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## CHAPTER III

### RESEARCH METHODOLOGY

#### 3.1 Research Design

The design of this research was comparative experiment. Experimental research is the type of research that can test hypotheses to establish cause and effect relationships (Gay and Airasian, 2000:367). Comparative experiment is the research design which compares the effect of two or more treatments and also randomly assigns subjects to the different treatments. According to McGowan (2011:1), Comparative experiment plays a role in each phase of an educational research program, from studies of initial efficacy to larger trials that confirm or optimize effects of educational interventions. The comparative experiment was usually one of three types: 1. Comparison of two different approaches (A versus B); 2. Comparison of a new approach and the existing approach (A versus no A); 3. Comparison of different amount of a single approach (A little of A versus a lot of A)” (2000:368). In this research, the writer used type 1 (comparison of two different approaches) with three variables, Field Trip and Doule Entry Diary which are independent variables, while the students’ writing ability is dependent variable. Therefore, the experimental class were given a pre-test, treatment and a post-test as described in the following table:

**Table 3.1 Research Design**

<b>E1</b>	<b>O1</b>	<b>X1</b>	<b>O3</b>
<b>E2</b>	<b>O2</b>	<b>X2</b>	<b>O4</b>

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E1 : Experimental Group 1

E2 : Experimental group 2

X1 : Independent Variable 1 (Field Trip strategy)

X2 : Independent Variable 2 (Double Entry Diary strategy)

O1 : Pre-Test for EG1

O2 : Post-Test for EG1

O3 : Pre-Test for EG2

O4 : Post-Test for EG2

O2 : Post-Test

### 3.2. Location and Time of the Research

The location of this research was SMK Nurul Falah Pekanbaru. It is located on Jl. Mesjid Raya, Kec.Senapelan, Riau. The research was conducted for two months starting from September to October 2016.

### 3.3. Population and Sample

#### 3.3.1. Population

The population of this research was the students of tenth grade at SMK Nurul Falah Pekanbaru. There were 7 classes altogether: Accounting 1 consisted of 20 students, Accounting 2 consisted of 20 students, Office Administration 1

consist of 32 students, Office Administration 2 consisted of 34 students, Hotel Accommodation consisted of 32 students, Business Management consisted of 20 students, and Computer Network Engineering consisted of 31 students. So, total population of the research was 189 students. Based on the population of this research, the sample was taken 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 characteristic. Below is the table of the population.

**Table 3.2**  
**Population of the Research**

No	Classes	Population		Total
		Male	Female	
1	Accounting 1	5	15	20
2	Accounting 2	6	14	20
3	Office Administration 1	6	26	32
4	Office Administration 2	5	29	34
5	Hotel Accommodation	20	12	32
6	Manajemen Business	10	10	20
7	Computer Network Engineering	26	5	31
<b>Total</b>		<b>78</b>	<b>111</b>	<b>189</b>

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### 3.3.2. Sample

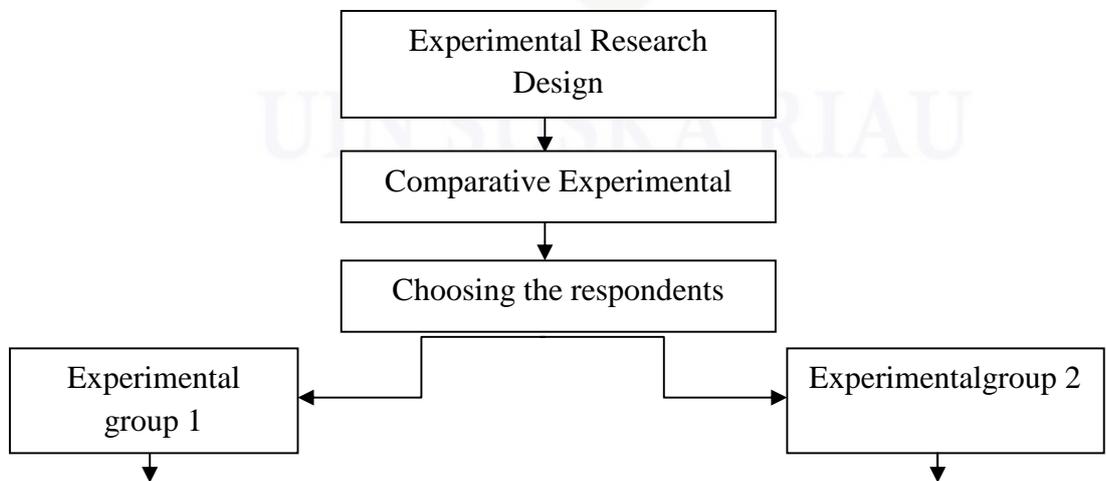
On the basis of the population, cluster sampling was used in this research. Gay (2000:12) states that cluster sampling randomly selects groups, not individual. All the members of selected groups have similar characteristics. The homogenous characteristics are the consideration. Because all classes were homogenous, the sample was chosen randomly, X Accounting 1 as Experimental group 1 and X Accounting 2 as experimental group 2 as can be seen in Table 3.3. below.

