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CHAPTER III

RESEARCH METHODOLOGY

III.1 Research Design

The design of this research was a quasi-experimental study which focused on quantitative research. According to L.R Gay (200:364), the quasi-experimental design involves selecting two groups or more differing on some independent variables and comparing them to some dependent variables.

In this research, there were three variables; Transition Action Detail (TAD) Strategy (X1) and Problem Based Instruction (PBI) Strategy (X2) were independent variables, while the students' writing ability especially in recounts text was dependent variable. Therefore, the experimental classes were provided with a pre-test, a treatment and a post-test that can be seen in the following table:

Table III.1 Research Design
The Design of the Research is presented in the Table Below:

Group	Independent Variable	Dependent Variable
E	X1	Y
	X2	Y
C	-	Y

Figure (Gay,2000:353)

Note:

- E : Experimental Group
- C : Control Group
- X1 : Independent variable 1 (Transition Action Detail)
- X2 : Independent variable 2 (Problem- Based Instruction)
- By: Dependent variable (Students' Writing Ability)

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Gay (2000:354) states that the definition and selection of comparison group are very important parts of the quasi experimental design procedure. The independent variable which differentiates the groups must be clearly and operationally defined for each group represents a different population. The way in which the group is defined will affect the generalized ability of the results.

III.2 Location and Time of the Research

This research was carried out at MTs Daarunnajah Teratak Buluh which is located on Teratak Buluh street, Siak Hulu, Kampar District. This research was conducted from April 8th 2017 up to 10th Juni 2017.

III.3 The Population and Sample of the Research

III.3.1 Population

The population of this research was the second year students of MTs Daarunnajah Teratak Buluh in the academic year 2016/2017 which consisted of three classes. Each of the class had the same capability, the total of the participants were 71 students.

Furthermore, the sample of the eighth grade students at MTs Daarunnajah Teratak Buluh can be seen from the following table:

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Table III.2
The Population and Sample of the Research

No	Class	Students			Sample
		Male	Female	Total	
1	VIII A	9	14	23	Experimental Class 1
2	VIII B	10	14	24	Experimental Class 2
3	VIII C	8	16	24	Control Class
Population		30	40	71	

III.3.2. Sample

Best (1981:130) asserts that a sample is a small proportion of the population selected for observation and analysis. Additionally, Kerlinger (1965:118) states that a sample is a part of the population, which is supposed to represent the characteristics of the population. In this research, there were three classes chosen as sample (VIII.A, VIII.B and VIII.C). VIII.A participated as an experimental class 1, VIII.B participated as an experimental class 2, and VIII.C acted as a control class. The method used to select the sample of this study was cluster sampling. Gay (2000:129) states that cluster sampling randomly selects groups (not individuals) that have similar characteristics. In addition, it can be figured out in the following table:

Table III. 3
Sample of the research

Class	Group	Number of Samples
VIII A	Experimental class 1	23
VIII B	Experimental class 2	24
VIII C	Control Class	24
Total of samples		71

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III.4 Procedure of the Research

