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## CHAPTER III

### RESEARCH METHODOLOGY

#### III.1.Design of the Research

The design of the research was a quasi-experimental study which focuses 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 groups 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 characteristic than the other, or the two groups may have a different kind of experiences. In this research, there are three variables; PWIM Strategy (X1) and TTW Strategy (X2) are independent variables, while the students' writing ability is a dependent variable. Both classes have been taught by using PWIM and TTW strategies. Gay (2000:364) states that the major difference between experimental research and causal-comparative research is that in the experimental research, the independent variable the alleged cause, is manipulated, and in causal-comparative research 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 may lead to experimental studies, but only relationship is established. Cause-effect relationships established through causal comparative research are at best tenuous and tentative. Only experimental research can truly

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establish cause-effect relationship. To investigate the students' writing ability was provided with post-test. They can be drawn in the following table:

**Table III.1 Research Design**

<b>Group</b>	<b>Treatment</b>	<b>Dependent Variable</b>
<b>E1</b>	<b>X1</b>	<b>Y</b>
<b>E2</b>	<b>X2</b>	<b>Y</b>
<b>C</b>	<b>-</b>	<b>Y</b>

**Figure (Gay, 2000: 353)**

- E1 : Experimental Group 1  
 E2 : Experimental Group 2  
 C : Control group  
 X1 : Independent Variable Treatment 1 (PWIM Strategy)  
 X2 : Independent Treatment 2 (TTW Strategy)  
 Y : Dependent Variable (Writing ability)

Based on the diagram above, Gay (2000: 354) states that the definition and selection of comparison group are a very important part of the causal-comparative procedure. The independent variable differentiating the groups must be clearly and operationally defined, since each group represents a different population. The way in which the groups are defined affect the generalizability of the results.

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### III.2 Location and Time of the Research

The location of the research was in Junior High School 1 Kampar Timur. It is located at Bangkinang-Pku Street Km.40. The duration of time to conduct of this research was within two months starting from March to May 2017.

### III.3 Subject and Object of the Research

The subject of the research was the second grade students at Junior High School 1 Kampar Timur, and the object of this study was comparison between students' using the Picture Word Inductive Model (PWIM) strategy and Think Talk Write (TTW) strategy toward students' writing ability.

### III.4. Population and Sample

The population of this research was the students second grade of Junior High School 1 Kampar Timur. The total number of the population was 574 in the academic year 2016/2017. The sample was selected by using cluster sampling technique. It consisted of two groups who were taught by using different treatments, the researcher takes two classes in which they were as group 1 and group 2. Group 1 was VIII 2 which consisted of 30 students and group 2 was VIII 3 which consisted of 30 students. The total numbers were 60 students.

**Table III.2**

**Total population of second year students  
Junior High School 1 Kampar Timur**

No	Class	Students
1	VIII 1	30
2	VIII 2	30

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3	VIII 3	30
4	VIII 4	30
5	VIII 5	27
6	VIII 6	27
7	VIII 7	28
	Total	202

Three classes were used as samples in this research by using cluster sampling. Gay (2000:129) states that cluster sampling randomly selects groups (not individuals) that have similar characteristics. The researcher obtained the sample by selecting the intact group as a whole which was known as a cluster sampling (Singh, 2006). Cluster Random Sampling Technique was used to determine the sample of this research because the class select randomly.

In determining sample size, Gay (2000: 134) says that for causal comparative and an experimental study, a minimum of 30 participants in each group was recommended.

**Table III.3**  
**The Total Sample of the Research**

Class	Population		Total	Sample
	Male	Female		
Group 1/ VIII 2	13	17	30	Experimental Class 1
Group 2/ VIII 3	12	18	30	Experimental Class 2
Control / VIII 4	13	17	30	Control Class

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### III.5. Research Procedure

#### 1. Procedures of collecting data for the experimental group 1 and the experimental group 2

Three procedures were administered to collect the data.

##### a. Pre-test

Pre-test was given to the students before conducting of the teaching and learning process using PWIM and TTW strategy. It was used to measure the student's writing ability by using written test.

##### b. Treatment

In the treatment, the students were taught by using PWIM strategy in the experimental class 1 and TTW strategy in the experimental class 2. The teacher taught and explained the descriptive text by using the procedure of PWIM and TTW strategy with the procedure.

##### c. Post-test

Post-test was conducted for the students of the experimental group 1 and experimental group 2 after applying the treatment by using PWIM and TTW strategy. The result of the post-test was compared with the pre-test result in order to determine the comparison of the PWIM and TTW strategies on the students' writing ability after conducting 4 meetings of the PWIM in the experimental group 1 and TTW in the experimental group 2.

#### 2. Procedures of collecting data for the control group

##### a. Pre-test.

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Pre-test was administered to the students of the control group before they are taught by using conventional strategy or non-PWIM and non-TTW. The pre-test given to the students of the control group was similar to those of the experimental group 1 and the experimental group 2.

b. Teaching by using non-PWIM and non-TTW Strategy

The students were taught about writing ability by using conventional strategies with the same topics and materials given to the experimental group 1 and experimental group 2.

c. Post-test

Post-test was administered to the students of the control group after being taught for four meetings by using conventional strategy. The result of the post-test was compared with the pre-test result in order to compare their writing ability.

