

CHAPTER III

RESEARCH METHOD

In this chapter, the writer presents research type, research design, variables of the study, population and sample, research instrument, validity, reliability, data collection procedure, and data analysis procedure.

A. Research Type

The study was classified into quantitative research where, according to Ary et al., it deals with question of relationship, cause and effect, or current status that writer can answer by gathering and statistically analyzing numeric data. It can be divided into experimental and non-experimental.²⁸ Meanwhile Aliaga and Gunderson in Muijs state that Quantitative research is a research which explains phenomena by collecting numerical data that are analyzed using mathematically based method (in particular statistic).²⁹

B. Research Design

The writer was conducted in Ex Post Facto design. According to Ary, et al., ex post facto research is a type of research that attempts to determine the causes for, or consequence of, differences that already exist in groups of individuals.³⁰

²⁸ Donal Ary, et al., *Introduction to Research in Education*, Wadsworth, 2010., p. 39.

²⁹ Daniel Muijs, *Doing Quantitative Research in Education with SPSS*, SAGE Publications Ltd, London, 2004., p. 1.

³⁰ *Ibid.*, Donal Ary, p. 331.

The writer did an observation without any manipulation; just choose two classes in writing business letter. The observation was progressed at SMKN 2 Palangka Raya.

The design of this research could be seen at the table bellows:

Table 3.1 Ex-Post Facto Design

Group	Independent Variable	Dependent Variable
1 st	X ₁	Y ₁
2 nd	X ₂	Y ₂

Source: Ary, et al.

Explanation:

X₁ and X₂ : The students with different program. X₁ for students of Office Administration Program and X₂ for students of Marketing Program

Y₁ and Y₂ : The students' ability.

C. Variable of the Study

According to Ary, et al., variable is a representation of a construct that takes on a range of values.³¹ In this study there were two variables. They were office administration and marketing program at the eleventh-grade students of SMKN 2 Palangka Raya.

³¹ *Ibid.*, p. 652.

D. Population and Sample

1. Population

According to Ary population is all members of any well-defined class of people, events, or objects.³² Population in this research was the eleventh grade students of SMK N 2 Palangka Raya.

They consisted on the table as follows:

Table 3.2
Number of Student

NO	Class	The Number of Students
1.	XI APK I	30
2.	XI APK II	34
3.	XI APK III	32
4.	XI SAR I	30
5.	XI SAR II	30
<i>Total</i>		126

The population of the study was all of the eleventh grade students in office administration and marketing program of SMKN Palangka Raya year 2013/2014. The number of population was 126 students. It was classified into three classes at office administration program and two classes at marketing program.

2. Sample

According to Ary, et al., sample is a small group that is observed which is portion of population. So the writer minimized the sample into 2 classes. One class from office administration program and one classes

³² *Ibid.*, p. 148.

from marketing program. In this research, the sample was chosen by using cluster sampling.

Cluster sampling is used if the population does not consist of individuals, but groups or cluster.³³ The writer was determined two classes for sample.

Table 3.3
Number of Sample

NO.	Class	Number of Students
1.	XI APK I	22
2.	XI SAR I	23
Total		45

E. Research Instrument

According to Ary, et al., instrument is a device for operationally defining a variable.³⁴ Selecting appropriate and useful measuring instruments is critical to the success of any research study. One must select or develop scales and instruments that can measure complex constructs such as intelligence, achievement, personality, motivation, attitudes, aptitudes, interests, and self-concept.³⁵

Based on the theory above, the writer decided the instrument of the research as follows:

³³ Nurul Zurich, *Metodologi Penelitian Sosial dan Pendidikan (TeoriAplikasi)*, Jakarta: BumiAksara, 2006, p. 124.

³⁴ *Ibid.*, p. 643.

³⁵ *Ibid.*, p. 200.

