCH METHODS

A. Research Design

This research will use quantitative methods. According to Creswell (2009 in Pangesti, A. W. (2018)) Quantitative research is a means to test objective theories by examining the relationships between variables. These variables, in turn, can be measured. Usually, they take the form of instruments, allowing numerical data to be analyzed using statistical procedures. analysis in the form of numerical values or variables to address research questions and test hypotheses. As the Creswell (2009:4) stated quantitative research is a means for testing objective theories by examining the relationship among variables. These variables in turn, can be measured. Typically on instruments, so that numbered data can be analyzed using statistical procedures. The purpose of quantitative research is to provide a clearer understanding of the research phenomenon through the collection of quantifiable data. Experimental research is one of the strategies included in quantitative research. There are three designs, these are pre-experimental, true experimental, and quasi experimental. Quasi experimental design is use in this research.

The researcher choose a quasi experimental design because this design to determine the cause and effects relationship. Aquasi experimental design used in this study to see the effectiveness of using PPP technique in teaching simple present tense with two group in two classes. The first group as experimental class and the second group as controlled class. As Creswell (2009:160) stated in quasi

experiments design, the experimental group A and the control group B are selected without random assignment. Both groups take a pre-test and post- test, but only the experimental group receives the treatment.

The following table 3.1 present the design of this research :

Group	**Pre-test**	**Independent Variable**	**Post-test**
VII.F	Y1	X	Y2
VII.B	Y1	-	Y2

Table 3.1. Pre-test and post-test experiment and control group design

Note:
VII.F : experiment class

VII.B : conrol class

X : treatment

B. Population and Sample

Population In a study, the selected population has a close relationship with the problem under study. Populations and samples are units or groups of a particular shape or property that are deliberately chosen to collect data that can be used in a planned study. Populations and samples are an important part of research and should be established from the beginning.

1. Population

A population is the entire group for which data is collected. According to Sugiyono (2017), the population refers to a broad category encompassing objects or subjects that possess specific qualities and characteristics that researchers have identified for study and subsequent drawing of conclusions.

Another definition by Sekaran & Bougie (2016) population is a collection of all elements that possess specific characteristics relevant to the research question being posed and that are intended to be generalized in the study. The following are the students at this school as a population. The population in this research is seventh grade of SMP Negeri 31 Padang

Table 3.2 Population of the Student at the seventh grade of SMP Negeri 31 Padang

No	Class	Number of Student
1	VII.A	31
2	VII.B	31
3	VII.C	31
4	VII.D	30
5	VII.E	31
6	VII.F	31
7	VII.G	32
8	VII.H	32
9	VII.I	31
Total		**280**

2. Sample

According to Sugiyono (2017), a sample is a small portion of the population that is chosen in a representative manner to serve as the subject of the research. The sample is used as a representation of the entire population, allowing the findings of the research to be generalized to a larger population. The selection of the sample is done with the purpose of ensuring that it

represents the characteristics present in the population, enabling the research findings to be applied to a broader population.

In conducting the research, the researcher takes the sample using cluster random sampling technique because the population is in group and considered homogeneous. In cluster sampling the sample units contain groups of elements (clusters) instead of individual members or items in the population as Sugiyono(2017) stated. Therefore, umar states that the way to take in cluster random sampling one of which is lottery way, that is give the number of all members of the population, then randomly selected number according to alot of the number of sample is needed. The next step was to determine the samples of the experimental and control classes. The researcher used a flipped coin. The results of the flipped coin indicated that the picture represented the experimental class, while the number represented the control class. From the results of the flipped coin, class VII.G was designated as the experimental class and class VII.H as the control class.

The sample of this research is part of VII grade students of SMP Negeri 31 Padang. The experimental class (VII.G) consist of 33 students and the controlled class (VII.H) consist of 32 students, all of the sample is 64 students.

C. The Technique of Collecting the Data

In collecting the data, the writer use test as a instrument in collecting the data. Arikunto (2010) state the instrument is a tool that used in collecting the data. According to Ary (2010 in Pangesti, A. W. (2018)) , test is a set of stimuli presented to an individual in order to elicit responses on the basis of which a

numerical score can be assigned. The test consisted of pre-test and post-test The test used to know the students' ability in simple present tense. In this research the writer used the data:

1. **Pre-test**

   Pre-test was done to know the students ability in simple present tense before the treatments. The test was given to the students. The researcher has conducted a pretest in both classes, namely the experimental class(VII.G) on November 20, 2024, the same test was also given to the control class (VII.H).