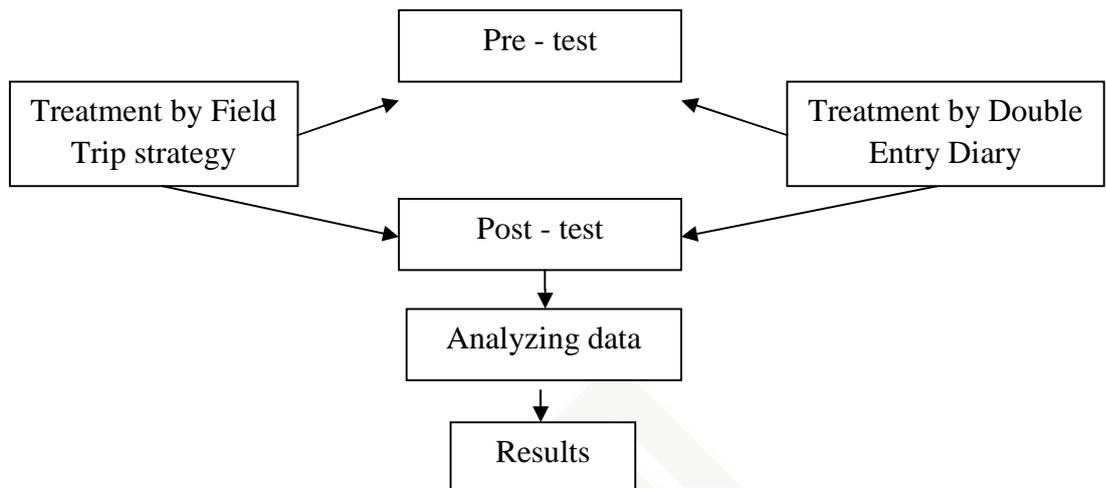
**Table 3.3.**  
**Sample of the grade tenth students at SMK Nurul Falah Pekanbaru**

Class	Male	Female	Total of Students
X Accounting 1 (Experimental Group 1)	5	15	20
X Accounting 2 (Experimental Group 1)	6	14	20
<b>Total Population</b>	<b>11</b>	<b>29</b>	<b>40</b>

### 3.4 Research Procedure

**Figure 3.1**





### 3.5 Research Instruments

To collect the data, a writing test was used as the instrument of this study.

A post-test was given to two classes which consisted of X Accounting 1 and X Accounting 2. The post-test aimed at finding out the students' writing ability after the treatment. The treatment was given by teaching Field Trip strategy and Double Entry Diary strategy.

### 3.6 Data Collection Technique

The first step in collecting the data was by introducing Field Trip strategy to the students by involving them in visiting four places. The first visit was made to Sang Nila Utama Museum on September 26<sup>th</sup>, 2016. The second visit was made to Idrus Tintin on September 28<sup>th</sup>, 2016. The third visit was to made Soeman HS Library on October 1<sup>st</sup>, 2016. The fourth visit was made to Taman Budaya Pekanbaru on October 3<sup>rd</sup>, 2016. After each visit, the students had to take notes on the places that had been visited.

