

## CHAPTER III

### RESEARCH METHOD

#### A. Research Design

Research refers to ‘systematic inquiry’, inquiry that is characterized by sets of principles, guidelines for procedures and which is subject to evaluation in terms of criteria such as validity, reliability and representativeness.<sup>1</sup> In this research, researcher used true experimental design; pre-test – post test control group design. There were two groups in experimental research, experimental group and control group. Experimental group received new treatment while control group received conventional treatment.

Referring to this research, experimental group received new treatment by using times of day game in teaching writing recount text while control class was taught without times of day game or conventionally. Both experimental and control group consist of eleventh grade students of SMK Bina Utama Kendal. Pre-test and post-test were used to measure both classes’ change in the period before and after receiving a treatment.

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<sup>1</sup> Graham Hitchcock and David Hughes, *Research and the Teacher*, (London: Routledge Falmer, 1995), p. 5.

The design of the experiment could be described as follows:<sup>2</sup>

Pattern:

<b>R<sub>1</sub></b>	<b>O<sub>1</sub></b>	<b>X</b>	<b>O<sub>2</sub></b>
<b>R<sub>2</sub></b>	<b>O<sub>3</sub></b>	<b>-</b>	<b>O<sub>4</sub></b>

R1 : Experimental group

R2 : Control group

O1 : Pre-test for experimental group

O2 : Post test for experimental group

O3 : Pre-test for control group

O4 : Post test for control group

X : Treatment with times of day game

Subject of the research was classified as experimental group (top line) and control group (bottom line). Both experimental and control group were given pre-test (O<sub>1</sub> and O<sub>3</sub>) to measure quality of them. Then, experimental group was given treatment (X) in teaching recount text by using times of day game while control group was taught recount text by using without times of day game. After that, post test was given to both experimental and control group.

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<sup>2</sup> Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*, (Bandung: Alfabeta, 2012), p. 76.

## **B. Setting of the Research**

This research was taken place at SMK Bina Utama Kendal that located at Jl. Kyai Tulus Jetis Kec. Kota Kendal Kab. Kendal 51315, phone number (0294)5700808. It was conducted on first semester in the academic year of 2015/2016. It was started from 3<sup>rd</sup> November 2015 until 20<sup>th</sup> November 2015.

## **C. Population and Sample of the Research**

Population is the whole subject of research.<sup>3</sup> Subject in this research was eleventh grade students of SMK Bina Utama Kendal. There were fourteen classes at the eleventh grade students of SMK Bina Utama Kendal; two classes of Teknik Komputer Jaringan (TKJ), two classes of Rekayasa Perangkat Lunak (RPL), four classes of Teknik Otomotif Kendaraan Ringan (TKR), four classes of Teknik Sepeda Motor (TSM), and two classes of Teknik Perbaikan Body Otomotif (TPBO). The research used cluster random sampling technique to determine the subject of the research.

As the result, students of XI TKJ 1 became the experimental group which would be taught to write recount by using times of day game. While control group was students of XI TKJ 2 which would be taught to write recount by conventionally.

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<sup>3</sup> Suharsimi Arikounto, *Prosedur Penelitian Suatu Pendekatan Praktik*, (Jakarta: PT. Rineka Cipta, 2006), p. 116.

## D. Variable and Technique of Scoring Test

Sugiyono stated that variable is the object of the research or something that become the concern of research.<sup>4</sup> In this research, there are independent variable and dependent variable.

### 1. Independent Variable

It is a variable that influences or causes of change or emergence of the dependent variable.<sup>5</sup> Independent variable of the research was using times of day game in teaching writing of recount text.

### 2. Dependent Variable

It is variable that is affected resulting, because of the existence of the independent variable.<sup>6</sup> Dependent variable in this research was students' achievement in the teaching writing of recount text.

Writing test was used to measure students' ability in writing recount text. Brown stated that, there were five major items or categories in analytic scoring writing test, namely content, organization, vocabulary, syntax (grammar), and mechanic.<sup>7</sup>

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<sup>4</sup> Sugiyono, *Metode Penelitian...*, p.38.

