

III. RESEARCH METHOD

How the research was done is examined in this chapter. This refers to what type or design of the research was, who the population and the samples were, and how the data were gathered. Judging the validity and reliability of the instrument is put prior to the treatment of data and data analysis which are coming subsequently.

A. Research Design

In this research, the writer used ex post facto research design. Ex post facto means systematic empirical enquiry in which the writer does not have direct control of independent and dependent variable. This is due to their manifestations have already occurred or because they are inherently not manipulable. Inferences about relations among variables are made without direct intervention, from concomitant variation of independent and dependent variables (Ary et al, 1979). The design of this research was as follow:

$$\frac{G1(r \quad) T_1}{G2(r \quad) T_1}$$

G₁ = Group of Introvert Type

G₂ = Group of Extrovert Type

T₁ = Writing Test

Hatch and Farhady (1982:27)

There are two variables that were organized in this research: they are dependent and independent variables. Dependent variable is the main variable in a research. It is a “product” as a result of interaction between variables involved in that particular research. While independent variable is the variable whose function is to influence the dependent variable. From the explanation above, the writer determined the variables as follow:

1. The introvert and extrovert students were as independent variable. (x)
2. Students writing achievements were as the dependent variable. (y)

In order to find students who pose the independent variables, questionnaire was given to the students to be answered. Based on the result of the questionnaire, the writer classified the students into three groups; introvert, mediocre, and extrovert. The introvert and the extrovert groups were taken as the dependent variable. Meanwhile, the dependent variable of the research was obtained from the students' result of writing test. The reason of choosing test as the source of the data was in order to get primary data which are more reliable than students' report card. The writer assumed that report cards had always been influenced by teacher's subjectivity while primary data from the test were not.

B. Population and Sample

The population of this research was students in the first semester of the second grade, academic year 2011-2012, at SMAN 7 Bandar Lampung. There are eight classes of the second year which are divided into two groups, science and social. Each of the groups consists of four classes and each class consists of 40 students. Since using simple random sample upon the whole population was difficult to administer, the writer used intact-group sampling instead. The writer used the already existing groups within the population as the basis in determining the samples.

The writer decided to take two classes as the sample of the research. Each of the groups, science and social, was represented by one class. The sample class was selected randomly by using lottery. Each class was represented by a folded paper, so there were four papers in each group. The writer took one folded paper from each group with closed eyes. There was no priority class in picking the sample class from each group. It was based on the consideration that every class in the population had the same chance to be chosen and in order to avoid subjectivity in the research.

C. Research Procedure

The procedure of the research was as follows:

1. Determining the Population and Selecting the Samples

The population of this research was the second year of SMAN 7 Bandar Lampung in the 2011/2012 learning year that consisted of 8 classes. Two classes were taken as the sample. The sample class was selected using simple probability sampling through lottery drawing.

2. Selecting Writing Test

In selecting the writing test, the writer took a look at the syllabus used by the teacher of the sample class. Any material being taught which is corresponding with writing could be taken into the writing test to see their achievement. The writer decided to choose Narrative and Descriptive writing as the writing test.

3. Distributing Questionnaire

The writer gave the students questionnaire for them to answer. The questionnaire consisted of 28 items. Students were given 10 minutes to answer the questionnaire. The result of this questionnaire was used to group the students based on their type of personality.

4. Conducting Writing Test

The next step was administering the writing test to the students to see their score. Scoring of their writing was based on the five components of writing; content, vocabulary, organization, language use, and mechanics.

The writing test was conducted in two meetings since two type of text were taken as the test. The final writing score was obtained by averaging the score from both tests.

5. Analyzing, Interpreting and Concluding the Data

After collecting the data referring to the elements of writing, the analyzing interpreting, and concluding the data gained was done.

First, the data gained from the test were tabulated and calculated. Next, the data were divided into two group based on the students type of personality. Independent t-test was then used to see if the hypothesis are accepted or rejected.

D. Research Instrument

The instruments used for collecting data were as follows:

1. Questionnaire

In order to collect the data, the writer used questionnaire as the tool of measurement. The questionnaire was taken, and translated into Bahasa Indonesia in order to minimize the misinterpretation by the students.

The Questionnaire was originally consisted of 42 items. A try out test to test the reliability of the questionnaire was conducted prior the data collecting sequences. SPSS 15 was used to see the reliability coefficient of the questionnaire. 14 items were dropped from the questionnaire in order to get more reliable set of questions in the questionnaire.

The questionnaire has 4 options in each question. It consists of positive and negative wordings. The positive wordings are written in bold form.