2. **Treatment**

   The treatment given to the samples. In this research conducted four times treatment. Treatment used presentation, practice, and production technique was only held in the experimental class (VII.G) with a total of four meetings, of which the first meeting was on November 20, 2024, the second meeting was on November 26th, the third meeting was on November 29th, and the fourth meeting on December 3, 2024. At each meeting the researcher explains the material " daily activity" using presentation, practice and production tecnique according to the learning module that has been prepared

3. **Post-test**

   Post-test was done to know the students' ability in simple present tense after they taught by PPP technique. The system and the difficult of post-test is the same as the pre-test, because both of them was used to measure the

students' ability in simple present tense. after they taught by PPP technique in order to know whether there is significant effect of the use PPP technique in simple present tense or not. The researcher has conducted a posttest in both classes, namely the experimental class(VII.G) on December 4, 2024, the same test was also given to the control class (VII.H) on December 6, 2024.

The pre-test and post-test in this study used multiple choice tests with 4 answer options a, b, c, and d. The test consists of simple present tense of nominal and verbal in form of positive, negative, and interrogative sentence and also time signals.

Before getting the score, the writer determines the procedure to be used in scoring the students' work. In order to do that, the writer uses Arikunto's formulas. The ideal highest score is 100. The scores of pre-test and post-test was calculated by using the following formula:

$$S = \frac{r}{n} \times 100$$

Notes:

S: The score of the test

r: The total of the high answer

n: the total items

The instrument must be valid and reliable. Sugiyono (2017) states that valid and reliable instruments are an absolute requirement for obtaining valid and reliable research results.

1. Validitas

Fraenkel and Wallen (2009), state that validity refers to appropriateness, meaningfulness, correctness, and usefulness, of the interference of researcher makes. It proves that validity is the most important idea to consider when preparing or selecting an instrument for use.

In can be concluded that the test must have good validity, so that the test can measure the aspects which would be measured. In this research was used content and construct validity.

a. Content Validity

Best & Khan (1995) defines that content validity refers to the degree to which the test actually measure, or is specifically related to, the traits for which it was designed. Content validity is based upon careful examination of course textbooks, syllabus, objectives, and the judgments, of subject matters specialist. It indicates that the content validity is based on the material, and the material is agreement with the objective of learning.

In the case of this research, the instrument of the test has agreement with the objective of learning in the school which it were based on the syllabus because the test to measure the students' grammar mastery at the eighth grade of junior high school.

b. Construct Validity

Construct validity is a second category of validity that the teacher must be aware of in considering language test. It means that the

items should really show whether they have mastered in simple past tense or not. The test items should measure the students' in simple past tense mastery. An instrument can be called valid when it can measure what is wanted. To measure the validity of the instrument, the writer was used construct validity.

c. Internal validity

After scoring the try-out test, item analysis is carried out to find out the effectiveness of the items. Internal validity is the ability of a research design to rule out or to make implausible alternative explanations of the result. The purpose of internal validity is in order to know whether the test has good validity or not. The researcher used *Anates* to analyze the validity.

2. Reliabilitas

A test reliable if the test is able to give constant result even though the test is given repeatedly to the same individual sample. Reliability test consistent and dependable. According to Creswell reliability means that scores from an instrument are stable and consistent. The issue of reliability of a test may best be addressed by considering a numbers of factors that may contribute to the unreliability of a test. In this research, Cronbach Alpha was used to calculate the reliability of the test.

Here is the formula:

$$KR\ 20 = r_{11} = \left(\frac{k}{k-1}\right)\left(\frac{S_t^2 - \sum pq}{S_t^2}\right)$$

Where:

R11 = reliability of the test

k = total items

S_t^2 = total of variance

Σpq = sum of p time q

p = total of the students who get right in the test

q = total of the students who get wrong in the test (q= 1-p)

The researcher use the criteria of reliability are as follows:

1. Between 0.800 until 1.000 (very high)
2. Between 0.600 until 0.799 (high)
3. Between 0.400 until 0.599 (medium)
4. Between 0.200 until 0.399 (low)
5. Between 0.00 until 0.199 (very low) (sugiyono(2013))

After analyzed students' score by using Anates, it found that the reliability was 0.86. Therefore, based on the criteria of reliability above, it can be drawn that the reliability was high.

To achieve the goal of the research, it was needed several procedures as preparation, application, and finishing.