1. Test

According to Donald Ary et al. Tests are valuable measuring instruments for educational research. A test is a set of stimuli presented to an individual in order to elicit responses on the basis of which a numerical score can be assigned. This score, based on a representative sample of the individual's behavior, is an indicator of the extent to which the subject has the characteristic being measured.³⁶

Based on the explanation above, the research instrument was writing test to get the data. It was to measure the students' ability of office administration and marketing programs at the eleventh grade of SMKN 2 Palangka Raya.

The writer gave the students' score by using scoring rubric as follows:³⁷

³⁶ Donal Ary, et al., *Introduction to Research in Education*, Wadsworth, 2010., p.201.

³⁷ Alberta Educaton, *Example of the standards for Students' Writing*, Edmonton, Alberta, 2009., p.7.

Scoring Guide: Functional Writing Assignment

Content

Content	<p style="text-align: center;"><i>Focus</i></p> <p>When marking Content appropriate for the Grade 9 Functional Writing Assignment, the marker should consider the extent to which</p> <ul style="list-style-type: none"> • Ideas and development of the topic are effective • The purpose of the assignment is fulfilled with complete and relevant information • The tone is appropriate for a business letter, and awareness of audience is evident
<p style="text-align: center;">E</p> <p>Excellent</p>	<ul style="list-style-type: none"> • The ideas are perceptive, and development of the topic is clear and effective. • Pertinent information is presented, and this information is enhanced by precise details that effectively fulfil the purpose of the assignment. • A tone appropriate for the addressee is skillfully maintained.
<p style="text-align: center;">Pf</p> <p>Proficient</p>	<ul style="list-style-type: none"> • The ideas are thoughtful, and development of the topic is generally effective. • Significant information is presented, and this information is substantiated by specific details that fulfil the purpose of the assignment. • A tone appropriate for the addressee is clearly maintained.
<p style="text-align: center;">S</p> <p>Satisfactory</p>	<ul style="list-style-type: none"> • The ideas are appropriate, and development of the topic is adequate. • Relevant information is presented, and this information is supported by enough detail to fulfil the purpose of the assignment. • A tone appropriate for the addressee is generally maintained.
<p style="text-align: center;">L</p> <p>Limited</p>	<ul style="list-style-type: none"> • The ideas are superficial and/or flawed, and development of the topic is inadequate. • Information presented is imprecise and/or undiscerning. Supporting details are insignificant and/or lacking. The purpose of the assignment is only partially fulfilled. • A tone appropriate for the addressee is evident but not maintained.
<p style="text-align: center;">P</p> <p>Poor</p>	<ul style="list-style-type: none"> • The ideas are overgeneralized and/or misconstrued, and development of the topic is ineffective. • Information is irrelevant and/or missing. Supporting details are obscure and/or absent. The purpose of the assignment is not fulfilled. • Little awareness of a tone appropriate for the addressee is evident.
<p style="text-align: center;">INS</p> <p>Insufficient</p>	<ul style="list-style-type: none"> • The marker can discern no evidence of an attempt to address the task presented in the assignment, or the student has written so little that it is not possible to assess Content.

Scoring Guide: Functional Writing Assignment

Content Management

Content Management	<p>Focus</p> <p>When marking Content Management appropriate for the Grade 9 Functional Writing Assignment, the marker should consider the extent to which</p> <ul style="list-style-type: none"> words and expressions are used accurately and effectively sentence structure, usage, and mechanics (spelling, punctuation, etc.) are controlled the formats of an envelope and a business letter are consistently applied <p>Proportion of error to length and complexity of response must be considered.</p>
E Excellent	<ul style="list-style-type: none"> Words and expressions used are consistently accurate and effective. The writing demonstrates confident and consistent control of correct sentence structure, usage, and mechanics. Errors that may be present do not impede meaning. The envelope and letter are essentially free from format errors and/or omissions.
Pf Proficient	<ul style="list-style-type: none"> Words and expressions used are usually accurate and effective. The writing demonstrates competent and generally consistent control of correct sentence structure, usage, and mechanics. Errors that are present rarely impede meaning. The envelope and letter contain few format errors and/or omissions.
S Satisfactory	<ul style="list-style-type: none"> Words and expressions used are generally accurate and occasionally effective. The writing demonstrates basic control of correct sentence structure, usage, and mechanics. Errors may occasionally impede meaning. The envelope and letter contain occasional format errors and/or omissions.
L Limited	<ul style="list-style-type: none"> Words and expressions used are frequently vague and/or inexact. The writing demonstrates faltering control of correct sentence structure, usage, and mechanics. Errors frequently impede meaning. The envelope and letter contain frequent format errors and/or omissions.
P Poor	<ul style="list-style-type: none"> Words and expressions used are inaccurate and/or misused. The writing demonstrates a lack of control of correct sentence structure, usage, and mechanics. Errors severely impede meaning. The envelope and letter contain numerous and glaring format errors and/or omissions.
INS Insufficient	<ul style="list-style-type: none"> The response has been awarded an INS for Content.