The scoring system used was as follow:

- Positive wording : a = 1, b = 2, c = 3, d = 4
- Negative Wording: a = 4, b = 3, c = 2, d = 1

Further insight can be seen by looking at the following table:

Table 3.1 Table of Specification (Questionnaire)

Items Number	Personality				Total Items	Percentage of Items
	Extroversion		Introversion			
	Sanguine	Choleric	Phlegmatic	Melancholic		
3,4,7,9,10, 12,14,15, 18,21, 24	☐				11	39%
1,13,25, 26,27		☐			5	18%
2,5,17, 20,22			☐		5	18%
6,8,11, 16,19,28				☐	6	25%

Table of Specification (Questionnaire)

By using the result of the questionnaire, the writer classified the students based on their extraversion level. The highest score that can be achieved by respondents is 112. The higher their scores are, the more extroverted they are. Respondents that have 72 or higher total score are classified into extrovert group. Those whose scores are lower than 56 are classified into

introvert group. When their scores are 57 to 71, they are classified as mediocre.

2. Writing Test

The writer decided to administer writing test in order to get primary data from the students since it is more reliable than simply looking at students' report card. It was done to avoid subjectivity of the teacher in relation with the data that were gathered.

After looking at the materials that had been taught to the students, the writer decided to administer two type of text as the writing tests, Narrative and Descriptive. It was based on assumption that two-time test is more reliable in measuring students writing achievement than one-time single test. The scores from both **students'** writing were averaged in order to obtain their final writing score.

E. Validity and Reliability of the Instrument

1. Validity of the Instrument

Validity is a matter of relevance; it means that the test measures what is claimed to measure. To measure whether the test has a good validity, it can be analyzed

from its face validity, content validity and construct validity. Face validity concerns with how the test looks. Content validity is concerned whether the test is sufficiently representative for the rest of test or not. While construct validity focuses on the relationship between indicators within the test.

1.1 Validity of the Questionnaire

Face validity of the questionnaire was achieved by arranging the questionnaire into the form of multiple choice-like arrangements. It made it easier to the students to understand when they were trying to answer the questionnaire.

The content validity of the instrument used by the writer, namely the questionnaire, was already achieved by simply looking at the table of specification. It is clear there that the questionnaire really wants to measure the extraversion level of the students.

Meanwhile, the construct validity of the questionnaire was achieved by looking at the relationship between indicators. If the indicators measure the same aspect, they would have positive association. While negative association would be shown among indicators that measure different aspects.

In order to see the validity of the last two aspects aforementioned, the writer did item analysis for the questionnaire. It was done to make sure that the items do what the writer wants them to do, which is predicting the

personality of each student, and what more important is that the items are able to differentiate extrovert students with introvert ones. The result of the analysis shows that the power of discrimination value of each item is high enough (see Appendix 5). It means that the items are capable of dividing the samples based on their personality.

1.2 Validity of the Test

In order to achieve face validity, the writer needed to arrange the test instructions and directions as clear as possible. He consulted his advisors to get the writing test examined, and later by the English teacher, to make the test looked right and the instructions were easily understood and not misleading.

The next is content validity. The test needs to reflect what had been taught to the students. Here, the writer tried to correlate the test with the syllabus used by the teacher. By taking a look at the syllabus, the writer made sure that his writing tests matched to the materials that had been given to the students and had nothing to do with something that had not been taught until that semester.

Meanwhile, construct validity was achieved by looking if the test measured just the ability which it was supposed to measure. In this research, the writer measured writing skill referring to the aspects of writing (content, organization, vocabulary, language use, and mechanics). To make it clear to the students, the writer arranged the sentences of the

directions by mentioning what aspects were being taken into score. This way, the students would get focused on those aspects when they were doing their writing.

2. Reliability of the Instrument

Reliability refers to the consistency of the measure. A test is said to be reliable if its scores remain relatively stable from one administration to another (Hatch and Farhady, 1982:144).

1.1 Reliability of the Questionnaire

First of all, the result of the questionnaire was scored based on Likert scale with range of score is 1 to 4. Then, in order to measure the consistency of items in the questionnaire, the writer used Cronbach Alpha Coefficient since it is the most commonly used one. The alpha ranges between 0 and 1. The higher the alpha, the more reliable the questionnaire is.

