

CHAPTER III

RESEARCH METHODOLOGY

III.1. Research Design

The design of the research was a quasi-experimental research which focused on quantitative research. According to L. R Gay (2000: 364), the quasi – experimental design involves selecting two groups or more differing on some independent variables and comparing them to some dependent variables. The group may differ in a number of ways. One group may possess a characteristic that the other does not, one group may possess more of a characteristics than the other, or the two groups may have a different kind of experiences. In this research, there were three variables; Picture Word Inductive Model (PWIM) strategy (X) was an independent variable, while the students' participation (Y1) and students' writing ability (Y2) were dependent variables. Both classes were taught by using the Picture Word Inductive Model (PWIM) strategy. Gay (2000: 364) states that the major difference between an experimental research and causal comparative research is that in the experiment of the independent variable the alleged cause, is manipulated, and in causal – comparative research it is not, because it has already occurred. In the experimental research, the researcher can randomly form groups and manipulate independent variable. In causal – comparative research ,the groups are already formed and already divided on the independent variable. Furthermore, causal – comparative studies identify relationships that make lead to experimental studies, but only relationship was established. Cause – effect relationships

established through causal comparative research were at the best tenuous and tentative. Only the experimental research can truly establish cause effect relationship. So, Post-test was provided to investigate the students' writing ability.

In order to receive permission to use school children in a research, a researcher asked the agreement to keep students in existing classrooms intact. Thus, entire classrooms, not individual students, were assigned to treatments. In this research, the researcher used pre- and posttest design. In conducting the research, two classes of the second year students at Language Development Center of UIN Suska Riau participated. The researcher assigned both groups, administered a pretest to both groups, conducted experimental treatment activities with the experimental group only and then administered a posttest in order to assess the differences between two groups.

In conducting the research, the second year students at Language Development Center of UIN Suska Riau participated. Pre-test was administered at the beginning in order to find out their abilities in reading comprehension. After that they were given the treatment in the middle. At the end, post-test was administered. In the research, the pre-test and post-test were compared in order to determine the effect of using Picture Word Inductive Model (PWIM) strategy on students' writing ability and students' participation. According to Creswell (2008; 314), the research design can be illustrated as follows:

Table 0.1. Research Design

Pre - and Post-test Design		Time	
A Control Group	Pre-test	No treatment of Picture Word Inductive Model (PWIM) strategy	Post-test
An Experimental Group	Pre-test	Picture Word Inductive Model (PWIM) Strategy	Post-test

(Adopted from Creswell 2011)

a. Procedures of collecting data for experimental group

1. Pre-test

The pre-test was carried out to determine the students' writing ability with their score.

2. Treatment

The treatment was conducted in the experimental group by using the Picture Word Inductive Model (PWIM) strategy applied for eight meetings.

3. Post-test

After conducting the treatment, the post-test was administered and analyzed as final data of the research. The post-test given was the same test as the pretest.

b. Procedures of collecting data for control group

1. Pre-test

The control group was given a pre-test to determine their writing ability. The test was the same as for the experimental group.

2. No treatment

3. Post-test

Post-test was also given to a control group and the result was analyzed and used as final data for this research.

III.2. Time and Location of the Research

This research was conducted at Language Development Center of UIN Suska Riau which is located on KH. Ahmad Dahlan street, Sukajadi sub-district Pekanbaru. The duration of the research was two months, starting from April upto May 2017.

III.3. Population and Sample of the Research

III.3.1. Population

The population of this research was the students of the second year at Language Development Center of UIN SUSKA RIAU. The total number of the population in Syari'ah and Law Education Faculty was 120 students. The target population was the second level of Language Development Center of UIN SUSKA RIAU Faculty of Syari'ah and Law Education majoring public administration which consisted of 4 classes. Based on the population of this

research, the sample was selected by using cluster sampling. According to (Gay and Airasian, 2000), cluster sampling randomly selects groups not individuals. All the members of selected groups had similar characteristics, and two classes were chosen by using cluster sampling in this research.