2. Documentation

The writer used documentation as the second instrument of the study. Arikunto's opinion states that "there are three kinds of source namely paper, place, and people". This technique used to collect the data in the form of document on the study place. The data that needed such as:

- a) The amount, the name, and the student's sheet
- b) The syllabus of English subject of SMKN 2 Palangka Raya
- c) The Lesson plans of English subject
- d) The profile of teachers
- e) The student's score of writing application letter
- f) Pictures

According Ridwan stated that:

Documentation is indicated to get the data directly from the location of the research, include relevant books, rules, a report of activities, pictures, documenter film and the relevant data in the study.³⁸

F. Validity

The quality that most affects the value of a writing assessment is *validity*. Although dependent on reliability, validity is crucial to fair and meaningful writing assessment. It means that:³⁹

- 1) An assessment task must assess what it claims to assess.
- 2) An assessment task must assess what has been taught.

³⁸ Riduwan, *Metode dan Teknik Menyusun Tesis*, Bandung: Alfabeta, 2007, p. 105

³⁹ Ken Hyland, *Second Language Writing*, Cambridge University Press: UK, 2003., p.217.

A valid test or measure is one which measures what it is intended to measure. Validity must always be examined with respect to the use which is to be made of the values obtained from the measurement procedure.⁴⁰

1. Content Validity

Content validity refers to whether or not the content of the manifest variables (e.g. items of a test or questions of a questionnaire) is right to measure the latent concept (self-esteem, achievement, attitudes,...) that we are trying to measure.⁴¹ *Content validity* also addresses authenticity, but it draws on evidence of the topics that writers are required to discuss in target domains, usually through a thorough needs analysis.⁴²

2. Construct Validity

Construct validity is a slightly more complex issue relating to the internal structure of an instrument and the concept it is measuring. Once again, this is related to our theoretical knowledge of the concept we are wanting to measure.⁴³ *Construct validity* concerns the qualities that the task measures, how far it actually represents writing abilities.

G. Reliability

Muijs stated that:

Reliability does have a specific meaning when we are talking about statistical measurement. Basically, whenever we are measuring something, there is some element of error called measurement error.

⁴⁰ T. Neville Postlethwaite, *Module Educational Research: Some Basic Concept and Terminology*, Paris: International Institute for Educational planning/UNESCO, 2005, p 39.

⁴¹ Daniel Muijs, *Doing Quantitative Research in Education*, London: Sage Publications, 2004, p.68.

⁴² *Ibid.*, Ken Hyland., p.217.

⁴³ *Ibid.*, p. 66.

Reliability then refers to the extent to which test scores are free of measurement error.⁴⁴

Reliability refers to the degree to which a measuring procedure gives consistent results. That is, a reliable test is a test which would provide a consistent set of scores for a group of individuals if it was administered independently on several occasions.⁴⁵ In addition, the writer used Inter-rater reliability to know reliability of the result of the test.