And for knowing the classification of reliability, the following scale is used:

- a. Between 0.800 to 1.00 = very high reliability
- b. Between 0.600 to 0.800 = high reliability
- c. Between 0.400 to 0.600 = moderate reliability
- d. Between 0.200 to 0.400 = low reliability
- e. Between 0.000 to 0.200 = very low reliability

From the calculation of reliability analysis (using SPSS 15), it is found that the alpha is 0.840. It means that the questionnaire has very high reliability. The analysis of each item shows that if any of the items is deleted, it would make the alpha lower. For example, if item no 2 was deleted, the alpha lessened into 0.832 (see Appendix 4). With alpha 0.840, the writer reported that the questionnaire was reliable to be administered.

2.2 Reliability of the Test

To ensure the reliability of the writing score and to avoid subjectivity of the writer, *inter-rater reliability* was used in this research. This reliability test is used when test score are independently estimated by two or more judges or raters. The first rater was the writer himself and the second rater was the English class teacher; Dra. Neneng Idawati.

In the writer consideration, the teacher was qualified to measure the students writing ability because she is experienced; being English teacher more than 10 years and had graduated from university (S1 degree) in English major. Furthermore, she is also considered as a new teacher in SMAN 7 Bandar Lampung; transferred from SMAN 3 Metro in 2010. The writer assumes that this is a positive thing since the teacher will not be biased toward certain students in measuring their writing ability.

To find the coefficient of the correlation between the two raters, the formula of *rank-orders correlation* was used. It was as follows:

$$\rho = 1 - \frac{6 \sum D^2}{N(N^2 - 1)}$$

(Hatch and Farhady, 1982:206)

- : coefficient of rank correlation
 N : number of students
 D : the different of rank correlation
 1- 6 : constant number

To interpret the correlation obtained from the above formula, the standard criteria below was used.

0.0000 – 0.2000	= very low
0.2000 – 0.4000	= low
0.4000 – 0.6000	= medium
0.6000 – 0.8000	= high
0.8000 – 1.0000	= very high

The result of the calculation showed that the reliability coefficients were acceptable. The coefficients were 0.811 and 0.750 for Introvert group and Extrovert group respectively (see Appendix 7). Both coefficients show that the first rater scorings are close enough with the second rater's. It implies that the first rater scoring is not biased and, therefore, could be used in this research.

F. Criteria of Evaluating Student's Test

Basically, there are five aspects or criteria that were evaluated by the writer:

1. Content, referring to the substance of writing, the experience of the main idea (unity). The aspects of scoring criteria are: knowledgeable, relevant to the assigned topic, and having good development of the topic.
2. Organization, the aspects that should be considered is having well organization refers to the generic structure of recount text, ideas clearly stated and supported, having logical sequencing, cohesive and coherence.
3. Language use, viewing the use of correct grammatical and syntactic pattern refers to the language features of descriptive text.
4. Vocabulary, the teacher should consider several criteria, such as the errors of the word formation, improper word choice, and idiom usage.
5. Mechanics, the criteria evaluated in these aspects are the errors of spelling, punctuation, capitalization, and paragraphing.

While the percentage of scoring from the writing components was derived as follows:

- | | |
|-----------------|--------|
| 1. Content | : 30 % |
| 2. Organization | : 20% |
| 3. Language use | : 25 % |
| 4. Vocabulary | : 20% |
| 5. Mechanic | : 5% |

The ESL composition was used because it provides a well defined standard and interpretive framework for evaluating a compositions' students' communication effectiveness which is suggested to be used in evaluating students' writing.

Here are the ESL composition profiles by Heaton (1991:146):

1. Content

Points 30-27 shows that the learners are in the excellent to very good level: the content is knowledgeable, the thesis is developed properly and relevant to assigned topic in their writing.

Points 26-22 indicates that the learners are in the good to average level: the content has some knowledge of subject, the thesis has limited development, mostly relevant to topic, but lacks detail.

Points 21-17 reveals that the learners are in the fair to poor level: the content has limited knowledge of subject, and the thesis is developed inadequately.

Points 16-13 denotes that the learners are in the very poor level: the content does not show knowledge of the topic, the thesis is developed impertinently, and too little sentence to evaluate.

2. Organization

Points 20-18 shows that the learners are in the excellent to very good level: the organization is expressed fluently, ideas are clearly stated/supported, well-organized, has logical sequencing and cohesiveness.

Points 17-14 indicates that the learners are in the good to average level: the organization is sometimes developed stagnantly, loosely organized but main ideas stand out, limited support, logical but incomplete sequencing.

Points 13-10 reveals that the learners are in the fair to poor level: the organization is developed non-fluently, ideas are confused or disconnect each other, lacks of logical sequencing and development.

Points 9-7 denotes that the learners are in the very poor level there is no communication, no organization, or not enough to evaluate.