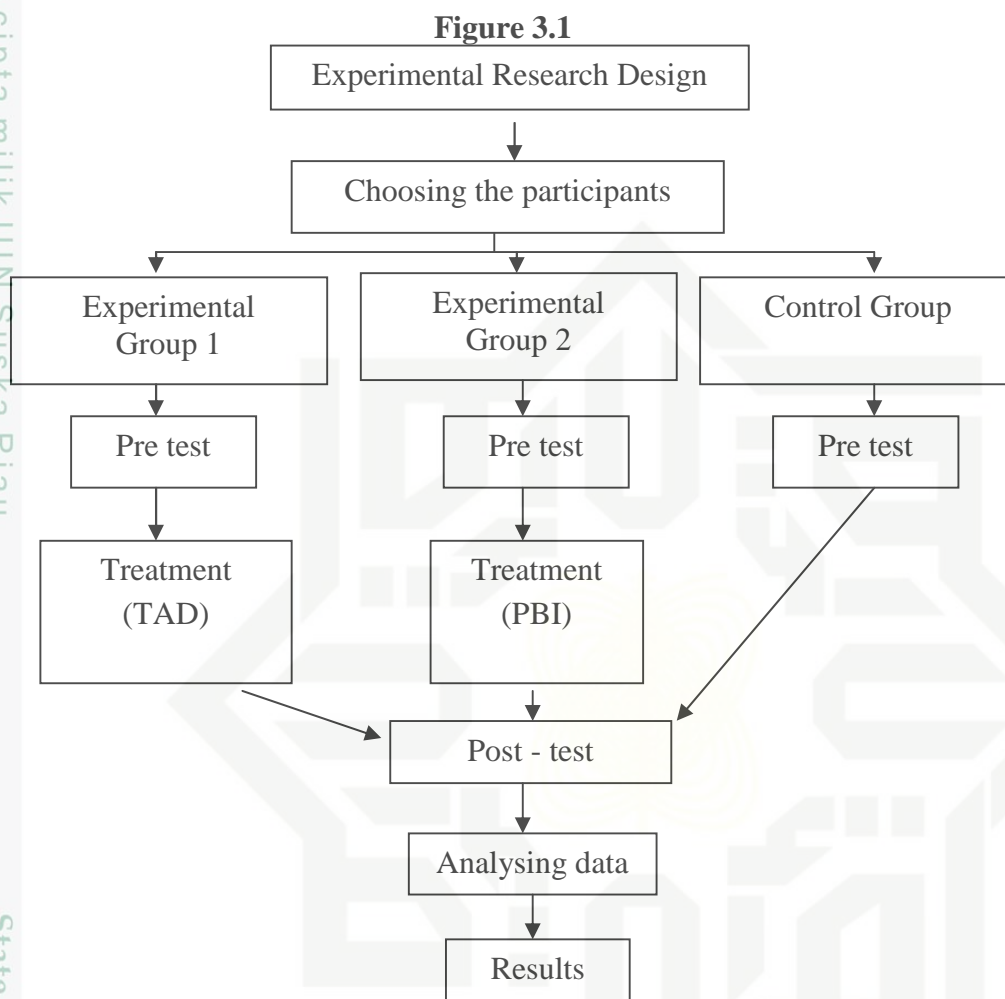


Figure III.1 indicates that there were some procedures that needed to be passed through this research. First of all, a pre-test was administered to both the experimental classes and the control class. It was conducted to see whether or not all the groups were homogeneous. Afterward, the experimental group 1 was taught by using Transition Action Details (TAD) Strategy and the experimental class 2 was taught by using Problem Based Instruction (PBI) Strategy. Each of the class was taught for four meetings or eight-hours class. Whereas, the controller

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class was taught by using non-Transition Action Details (TAD) Strategy and non-Problem Based Instruction (PBI) Strategy.

III.5 Instrument of the Research

The instrument is a tool which is used to collect the data from the sample of the research. In this research, observation and test were used to collect the data. The observation was used to see the application of strategies that was used by the teacher. And the test, especially a subjective test (written test rubric) was used to know or to measure the students' writing ability. The written test included the pretest and posttest that were administered to three classes which consisted of VIIIA, VIIIB and VIIC. The pre-test was administered before the treatment and the post-test aimed to find out the students' writing ability after treatment. In the treatment was given by teaching with Transition Action Details (TAD) and Problem Based Instruction (PBI) Strategies. This activity also intended to find out whether the students' skill retained the material after being given the treatment.

After the students did the test, the writer then counted the scores by using a scoring guide formula below:

$$\text{Total score} = \frac{\text{correct answer}}{\text{Total Question}} \times 100$$

By using the formula above, the writer was able to determine that the scores of students' writing ability included in certain classifications. According to

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Suharsimi (2007:245), the classification of the students' scores is presented in the table below:

Table III.4
Classification of the Students' Scores

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

III.6 Technique of Data Collection

III.6.1 Observation

Observation lists were used to observe directly how the TAD strategy in the experimental group 1 and PBI strategy in the experimental group 2 implemented was applied. Further, it was done to see how far or whether the indicators of both TAD and PBI strategies were included or not.