H. Data Collection Procedure

In this study, the writer used some procedures to collect the data. The procedures consists of some steps as follows:

1. The writer gave the test to the students.

The test had given to the students at the eleventh grade of SMKN 2 Palangka Raya, first the students at the office administration program, and second the students at the marketing program. The test was writing test by write the application letter for Hotel Swiss Bell Danum. The students of marketing program did the test on February 14th, the students of office administration program did the test on March 4th, 2015.

2. The writer gave score to the students' assignment using rubric for business letter writing.

The students' score had given by two rathers. First, the writer as rater I, and second Rahmat Setiawan, S.Pd.I. as rater II.

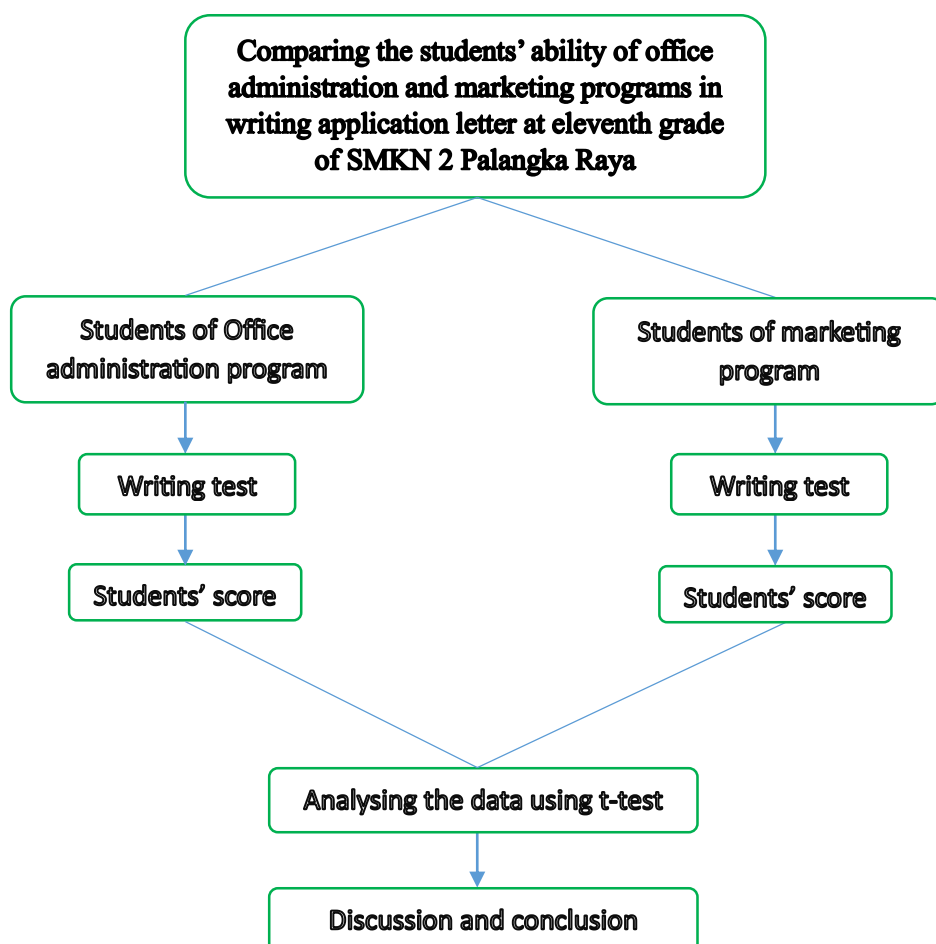
⁴⁴ Daniel Muijs, *Doing Quantitative*, p.71.

⁴⁵ T. Neville Postlethwaite, *Module Educational Research* , P. 41.

3. The writer analyzed the obtained data using manual calculation and SPSS 22 program.
4. The writer interpreted the analysis result.
5. The writer concluded the difference on students' achievement in writing a business letter between Office Administration (APK) and Marketing Program (PIL) in eleventh grade students of SMKN 2 Palangka Raya.