1. Preparation Steps

The researcher collected the data that relate with preparation steps:

a. Planning learning in experimental class

b. Determining learning material

c. Determining population and sample

d. Preparing learning design

e. Preparing research instrument

2. Application Steps

The scenario of learning in experimental class could be seen in Lesson Plan.

Table 3.3 Lesson Plan

Experiment Class Using Presentation, Practice, Production Technique
Opening (10 minutes) a. Greeting, b. Doa c. Checking the students attendance d. Checking their readiness, are you ready to study? d. Motivation.
Main activity (60 minutes)
a) Presentation 1) Students provided with a text, video or audio that contains simple present tense. 2) The teacher demonstrates about simple present tense, repeating it two or three times. 3) Students practice saying about simple present tense aloud several times.

4) The teacher ask to make sure that students understand the meaning of the vocabulary, structure or function about simple present tense.
5) The teacher writes the language item on the board, pointing out the stress pattern and verifying the spelling with the students.
6) The teacher explains the rules related to simple present, if needed.
7) Students copy into their notebooks the information on the board.

b.) Practice

1) Teacher says the new vocabulary, grammar, or functions about simple present, and students practice by repeating sentences.
2) Teacher provides corrections on sentence structure, language usage, and pronunciation.
3) Students assign various activities that allow them to use the new language in context.
4) Teacher observes and monitors students as they engage in these activities.

3. Post teaching

c) Production

1) Students asked to write a sentence using simple present tense..
2) The teacher does not interrupt, help, or correct mistakes.

Closing (10 minutes)

1. Students guided by the teacher draw conclusions related to today's learning material.

2. Learners are informed of the material that will be studied at the next meeting.

4. The teacher motivates and appreciates the learners' work.
5. Learners and teacher pray to end the learning.

D. Technique of Data Analysis

In this study researchers use data analysis techniques. In quantitative research the data analysis techniques usually use statistics. According to Sugiyono (2017), data analysis techniques are methods used to process, analyze and interpret data collected in a study. This technique aims to uncover patterns, relationships, or meaning that exist in the data collected. According to Hartono, (Ed.). (2018) data analysis is a process of obtaining summary data or summary figures using certain methods or formulas. In this research, the researcher conduct the data analysis by taking the average from the result or score from pre-test and post-test. The researcher also compare between pre-test and post-test score , the data will be analyzed the data statistically.

To analyze the result of the data from pre-test and post-test, it was used the following

steps:

1. Normality Test

The data in the experimental class and control class will be measured with a normality test to see if the data is normally distributed or not. Based on Marczyk et al. (2005) the normality of the test is used to measure whether the data in experimental class and control class are normal distributed or not. Analyzing variables that are not normally distributed can lead to serious overestimation or underestimation.

The hypotheses for the normally test is formulated as follows:

H_o : the data are normally distributed

H_a : the data are not normally distributed

The criteria of acceptance or rejection of normally test are as follows:

H_o is accepted if Sig. (Pvalue) > $\alpha = 0.05$

H_a is accepted if Sig. (Pvalue) < $\alpha = 0.05$

2. Homogenity Test

Homogeneity test is used to know whether the data in experimental class and control class are homogenous or not. To measure homogeneity, the researcher used statistical computation by using SPSS (Statistical Package for Social Science) for homogeneity test.

The hypotheses for the homogeneity test are formulated as follows:

Ho : the variance of the data is homogeneous

Ha : the variance of the data is not homogeneous

The criteria for acceptance or rejection of homogeneity are as follows:

Ho is accepted if Sig. (Pvalue) > $\alpha = 0.05$

Ha is accepted if Sig. (Pvalue) < $\alpha = 0.05$

In order to know, the significant effect of using PPP technique to students' grammar. The data of the study will analyzed by using statistical technique. Sugiyono (2017) states that in comparing after and before treatment or comparing the control group with the experimental group, t-test is used for testing, the researcher used T-test statistical analysis to test the hypotesis.

The pre-test and post-test scores obtained from the classroom test analysis with statistical calculation in following as:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

X_1 : is the mean for experimental group

X_2 : is the mean for control group

N_1 : is the number of people in experimental group

N_2 : is the number of people in control group

S_1^2 : is the variance for experimental group

S_2^2 : is the varience for control

The criteria for acceptance or rejection of hypotheses are:

Ha is accepted if Sig. (Pvalue) < $\alpha = 0.05$

Ho is accepted if Sig. (Pvalue) > $\alpha = 0.05$