<sup>5</sup> Sugiyono, *Statistika Untuk Penelitian*, (Bandung : CV Alfabeta, 2005), p. 3.

<sup>6</sup> Sugiyono, *Statistika Untuk Penelitian...*, p. 130.

<sup>7</sup> H. Douglass Brown, *Language Aassessment:Principles and Classroom Practices*, (USA: longman, 2004), p. 246.

**Table 3.1**  
**Percentage of the Element of Writing**

Element of writing	Score
1. The content mastery	30
2. The organization mastery	20
3. The vocabulary mastery	20
4. The syntax (grammar) mastery	25
5. The mechanic mastery	5
Total of score	100

Explanation

Content : The substance of writing, the ideas expressed.

Organization : The organization of the content

Vocabulary : The choice of idioms, words, and lexical item to give a particular tone or flavor to writing

Grammar : The employing grammatical and syntactic forms

Mechanic : The use of graphic convention of the language

The research employed scoring guidance criteria by Hughes.

**Table 3.2**  
**Scoring Guidance and the Explanation of Criterion.<sup>8</sup>**

Categories	Score	Criteria
Content	30-27	Excellent to very good:

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<sup>8</sup> Arthur Hughes, *Testing for Language Teachers*, (New York: Cambridge University Press, 2003), p. 104.

		knowledgeable; substantive; thorough; development of thesis; relevant to assigned topic.
	26-22	Good to average: some knowledge 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 show knowledge of subject; non-substantive; not pertinent.
Organization	20-18	Excellent to very good: fluent expression; ideas clearly stated/ supported; succinct; well-organized; logical sequencing; cohesive.
	17-14	Good to average: somewhat 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.
Vocabulary	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; choice; usage but meaning not obscured.
	13-10	Fair to poor: limited range; frequent errors of word/idiom form, choice, usage; meaning confused or obscured.
	9-7	Very poor: essentially translation; little knowledge of English vocabulary, idioms,

		word form.
Language use/grammar	25-22	Excellent to very good: effective complex construction; few errors of agreement, tense, number, word order/ function, articles, pronouns, prepositions.
	21-18	Good to average: effective but simple constructions; minor problems in complex constructions; several errors of agreement, tense, number, word order/ function, articles, pronouns, prepositions but meaning seldom obscured.
	17-11	Fair to poor: major problems in simple/complex constructions; frequent errors of negation, agreement, tense, number, word order/ function, articles, pronouns, preposition and fragments, run-ons, deletions; meaning confused or obscured.
	10-5	Very poor: virtually no mastery of sentence construction rules;

		dominated by errors; does not communicate.
Mechanics	5	Excellent to very good: demonstrates mastery of conventions; few errors of spelling, punctuation, capitalization, paragraphing.
	4	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
	2	Very poor: no mastery of conventions; dominated by errors of spelling, punctuation, capitalization, etc. paragraphing; handwriting illegible.

## E. Technique of Data Collection

Arikunto stated that collecting data is the conscious process to get data by systematic method, based on standard procedure.<sup>9</sup> Documentation and test were used to collect data in this research.

#### 1. Documentation

Documentation is material that provides official information or evidence or that serves as a record.<sup>10</sup> According to Arikunto, the documentation method was used to look for the data concerning matters or the variable that taken the form of the note, transcript, book, newspaper, magazine, inscription, notes of a meeting, agenda, etc.<sup>11</sup>

The research used documentation to collect data which was related to this research, such as list of students' name, lesson schedule, syllabus, lesson plan, students' worksheet, etc.

#### 2. Test

Test is a method to measure a person's ability, knowledges, or performance in a given domain.<sup>12</sup> In this research, writing test was conducted before and after

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<sup>9</sup> Arikunto Suharsimi: *Prosedur Penelitian...*, p.222.

<sup>10</sup> <http://www.oxforddictionaries.com/definition/english/documentation> accessed on August 06 2015

<sup>11</sup> Suharsimi Arikunto, *Prosedur Penelitian...*, p.274.