### III.6 Research Instruments

To collect the data, writing test was administered as the instrument of this study. The test was applied for pre-test and post-test. It was administered to three classes which consisted of VIII 2, VIII 3 and VIII 4. The pre-test aimed at finding out the prior reading of the students. While post-test aims at finding out the students writing ability after being given the treatment with PWIM strategy and TTW strategy. This activity was also intended to find out whether the students' ability kept holding of the material after the treatment.

The classification of the students' scores is shown based on Suharsimi (2007:245) as follows:

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Table III.4  
Classification Scores

Score	Categories
80-100	Very Good
66-79	Good
56-65	Fair
40-55	Poor
0-39	Very Poor

### III.7 Data Collection Technique

In this research, the data were collected by distributing pre-test and post-test to the students. The students made a descriptive paragraph. The English teacher applied the procedures of PWIM and TTW Strategies and conventional text. The duration of time was 70 minutes. In order to get the data to support this study, the researcher used the technique as follows:

#### 1. Observation

Observation was used to observe directly the students using PWIM and TTW strategies, writing in descriptive text and to observe the influence of PWIM and TTW strategies toward the students' ability in writing of descriptive text. In observation technique the researcher had a list of observational items to be observed in the class during teaching and learning process by using PWIM and TTW strategies.

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## 2. Test

To find out the comparison of using PWIM and TTW strategy on the students' writing ability at the second grade of Junior High School 1 Kampar Timur, the researcher administered the test to assess students' English ability, especially in descriptive text. The test was administered into two stages. The first was pretest done before doing the treatment. The second was post-test done after being given the treatment. The researcher measured the total score from the result of the students' English writing ability test. If the students were able to achieve to goal, this means that assessment of students' ability needed to be correlated with purposes of achievement. Hughes (2003) state that there are many techniques that can be assessed to the students' English writing ability, but in this case, it uses written test.

### III.8 Data Analysis Technique

To analyze the data about the significant difference the students before and after of students' writing ability in descriptive text between they who were being taught by using PWIM strategy and taught by using TTW strategy at the second grade at Junior High School 1 Kampar Timur, the data were analyzed statistically. Jacob (1981: 91), states that to analyze the category of writing ability, the writer was used the category standard as follows:



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Table III.5

## Score of the Writing Test

No	Writing Skill	The Highest Score
1	Content	30
2	Organization	20
3	Vocabulary	20
4	Language use	25
5	Mechanics	5
	Total	100

The writer used Independent sample t-test and paired sample t-test.

## 1. Independent Sample t- Test

Parmjit et al. (2006: 160) state that Independent sample t-test is used to find the significance of the difference between the means of two samples. Gay (2000: 484) adds that the t-test for independent sample is used to determine whether there is probably a significant difference between the means of two independent samples. The formula is used:

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

Where:

- t = The value of comparing two means  
 M<sub>x</sub> = Mean of the score in pre-test

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- $M_y$  = Mean of the score in post-test  
 $SD_x$  = Standard deviation of experimental group  
 $SD_y$  = Standard deviation of compare 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 had the function to see if there is a significant difference between the mean of the score of both experimental and comparison groups. The t-obtained value is consulted with the value of the t- table at the degree of freedom  $(df) = (N_1+N_2)-2$  which is statistically hypotheses:

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

$H_a: t_o > t\text{-table}$

$H_0$  is accepted if  $t_o < t\text{-table}$  or there is no effect after giving the treatment PWIM and TTW strategy toward students' writing ability.

$H_a$  is accepted if  $t_o > t\text{-table}$  or there is effect after giving treatment PWIM and TTW strategy toward students' writing ability.

## 2. Paired Sample T-Test

Non-independent sample t-  $t_{test}$  is known also as Paired-Sample  $t_{test}$ . The researcher uses this formula to obtain the result of the seventh, eleventh and ninth hypotheses that is to find out whether there is a significant effect of using PWIM, TTW and conventional teaching strategy on students' writing ability at the eighth grade of Junior High School 1 Kampar Timur. L.R Gay states that t-test for non-independent sample is used to compare groups that are formed by some types of

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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: 488).

To obtain the data, SPSS 20 will be used.

The formula of paired-sample  $t_{\text{test}}$ :

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

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

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

$H_a$ :  $t_o > t\text{-table}$

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

$H_a$  is accepted if  $t_o > t\text{-table}$  or there is a significant effect after giving the treatment PWIM and TTW Strategies toward students' writing ability at the eighth grade of Junior High 1 Kampar Timur.

$H_o$  is accepted if  $t_o < t\text{-table}$  or there is no significant effect after giving treatment PWIM and TTW Strategies toward writing ability at the eighth grade of Junior High School 1 Kampar Timur.

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

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

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

Where:

Eta squared : Coefficient effect

$\tilde{\eta}^2$  : Coefficient

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