



CHAPTER III

RESEARCH METHOD

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This chapter consists of time and place of the study, research design, variable of the study, population and sample, research instrument, data collecting procedures, and data analysis procedure.

A. Research Type

Considering the purposes of the research and the nature of the problems, the type of research is quantitative research that uses cluster sampling. The research took two classes as experiment class and control class. Experiment class was sample class that gave treatment which the teaching learning process used clustering technique in teaching writing report text. In the other hand control class was compared class that the teaching learning process did not use clustering technique in teaching writing report text.

B. Research Designed

The research design of the study is an experimental design using one-way ANOVA. Experimental design is a plan that specifies what independent variable was applied, the number of levels of each, how object assigned to group, and the dependent variances. Simple or one-way analysis of variance (ANOVA) is a statistical procedures used to analyze the data from a study with more than two groups.¹

There were two classes in this study. The first group was control class (CC) using listing. The second was experiment class (EC) group which was applied clustering technique. The groups were given pre-test and post-test to measure the result of the students' writing ability and apprehension.

¹ Donald Ary, Lucy Cheser Jacobs, Chir Sorence and Asqar Razavieh , *Introduction to Research in Education*, 4rd Edition, New York: Wadsworth/Thomson Learning, 2010, p. 178.

Table 3.1

The Schema of Experimental Research Class

Group		Pretest	Independent variable	Posttest
Experimental	Writing ability	Ey1	X	Ey1
	Writing Apprehension	Ey2		Ey2
Control	Writing ability	Cy1	–	Cy1
	Writing Apprehension	Cy2		Cy2

C. Variable of Study

Variable is the objects of the study which indicate variations.² There are two variables of this study, as follows:

1. Independent variable: Clustering technique used in prewriting activities (X).

1. Dependent variable:

a. Writing ability (Y1).

b. Writing Apprehension (Y2).

D. Population and Sample

1. Population

Population is all cases, situation, or individuals who share one or more characteristics.³ The population of this research is all the students of the eleventh grade students of MAN Model Palangka Raya. The numbers of population were about 230 students. It was classified into seven classes.

3.2

² Sutrisno Hadi, *Metodologi Research*, Yogyakarta: Graha Ilmu, 2004, p. 250.

³ David Nunan, *Research Methods in Language Learning*, p. 231.

**The Number of the Eleventh Grade Students of MAN Model
Palangka Raya**

No	Classes	The Number of Students
1	XI IPA 1	36
2	XI IPA 2	36
3	XI IPA 3	36
4	XI IPA 4	35
5	XI Bahasa	29
6	XI Agama	28
7	XI IPS	30
The Total Number		230

1. Sample

Sample is a subset of individuals or case from within a population.⁴ Based on the population which is grouped into classes, the sample of this study was class or cluster. In this case, there were two samples based on purposive technique. The sample was class XI IPA 2 and XI IPA 4. Class XI IPA 2 was as experimental class, XI IPA 4 was as control class. Whereas XI Bahasa was as try out class.

E. Research Instrument

1. Test Type

The data are needed to prove and support this study. By this collected data, the researcher could measure the effectiveness of clustering on writing ability and writing apprehension of the eleventh grade students of MAN Model Palangka Raya. There are two instruments that would be use in the study to get the data, namely; questionnaire and writing test.

⁴ *Ibid*, p. 232.

1). Writing Test

According to Heaton "Test may be constructed primarily as devices to reinforce learning and to motivate student, or primarily as a means of as seeing the student's performance the language.⁵

The researcher collected the main data from pretest and posttest. From the two tests, the researcher could find out the effectiveness of clustering on writing ability and writing apprehension of eleventh grade students of MAN Model Palangka Raya. A pretest gave before treatment. By gave the pretest the researcher compared that scores to the posttest scores which gave after the treatment. A posttest as the last test also gave to get the quantitative data about their writing ability after the researcher taught report text with clustering technique.

In this study, the researcher applied inter-rater reliability; two raters employed to score the students' writing.

2). Questionnaire

Questionnaires are any written instruments that present respondents with a series of questions or statements to which they are to react either by writing out their answers or selecting from among existing answers.⁶

The researchers used questionnaire which adapted from Daly-Miller Test. The questionnaire is 26 questions, its mean that assesses attitude toward a topic by presenting a set of statements about the topic and asking respondents to indicate for each whether they strongly agree, agree, uncertain, disagree or strongly disagree. Based

⁵ J.B.Heaton,, *Language Testing*, 1987, p. 1.

⁶ Douglas, H Brown. *Teaching by Principles: An Interactive Approach to Language Pedagogy*, Inc, Education Company. 2001, p. 6.

on Ary, the various agree and disagree responses given to each item. This total score assesses the individual's attitude toward the topic, so by the questionnaire the researcher was measured the students writing apprehension.

2. Test Construction

The construction is based on the objective of the study. The study is aimed at finding the effectiveness of using clustering technique on students writing ability and apprehension of the eleventh grade students of MAN Model Palangka Raya. To investigate the effectiveness of using clustering technique on students writing ability and apprehension of the eleventh grade students of MAN Model Palangka Raya, the subjects are assigned to answered questionnaire and write report text .The result of two tests are investigated using statistical analysis and the outcomes are compared to see the effects of using clustering technique the different level of students' achievement.