III.6.2 Test

To collect the data, a writing test was administered in two stages: pre-test and post-test to the experimental group 1, the experimental group 2 and the control group. The test was used to measure the ability of the eighth grade students' in writing recount text being researched for four weeks starting from April 8th 2017 up to 10th June 2017. The pretest was administered before

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the students obtained a treatment. It was done to measure their writing ability before they were given the treatment. The experimental group 1 was taught using TAD and the experimental group 2 was taught using PBI, whereas the control class was taught using non TAD and non PBI Strategy. Afterward, a post-test was given. It was done to see the students' improvement after getting the treatments. Finally, the entire test results were analyzed to answer the research questions mentioned in chapter II.

III.7 Technique of Data Analysis

The scoring guide was chosen as the criteria of scored representing the basic aspects of writing. The writing results were evaluated by considering five aspects and each aspect has a score or a level. The specification of the aspects is topical, prewriting, drafting, revising, editing and publishing and sharing.

In analyzing the data, the researcher used the scores of the pretest and the posttest of the experimental group and the control group. The data were analyzed statistically. The independent sample t-test and pair sample t-test were applied through using the SPSS 20 version (Statistic Package for the Social Sciences).

In this research, the researcher use these following formulas:

III.7.1 Independent sample t-test

1. To find out whether there is a significant difference or there is no significant difference between two or more variables can be analyzed by using an Independent Sample t test. Gay added that the t-test for independent sample was used to determine whether there is probable a

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significant difference between the means of two independent samples. Independent sample t-test was used to find out the results of the first and second hypotheses.

2. To find out whether there is a significant difference of students writing ability before giving the treatment by using Transition Action Details (TAD) Strategy and Problem- Based Instruction (PBI) Strategy for experimental class and non treatment for control group.
3. To find out whether there is a significant difference of students writing ability before giving the treatment by using Transition Action Details (TAD) Strategy and Problem- Based Instruction (PBI) Strategy for experimental class and non treatment for control group.

To analyze the final-test scores of the experimental group and the control group, the following 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 _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 |

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N_2 = Number of the sample in post-test

1 = the constant number

The t-table has the function to see if there is a significant difference between the mean of the score of both the experimental group and the control group. The t-obtained value is consult with the value of t-table at the degree of freedom (df) = $(N_1+N_2)-2$ which is hypothesized

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 effective after giving the treatment

Transition Action Details (TAD) Strategy and Problem- Based Instruction (PBI) Strategy on students' writing ability.

H_o is accept if $t_o < t\text{-table}$ or there is no effect after giving the treatment

Transition Action Details (TAD) Strategy and Problem- Based Instruction (PBI) Strategy on students' writing ability.

III.7.2. 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 Group Summarizing and Quick Write Strategy and conventional teaching technique on students' writing ability at the eighth grade students of MTs Daarun Najah Teratak Buluh Siak Hulu Kampar Regency. 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 the pretest and the posttest or on two different treatments. (L.R Gay, 2000: 488).

Pretest and posttest scores were used in the experimental group in order to find the significant effect of using Transition Action Detail (TAD) Strategy and Problem- Based Instruction (PBI) Strategy on students' writing ability of the eighth grade students at MTs Daarun Najah Teratak Buluh Siak Hulu Kampar Regency. To obtain the data, SPSS 20 is used.

The formula of paired-sample t_{test} :

$$t = \frac{\bar{D}}{\frac{\sum D^2 - (\sum D)^2}{N(N-1)}} : \text{Gain Score (D=X2-X1)}$$

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:

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

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

Ha is accepted if $t_o > t\text{-table}$ or there is a significant effect after giving the treatment Transition Action Detail (TAD) Strategy and Problem- Based instruction (PBI) Strategy toward students' writing ability at the eighth grade students at MTs Daarun Najah Teratak Buluh Siak Hulu Kampar Regency.

Ho is accepted if $t_o < t\text{-table}$ or there is no significant effect after giving Transition Action Detail (TAD) Strategy and Problem- Based instruction (PBI)

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Strategy toward students' writing ability at the eighth grade students at MTs Daarunnajah Teratak Buluh Siak Hulu Kampar Regency.

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

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

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

Where:

kp : Coefficient effect

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

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

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

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

Where:

eta squared : Coefficient effect

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