<sup>12</sup> Brown, *Language Aassessment...*, p. 3.

treatment to measure students' achievement. There were two kind of test, pre-test and post test.

Pre-test was given before treatment was run. Both experimental and control group were tested in same way. After treatment was ran there were a post test. Post test was given in order to know students' achievement after received material of recount text using times of day game (for experimental group) and without times of day game (for cotrol group).

## **F. Technique of Data Analysis**

The data was analyzed through giving test to the students. It needed some steps in analyzing of the data. The following steps were taken by researcher.

### **1. Pre-Requisite Test**

#### **a. Normality Test**

Normality test is used to know normality of the data that is going to be analyzing whether both groups have normal distribution or not. The normality test with Chi-square will be used to find out the distribution data. Step by step Chi-square test is as follows:

- 1) Determine the range (R); the largest reduced the smallest
- 2) Determine the many class interval (K) with formula:

$$K = 1 + (3,3) \log n$$

- 3) Determine the length of the class, using the formula:

$$P = \frac{\text{range}}{\text{number of class}}$$

- 4) Make a frequency distribution table  
 5) Determine the class boundaries (bc) of each class interval  
 6) Calculate the average  $\bar{X}$  ( $\bar{x}$ ), with the formula:

$$\bar{x} = \frac{\sum f_i x_i}{\sum f_i}$$

- 7) Calculate variants, with the formula:

$$S = \sqrt{\frac{\sum f_i (x_i - \bar{x})^2}{n-1}}$$

- 8) Calculate the value of Z, with the formula:

$$Z = \frac{x - \bar{x}}{s}$$

$x$  : limit class

$\bar{x}$  : Average

$S$  : Standard deviation

- 9) Define the wide area of each interval

- 10) Calculate the frequency expository ( $E_i$ )

$$E_i = n \times \text{wide area the } n \text{ number of sample}$$

- 11) Make a list of frequency of observation ( $O_i$ ), with the frequency expository as follows:

Class	Bc	Z	P	L	Ei	Oi	$\frac{O_i - E_i}{E_i}$
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12) Calculate the chi-square ( $\chi^2$ ), with the formula:

$$\chi^2 = \sum_{i=1}^k \frac{(O_i - E_i)^2}{E_i}$$

13) Determine  $dk = k - 3$ , where  $k$  is the number of class interval and  $\alpha = 5\%$

14) Determine the value of  $\chi_{table}^2$

15) Determine the distribution normality

If  $\chi_{count} > \chi_{table}$  so the data is not normal distribution and the other way if the  $\chi_{count} < \chi_{table}$  so the data is normal distribution.<sup>13</sup>

#### b. Homogeneity Test

According to Nunan, a test should be given to both classes of students before the experiment just to make sure that the both classes really are the same.<sup>14</sup> It was used to know whether experimental class and control class, that were taken from population that has relatively same variant or not. The hypothesis in homogeneity test are:

$$H_0 : \sigma_1^2 = \sigma_2^2$$

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<sup>13</sup> Sudjana, *Metode Statistika*, (Bandung: Tarsito, 2001), p. 272.

<sup>14</sup> David Nunan, *Research Method in Language Learning*, (Cambridge: Cambridge University Press, 1992), p. 27.

$$H_1 : \sigma_1^2 \neq \sigma_2^2$$

$H_0$  : The distribution of normal data

$H_1$  : Abnormal distributed data

$\sigma_1$  : Variants value of beginning data with times  
of day game

$\sigma_2$  : Variants value of beginning data was  
subjected to conventional learning classes.

The steps to measure homogeneity are as follows:

- 1) Calculate variants both experimental group and control group with the formula:

$$s_1^2 = \frac{\sum(x-\bar{x})^2}{n_1-1} \text{ and } s_2^2 = \frac{\sum(x-\bar{x})^2}{n-1}$$

Where:

$s_1^2$  : Variant of experimental class

$s_2^2$  : Variant of control class

$n_1$  : The number of students in experimental class

$n_2$  : The number of students in control class

$v_1$  : Degrees of freedom of the biggest variance

$v_2$  : Degrees of freedom of the smallest variance

- 2) Determine  $F = \frac{Vb}{Vk}$

Where:

Vb : Bigger Variant

Vk : Smaller Variant

Determine  $dk = (n_1 - 1):(n_2 - 1)$

- 3) Determine  $F_{\text{table}}$  with  $\alpha = 5\%$
- 4) Determine the distribution homogeneity with test.