Based on the explanation above, the writer concluded into a figure bellow:

Figure 3. Data Collection Procedure



I. Data Analysis Procedure

In order to analyze the data after collecting, the writer also did some procedure below:

1. Collecting the students' score of test using rubric for business letter writing.

2. Determining the Range of Score, the Class Interval, and Interval of Temporary, using formula⁴⁶:

The Range of Score (R)

$$R = H - L + 1$$

Where :

H = Highest score

L = Lowest score

$$\text{Class interval (K)} = 1 + (3.3) \times \log n$$

Where:

n = Number of students

$$\text{Interval of temporary} = \frac{R}{K}$$

Where:

R = The range of score

K = Class Interval

3. Arranging the obtained the score into the distribution of frequency of score table.

⁴⁶ Abdulrahman Ritonga, *Statistic Terapan Untuk Penelitian*, Jakarta: Lembaga Penerbit Fakultas Ekonomi UI, 1987, p. 56.

4. Calculating mean, median, modus, standard deviation and standard error of students' score.

a. Mean

$$M_x = \frac{\sum fx}{N}$$

Where:

M_x = Mean value

$\sum fx$ = Sum of each midpoint times by it frequency

N = Number of case ⁴⁷

b. Median

$$Mdn = \ell + \frac{\frac{1}{2}N - fkb}{f_i} X i$$

Where :

Mdn = Median

ℓ = Lower limit (lower limit from score that contain Median)

fkb = Cumulative frequency that reside below the score that contain Median

f_i = Genuine frequency

N = Number of case

u = Upper limit (upper limit from score that contain Median)

⁴⁷ Anas Sudijono, *Pengantar Statistik Pendidikan*, Jakarta: PT. Raja Grafindo Persada, 2008, P. 85.

fk_b = Cumulative frequency that reside above the score that contain Median.⁴⁸

c. Modus

$$Mo = \ell + \left(\frac{fa}{fa+fb} \right) xi$$

Where :

Mo = Modus

ℓ = Lower limit (lower limit from interval that contain Modus)

fa = Frequency that reside above interval that contain Modus

fb = Frequency that reside below interval that contain Modus

u = Upper limit (upper limit from interval that contain Median)

I = Interval class.⁴⁹

d. The writer calculated the standard deviation using the formula:

$$SD = \sqrt{\frac{\sum Fx^2 - \frac{(\sum Fx)^2}{n}}{n-1}}$$

Where :

SD = Standard Deviation

$\sum fx^2$ = Sum of the multiplication result between each skor frekuensi with the squared deviation score.

N = Number of cases⁵⁰

⁴⁸ *Ibid.*, p. 97

⁴⁹ *Ibid.*, p. 106

e. The writer calculated the Standard error using the formula:

$$SE_{Mx_1} = \frac{SD}{\sqrt{N-1}}$$

5. Calculating error standard of difference mean using the formula:

$$SE_{Mx_1} - SE_{Mx_2} = \sqrt{(SE_{Mx_1})^2 + (SE_{Mx_2})^2}$$

Where:

Mx_1 = the mean of the first group

Mx_2 = the mean of the second group

$SE_{Mx_1} - SE_{Mx_2}$ = standard error of the first and second group

6. Calculating t using the formula of t test using the formula as follows:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{SE_{Mx_1} - SE_{Mx_2}}$$

Where:

t = the value of the mean difference will be judge

Mx_1 = the mean of the first group

Mx_2 = the mean of the second group

$SE_{Mx_1} - SE_{Mx_2}$ = standard error of the first and second group

7. Calculating the degree of freedom by using the following the formula:

$$df = n - 2$$

Where:

df = degree of freedom

⁵⁰ *Ibid.*, p.181.

8. Determining the level of significant of t_{observed} comparing the t_{observed} with the t_{table} . If the result of the t_{observed} is higher than t_{table} it mean that H_a is accepted but if the result of the t_{observed} is lower than t_{table} it mean that H_o is accepted.
9. Interpreting the result of analyzing.
10. Giving conclusion.