The second step in collecting the data was by introducing Double Entry Diary strategy to the students on October 5<sup>th</sup>, 6<sup>th</sup>, 12<sup>th</sup>, and 13<sup>th</sup>, 2016. After that, at



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were appropriate, meaningful, and useful in terms of the purpose of the assessment.

The points of difficulty level and discrimination index was analyzed by using a certain formula (Heaton (1975: 178) as in the following:

$$FV = \frac{R}{N} \times 100\%$$

Where :

FV : The index of difficulty

R : The number of correct answer

N : The number of respondents

To find out the validity of the items of test, Split-Half formula was used by operating SPSS 20 version by looking at the corrected item - total correlation (correlation between score item and score total item =  $r_{\text{counted}}$ ) in table Item-Total Statistics.

To know whether the test valid or not, the value of  $r_{\text{counted}}$  was compared with  $r_{\text{table}}$ . The number of students was 10. The degree of freedom was  $35-2=33$ ,  $r_{\text{table}}$  on  $df=33$  are 0,325 (5%).

If the value of  $r_{\text{counted}} > r_{\text{table}}$  = valid,

If the value of  $r_{\text{counted}} < r_{\text{table}}$  = invalid

### 3.7.2 The reliability of Instrument

Reliability is an important characteristic of a good test. In order to calculate the reliability of the test, the mean of the students' scores and the standard deviation were sought. To find out the reliability of the test the following

formula was used; the discrimination index of an item indicated the extent to which the item discriminates between the students, separating the more able students from the less able. The following formula was taken from Heaton (1975: 164) as follows :

$$r_{ii} = \frac{N}{N-1} \left( 1 - \frac{m(N-m)}{N(X)^2} \right)$$

Where :  $M = \frac{\sum x}{N}$  and  $S^2 = \frac{\sum x^2 - \frac{(\sum x)^2}{N}}{N}$

$r_{ii}$  : Reliability of the test

$N$  : The number of item in the test

$M$  : The mean score of all the test

$S^2$  : The standard deviation of all the test score

**Table 3.4 Ccriteria Coefisien ofReliability**

CoefisienReliability	Criteria
0,80 $r_{11}$ 1,00	Highest reliability
0,60 $r_{11}$ 0,79	High reliability
0,40 $r_{11}$ 0,59	Middle reliability
0,20 $r_{11}$ 0,39	Low reliability
0,00 $r_{11}$ 0,19	Lowest reliability

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### 3.8. Data Analysis Technique

In scoring student' ability in writing the descriptive text, the researcher used the ESL composition Profile by Hughey et. al. (1983). The profile consisted of five components - content, organization, vocabulary, language use, and mechanics. The following measurement scales were used:

**Table 3.5**  
**The aspects of writing**  
**Content**

Range	Criteria
30-27	Excellent to very good: Knowledgeable, substantive, through development of thesis, and relevant to assigned topic.
26-22	Good to average: some knowledgeable of subject, adequate range, limited development of thesis, mostly relevant to topic, but lacks detail.
21-17	Fair to poor: limited knowledge of subject, little substance, inadequate development of topic.
16-13	Very poor: does not to show knowledge of subject, nonsubstantive, not pertinent or not enough to evaluate.

### Organization

Range	Criteria
20-18	Excellent to very good: fluent expression, ideas clearly stated/supported, well organized, logical sequencing, and cohesive.
17-14	Very good to average: some what choppy, loosely organized but main ideas stand out, limited support, logical but incomplete sequencing.
13-10	Fair to poor: non-fluent, ideas confused or disconnected, lacks logical sequencing and development.
9-7	Very poor: does not communicate, no organization or not enough to evaluate.

### Vocabulary

Range	Criteria
20-18	Excellent to very good: sophisticated range, effective word/idiom choice and usage, word form mastery, appropriate register.
17-14	Good to average: adequate range, occasional errors of word/idiom form and usage but meaning not obscured.
13-10	Fair to poor: limited range, frequent errors of word/idiom form; choice and usage, meaning confused or obscured.
9-7	Very poor: essentially translation, little knowledge of English vocabulary;

idioms; word form, not enough to evaluate.