Table 0.2. Population of the research

Class	Total of Students
PB/17	30
PB/18	31
PB/19	28
PB /20	31
Total Population	120

The total of the population was 120 students. Based on the limitation of the research, only two classes were taken by using cluster sampling technique. Gay (2000:12) states cluster sampling randomly selects groups, not individual. All the members of selected groups have similar characterwastics. One class was a treatment class or experimental class and the other was a control class. After mixing those cards, the writer took two cards randomly as a sample of research. It was class PB.20 for the experimental class and PB.19 for the control class.

III.3.2. Sample

The sample of the study used cluster sampling. Gay (2000:12) states cluster sampling randomly selects groups, not individual. All the members of

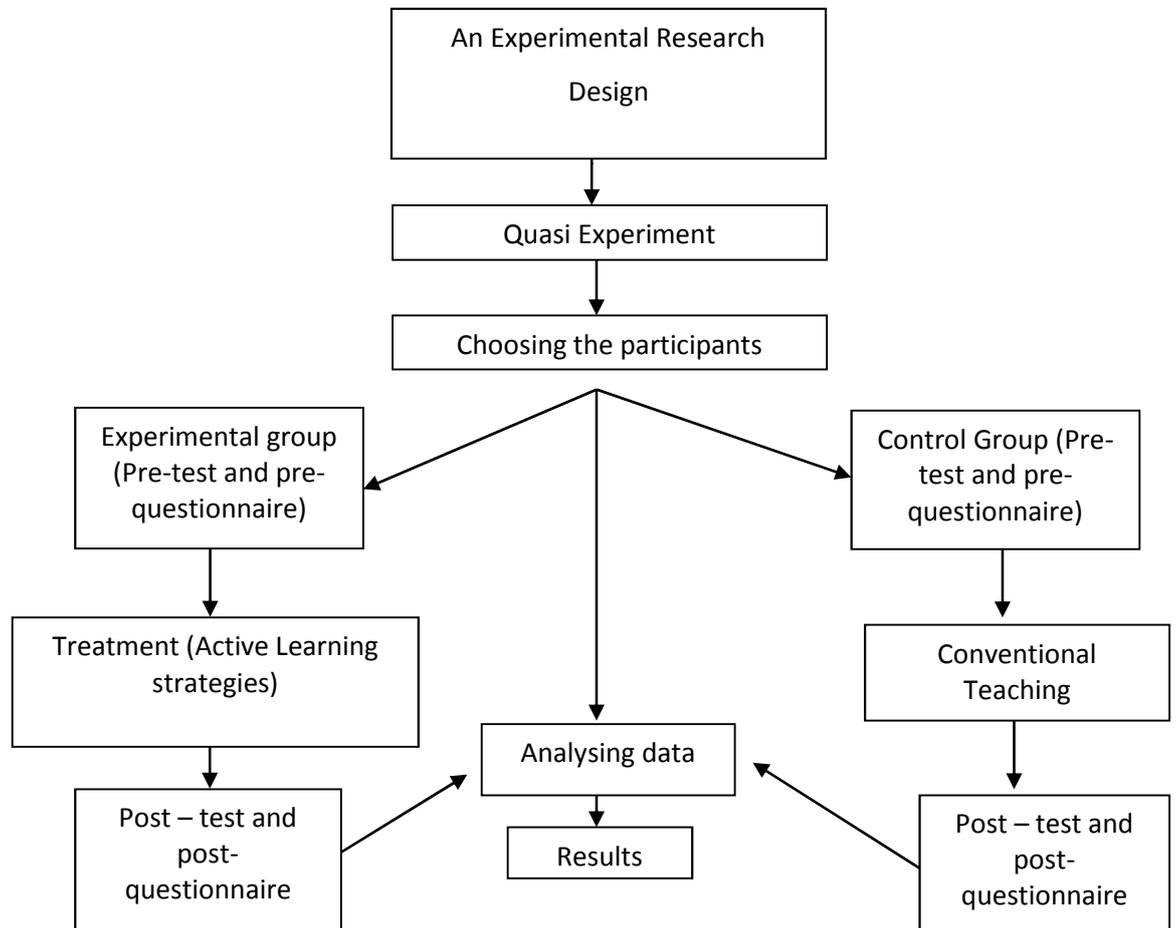
selected groups had similar characteristics. Among the 11 classes of the eleventh grade, two classes were taken as the sample of this research as follows:

Table 0.3. Sample of the Second level students at Language Development Center

Class	Male	Female	Total of Students
PB 20	21	10	31
PB 19	15	13	28
Total Participants	36	23	59

In this research, there were two groups of participants as sample namely the experimental group and the control group. They were determined by using cluster random sampling. Gay (2009) states that cluster sampling randomly select groups, not individuals. The researcher gets the sample by selecting the intact group as a whole was known as a cluster sampling (Singh, 2006).

III.4. Research Procedure



III.5. Data Collection Technique

In order to get the data to support this study, the technique was used as follows:

1. Test

According to Brown (2004:3), test was a method to measure a person's ability, knowledge, or performance in a given domain. In this case, the researcher measured their skill in writing recount text. There were two kinds of tests used in

this study. They were pre-test and post-test. Pre-test was a kind of test which was carried out before being given the treatments to the students. The aim of administering pre-test to the students was to measure the students' basic writing skill of recount text before being given the treatments.

Meanwhile, post-test was a kind of test which was conducted after being given the treatments. The purpose of giving the post-test was to measure the students' skill in writing recount text after being taught using PWIM strategy. The result of both tests was compared to know whether the students' writing skill of recount text improved or not. The questions were related to the components of writing ability: The classification of the students' score for writing tests was shown below:

Table 0.4. The Classification of Students' Score

Number	Score	Classification
1	81 – 100	Excellent
2	61 – 80	Good
3	41 – 60	Mediocre
4	21 – 40	Poor
5	0 – 20	Very Poor

(Harrwas, 1986)

2. Questionnaire

In order to determine whether the students' participation was affected through using active learning strategies, it used the questionnaire. It was done in two stages. The first stage was given before being given the treatment. Then, another stage was done after being given the treatment.

The questionnaire was made by considering six indicators of students' participation that have been explained in chapter two. It was designed based on Likert scale model with the following options: strongly agree, agree, neutral, disagree and strongly disagree.

3. Observation Sheet

As stated in Burns (2010:62), observation sheet was used in what was sometimes called systematic or structured observation. It used a coding system or checklist prepared before the lesson began. The purpose of doing observation was to collect the data as much as possible about the whole teaching and learning process which was done by the teacher model in the classroom.

Table 0.5. Observation Items

NO	Items Observed	YES	NO
1	The teacher shows a picture to the students and asks their opinion.		
2	The teacher asks the students to observe the picture, then think about what can be described.		
3	The teacher leads the students to label the picture part identified.		
4	The teacher guides the students to read and review the picture word chart.		

5	The teacher leads the students in creating a title for the picture word chart.		
6	The teacher leads students generate sentences about the picture word chart.		
7	The teacher gives a model how to put the sentences in a good recount text.		
8	The teacher guides the students to revwase the text.		
9	The teacher leads the students to re-write the text based on the revwasion.		
10	The teacher gives comments and suggestion then closes the class activities.		
Total			
Mean			
Percentage			

III.6. Data Analysis Technique

Post-test scores from experimental and control classes were used in order to find out whether there was a significant effect or not of using Picture Word Inductive Model (PWIM) strategy on students' writing ability and students' participation.

1. Independent sample t-test

The scores were analysed statically by using independent sample t-test and paired sample t-test. They were used in order to find out the result of the hypotheses that mentioned at chapter II. They were hypotheses 1,2, 3 and 4.