3. Language Use

Points 25-22 shows that the students are in the excellent to very good level: the sentence structure used is effective complete construction with few errors of agreement, tense, number, articles, pronoun, and preposition.

Points 21-18 indicates that the learners are in the good to average level: the sentence structure used is effective but simple construction with minor problems in complex construction, several errors of agreement, tense, number, articles, pronoun, preposition, but meaning seldom obscured.

Points 17-11 reveals that the students are in the fair to poor level: major problems are in single/complex construction, communicate, or not enough to evaluate.

Points 10-5 denotes that the students are in the very poor level: virtually no mastery of sentence construction rules, dominated by errors, does not excellent to very good level: demonstrate mastery of conventions, few errors of spelling, punctuation, capitalization, and paragraphing.

4. Vocabulary

Points 20-18 shows that the learners are in the excellent to very good level: the vocabulary used are effective word/idiom, word form mastery, and in appropriate register

Points 17-14 indicates that the learners are in the good to average level: the vocabulary used have occasional errors of word/idiom form, choice, and usage but meaning is still intelligible.

Points 13-10 reveals that the learners are in the fair to poor level: the vocabulary used have frequent errors of word/idiom form, choice, usage, meaning confused or obscured.

Points 9-7 denotes that the learners are in the very poor level: the vocabulary used are essentially translation of the first language, little knowledge of English vocabulary, idioms, word form and not enough to evaluated.

5. Mechanics

Points 5 shows that the learners are in the frequent errors in negation, agreement, tense, number, articles, pronoun, preposition and meaning confused or obscured.

Points 4 indicates that the learners are in the good to average level: occasional errors of spelling, punctuation, capitalization, paragraphing but meaning not obscured.

Points 3 reveals that the students are in the fair to poor level: frequent errors of spelling, punctuation, capitalization, paragraphing, poor handwriting, meaning confused or not obscured.

Points 2 denotes that the learners are in the very poor level: no mastery of convention, dominated by errors of spelling, punctuation, capitalization, paragraphing, handwriting illegible, or not enough to evaluate.

The possible score gained by students based on the criteria above ranked from 0 - 100. To help the teacher in giving students' score, the arrangement of the score can be seen in the table below:

Table 3.2 Scoring System

No	Students Name	C (13-30)	O (7-20)	LU (5-25)	V (7-20)	M (2-5)	Total (0-100)
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1							
2							
3							
4							
5							
6							
...							

Where:

- C** = Content,
O = Organization,
LU = Language Use,
V = Vocabulary, and
M = Mechanic

G. Treatment of the Data

There are three underlying assumptions that need to be fulfilled if we are going to use t-test, namely:

1. The data is interval or ratio.
2. The data is taken from random sample in a population.
3. The data is distributed normally.

Therefore, the writer used the following procedures to treat the data:

1. Random Test

The random test was conducted on the students score to find out if he data is random or not. The writer used SPSS 15 to analyze the data. The hypotheses for the random test are as follow:

H_0 : the data is not random

H_1 : the data is random

The criteria for the hypothesis is H_1 is accepted if $sign > \alpha$, with the level of significance 0.05.

2. Normality Test

The normality test was used to measure whether the data from students score were normally distributed or not. The writer used SPSS 15 to analyze the data.

The hypotheses for the normality test are as follow:

H_0 : the data is not distributed normally

H_1 : the data is distributed normally

The criteria for the hypothesis is H_1 is accepted if $sign > \alpha$, with the level of significance 0.05.

3. Hypothesis Test

Last, the writer tested the hypothesis proposed to prove the hypothesis whether it is accepted or rejected. First, the writer analyzed the data from the questionnaire to categorize the students into three groups. Two groups (Introvert and Extrovert) were analyzed further. Their data from the writing test was analyzed to find out if the hypothesis is accepted or rejected by using

the statistical analysis t-test with the level of significance $\alpha = 0.05$. The formulation is as follow:

$$t = \frac{x_1 - x_2}{S \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

With :

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

x_1 : the arithmetical mean of the introvert group.

x_2 : the arithmetical mean of the extrovert group.

S : standard deviation

n_1 : the number of students in extrovert group.

n_2 : the number of students in introvert group.

The proposed hypotheses were:

H_0 : Students with introvert personality do not have better achievement in writing than the extrovert ones.

H_1 : Students with introvert personality have better achievement in writing than the extrovert ones.

The writer used one-tailed T-test formula in SPSS 15 to make it easier in doing the calculation, with the level significant of 0.05.

The criteria are:

If the t-ratio is higher than t-table : H_1 is accepted

If the t-ratio is lower than t-table : H_0 is accepted