### Language Use

Range	Criteria
25-22	Excellent to very good: effective complex constructions, few errors of agreement; tense, number, word order/functions; articles; pronouns; and prepositions.
21-18	Very good to average: effective but simple constructions, minor problems in complex constructions, several errors of agreement; tense; number; word order/functions; articles; pronouns; prepositions but never obscured.
17-11	Fair to poor: major problems in simple/complex constructions, frequent errors of negotion; agreement; tense; number; word order/functions; articles; pronouns; prepositions; and or fragments, deletions, meaning confused or obscured.
10-5	Very poor: virtually no mastery of sentence constructions rules, dominated by errors, does not communicate, or not enough to evaluate.

### Mechanics

Range	Criteria
5	Excellent to very good: demonstrates mastery of conventions, few errors of spelling; punctuation, capitalization; and paragraphing.
4	Very good to average: occasional errors of spelling, punctuation, capitalization, paragraphing, but meaning not obscured.
3	Fair to poor: frequent errors of spelling; punctuation; capitalization; paragraphing, poor handwriting, meaning confused or obscured.
2	Very poor: no mastery of conventions, dominated by errors of spelling; punctuation; capitalization; paragraphing, handwriting illegible, or not enough to evaluate.

(Hughey Jane B., et.al:1983,p.140)

**Table 3.6**  
**Specifications of the Test**

No	Writing Skill	The Highest Score
1	Content	30
2	Organization	20
3	Vocabulary	20
4	Language Use	25

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5	Mechanics	5
	Total	100

To know the percentage of students' correct usage for each item of writing criteria, the formula below was used. :

**1. Correct**

$$\text{Frequency} \times 100$$

Furthermore, the following table displays the student's score range:

**Table 3.7**  
**The Score Range**

Range of Score	The Level of Ability
90-100	Excellent
80-89	Good
70-79	Fairly good
60-69	Fair
0-59	Poor

*(Heaton, 1988:91)*

The scoring guide was chosen as the criteria of scoring representing the basic aspects of writing. The writing results were evaluated by considering five aspects and each aspect has a score or value.

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In analysing the data, the research used the scores of the post-test of the two classes. This score was analyzed statistically using descriptive and inferential statistics.

### 1. Independent sample t-test

To find out whether there was a significant difference or there was no significant difference between two or more variables can be analyzed by using Independent Sample  $t_{test}$ . Gay adds that the t-test for independent sample is used to determine whether there is a significant difference between the means of two independent samples. The data was analyzed by using some techniques to find out the information about students' writing ability by using Field Trip strategy and Double Entry Diary strategy in both experimental class.

To analyze the final-test scores of the experimental groups and 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 :

$T$  = 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 was a significant difference of the mean of the score of both experimental and control groups. The t-obtained value was consulted with the value of t-table at the degree of freedom (df) =  $(N_1+N_2)-2$  which is statistically hypothesis:

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

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

$H_a$  was accepted if  $t_o > t\text{-table}$  or there was an effect after giving the Field Trip strategy and Double Entry Diary strategy on the students' writing ability.

$H_o$  was accepted if  $t_o < t\text{-table}$  or there was no effect after giving the treatment Field Trip strategy and Double Entry Diary strategy on the students' writing ability.

Afterward, to find out the degree of the effect of T-test the following formula was employed:

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

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

Where:

*eta squared* : Coefficient effect

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

## 2. Paired Sample T-Test

Paired Sample t-Test is known also as Non-independent sample t-test. Gay (2000: 488) states that t-test for non independent samples is used to compare



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To find out the coefficient effect of T-test the following formula<sup>1</sup> was applied:

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

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

Where:

Kp : Coefficient effect

r<sup>2</sup> : Coefficient

To find out the degree of the effect of T-test the following formula<sup>2</sup> was employed:

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

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

Where:

eta squared : Coefficient effect

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