To analyze the final-test scores of the experimental group and the control group, the following formula was used:

$$t = \frac{M_X - M_Y}{\sqrt{\frac{SD_X^2}{N_1 - 1} + \frac{SD_Y^2}{N_2 - 1}}}$$

Where:

1. t = the value of comparing two means
- M_x = Mean of the score in pre-test
- M_y = Mean of the score in post-test
- SD_x = Standard deviation of experimental group
- SD_y = Standard deviation of control group
- N_1 = Number of the sample in pre-test
- N_2 = Number of the sample in post-test
- 1 = the constant number

The t-table has the function to see if there was a significant effect between the mean of the score of both experimental and control groups. The t-obtained value was consulted with the value of the t-table at the degree of freedom (df) by using formula:

$$(df) = (N_1 + N_2) - nr$$

Where:

- df = the degree of freedom
- N_1 = number of students from experimental class
- N_2 = number of students from control class
- nr = number of variable

The value of both; t_o and t-table statistical hypothesis was:

$$H = t_o > t\text{-table}$$

$$H_o = t_o < t\text{-table}$$

- a. H_0 was accepted if $t_o > t\text{-table}$ or there was effective after giving the treatment by using picture word inductive model (PWIM) strategy on students' participation and students' writing ability of the second level students at Language Development Center of UIN SUSKA Riau.
- b. H_0 was accepted if $t_o < t\text{-table}$ or there was no an effective after giving the treatment by using picture word inductive model (PWIM) strategy on students' participation and students' writing ability of the second level students at Language Development Center UIN SUSKA Riau.

2. Non-independent sample t-test (paired sample t-test)

Non-independent sample t- t_{test} was known also as Paired-Sample t_{test} . The researcher uses thwas formula to obtain the result of the third, fourth, seventh and eighth hypotheses that was to find out whether there was a significant effect of using picture word inductive model (PWIM) strategy on students' writing ability and students' participation of the second level students at Language Development Center of UIN SUSKA Riau. L.R Gay states that t-test for non-independent sample was used to compare groups that are formed by some types of matching or to compare a single group's performance on a pre-test and post-test or on two different treatments. (L.R Gay, 2000).

Pre-test and post-test scores are used in the experimental class in order to find the significant effect of using of using picture word inductive model (PWIM) strategy on students' participation and students' writing ability of the second level

students at Language Development Center of UIN SUSKA Riau. To obtain the data, SPSS 20 was used.

The formula of paired-sample t_{test} :

$$t = \frac{\bar{D}}{\frac{\sqrt{\frac{\sum D^2 - \frac{(\sum D)^2}{N}}{N(N-1)}}}{N}}$$

D : Gain Score ($D=X_2-X_1$)

The t-table has the function to see if there was a significant improvement among the mean of the score of both pretest and posttest. The t-obtained value was consulted with the value of t-table at the degree of freedom (df) = $N-1$ which was statistically hypothesized as:

$$H_1 = t_o > t\text{-table}$$

$$H_0 = t_o < t\text{-table}$$

- a. H_1 was accepted if $t_o > t\text{-table}$ or there was any significant effect after giving the treatment by using picture word inductive model (PWIM) strategy on students' participation and students' writing ability of the second level students at Language Development Center of UIN SUSKA Riau.
- b. H_0 was accepted if $t_o < t\text{-table}$ or there was no significant effect after giving treatment by using picture word inductive model (PWIM) strategy on students' participation and students' writing ability of the second level students at Language Development Center of UIN SUSKA Riau.

Afterward, it was better to find the coefficient effect of T-test by following a formula:

$$r^2 = \frac{t^2}{t^2+n-1}$$

$$kp = r^2 \times 100\%$$

Where:

Kp : Coefficient effect

r^2 : Coefficient

Afterward, it was better to find the effect size of T-test by following a formula:

$$\tilde{\eta}^2 = \frac{t^2}{t^2+n-1}$$

$$\text{eta squared} = \tilde{\eta}^2 \times 100\%$$