Test criteria:

Ho accepted if  $F_{\text{count}} < F_{[1/2 \alpha (v1, v2)]}$  with  $\alpha = 5\%$

If  $F_{\text{count}} < F_{\text{table}}$ , the data is not homogenous and the other way if the  $F_{\text{count}} > F_{\text{table}}$ , the data is homogenous.<sup>15</sup>

c. Test of Average

Test of average was used to examine average whether experiment group and control group that had been decided having significant different average. T-test was used to analyze the data of this research. A t-test would be the measure that used to compare the mean scores of the two groups.<sup>16</sup>

If  $\sigma_1^2 = \sigma_2^2$  (has same variant), the formula is:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{S \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

With

$$S = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

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<sup>15</sup> Sugiyono, *Statistika Untuk Penelitian*, p. 140.

<sup>16</sup> Brown, *Language Assessment...*, p. 205.

$\bar{x}_1$  : The mean score of experimental group

$\bar{x}_2$  : The mean score of control group

$n_1$  : The number of experimental group

$n_2$  : The number of control group

$S_1^2$  : The standard deviation of experimental group

$S_2^2$  : The standard deviation of control group

If  $\sigma_1^2 \neq \sigma_2^2$  (has no same variant) the formula is:

$$t = \frac{x_1 - x_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

The hypothesis are:

Ho :  $\mu_1 = \mu_2$

Ha :  $\mu_1 \neq \mu_2$

$\mu_1$  : average data of experiment class

$\mu_2$  : average data of control class

Criteria test is; If  $t_{\text{count}} > t_{\text{table}}$  so Ho is rejected and there is significant difference of average value from both of groups. Moreover, the other way if the  $t_{\text{count}} < t_{\text{table}}$  so Ho is accepted and there is no difference of average value from both of groups.<sup>17</sup>

## 2. Post Test

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<sup>17</sup> Anas Sudjiono, *Pengantar Statistika Pendidikan*, (Jakarta: PT Raja Grafindo Persada, 1995), p. 272-273.

Post test was held after all treatment were conducted. Post test was used to measure students' achievement after both experimental group and control group were given treatment and explanation. It was done to answer the hypothesis of the research. This aim was to compare between the pre test and post test. Then, the overall result was counted by using t-test formula in order to know the significances of the research.

These following steps were used to examine the hypothesis.

a. Normality Test

Steps of normality test in the analysis phase end was the same as the normality test on the initial data.

b. Homogeneity Test

Steps of homogeneity test in the analysis phase end was the same as the normality test on the initial data.

c. Hypothesis Test

This used t-test formula as follows.<sup>18</sup>

If  $\sigma_1^2 = \sigma_2^2$  (has same variant), the formula is:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{S \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

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<sup>18</sup> Sudjana, *Metode Statistika*, p. 239.

$$S = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

$\bar{x}_1$  : The mean score of experimental group

$\bar{x}_2$  : The mean score of control group

$n_1$  : The number of experimental group

$n_2$  : The number of control group

$S_1^2$  : The standard deviation of experimental group

$S_2^2$  : The standard deviation of control group

If  $\sigma_1^2 \neq \sigma_2^2$  (has no same variant) the formula is:

$$t = \frac{x_1 - x_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

The hypothesis are:

$H_0 : \mu_1 = \mu_2$

$H_a : \mu_1 \neq \mu_2$

$\mu_1$  : average data of experiment class

$\mu_2$  : average data of control class

Testing criteria that apply;  $H_0$  is accepted if  $t_{\text{count}} < t_{\text{table}}$  with determine  $dk = (n_1 + n_2 - 2)$  and  $\alpha = 5\%$  with opportunities  $(1 - \alpha)$ .

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