To gain the appropriate writing test for the aim of this study, the researcher does some steps: (a). planning the writing test and questionnaire, (b). preparing the writing test and questionnaire, (c). trying out (pre-test) the test and analyzing the result, and (d). carrying out the test.

a. Planning the writing test and questionnaire

To produce a good writing test and questionnaire, the researcher makes plan on the test construction. In this sense, the objective of the test is determined. Then, the researcher decides the appropriate type of test. The test type and test objectives are very close. The test objective cannot be achieved without having appropriate test type. Then, the researcher cares for the adequacy of the content. The test content should match with

test types and objectives. Lastly, the time allocation for the test administration plans as well as the instrument tries out.

b. Preparing the writing test and questionnaire

The writing test is used to elicit the data covering direction and instructions of what the subjects have to do. To make the instruction clear and understood by the students, the instructions must simple. The instruction is accompanied with several alternative topics. The topics are the ones the students familiar and can develop into composition.

To construct the directions, the researcher takes into account the guidelines applied by Clouse as follow: (1).The question should be clear, (2). The question should be brief, (3).The question should be definite, (4). Avoid question requiring yes or no answers, (5).Average students should be able to write answer to the questions, (6). The vocabulary used and the concepts expressed in the topic should not be too difficult for ordinary students to understand immediately, (7). The instructions should provide an organizing principle for composition.⁷

The writing instructions are designed to measure the students' writing ability. The students' ability is scored on the basis of the marking scheme that contains some features or component of writing such as content, organization, sentences structure, and grammar, usage and mechanics of the students' writing.

c. Try out

In order to prove the test is suitable to the students who are the sample of this study, the writer conducted a try out test. Then the writer chooses student in the some school but different class to try out the test. The try out test conducted to MAN Model

⁷ Barbara, F.Clouse, *The Students Writer: Editor and Critic*. Boston :McGraw-Hill, Inc. 1986. P.50

Palangka Raya. XI Bahasa as the try out class with 29 students. If the result is valid, it means that the test item as the instrumentation of this study is suitable to be given.

3. Research Instrument Reliability

Reliability is a necessary characteristic of any good test for it to be valid at all. A test must first be reliable as a measuring instrument. It is the degree of consistency with which it measures whatever it is measuring.⁸ Similarly, Sekaran states that reliability is the extent of consistency and stability of the measuring instrument. In this case, to score composition as fairly and consistently as possible, the researcher uses inter rater method (test of reliability). Inter-rater reliability is the consistency of the judgment of several raters on how they see a phenomenon or interpret the responses of the subjects.

In this case, the two raters employed the score students' writing. The two raters are the researcher and the English teachers who have lot of experience in teaching English language in senior high school. One important thing in using the inter rater method in rating process is focused with the training of the raters. It can maximize the accuracy of the writing assessment. This makes the raters be consistent in scoring and avoid subjectivity of the raters in scoring. For this purpose, the training is done to get inter rater agreement in order to give reliable scores to students' writing product.

Relevant to this, Nunan states that the acceptance reliability on composition score is possible to get through careful training of raters.⁹ Furthermore, Latief argues that reliability on composition is affected by both raters and writers of the text. Raters' reliability refers to

⁸Donald Ary, Lucy Cheser Jacobs, Chir Sorensen, Asghar Razavieh, *Introduction to Research in Education*, 8th edition, Wadsworth: USA, 2010, p.236

⁹David Nunan, *Research Methods in Language Learning*, Cambridge: Cambridge University Press, 1992, p.

the accuracy of the raters' judgment. Meanwhile, writers' reliability refers to the accuracy of the writers' performance.¹⁰

To obtain inter-rater reliability, the score of two raters were correlated using SPSS program. Then the writer got the interpretation of coefficient correlation, whether they belong to high, moderate, or positive weak negative inter rater reliability category. The obtained coefficient should indicate that the students writing product both using clustering technique and without clustering technique have achieved the acceptable level reliability. Calculation result of r was compared with r_{table} by 5% degree of significance with $df=N-2$. If r was higher than r_{table} so it meant reliable and if r was lower than r_{table} so it meant unreliable. In this case, the writer applied the coefficient correlation and interpretation of inter-rater reliability proposed by Winkle et al as shown in table 3.3.¹¹

Table 3.3

Inter-Rater Coefficient Correlation and Interpretation

Correlation Coefficient	Interpretation
.90 to 1.00 or -.90 to -1.00	Very high positive or negative correlation
.70 to .89 or -.70- to -.89	High positive or negative correlation
.50 to .69 or -.50 to -.69	Moderate positive or negative correlation
.30 to .49 or -.30 to -.49	Low positive or negative correlation
.00 to .29 or -.00 to -.29	Little if any correlation

¹⁰M . Latief Adnan, *Reliability of Language Skill Assessment Result*, Jurnal Imu Pendidikan VIII No. 3, 214-224, 2010.

¹¹ Antony C. Winkle, and Jo Roy Mc Cuen, *Writing the Research Paper*, Orlando: Harcourt Brace Jovanic Publisher, 1989, p.35.

The writer used formula of Kuder and Richardson to measure the reliability of the questionnaire test¹²:

$$r_{11} = \left(\frac{k}{k-1} \right) \times \left(1 - \frac{M(k-M)}{k.Vt} \right)$$

Where:

r_{11} = coefficient alpha

k = number of items

M = the mean score on the test for all the testers

Vt = the standard deviation of all the testers' score

The steps in determining the reliability of the test were:

a. Making tabulating of tests scores.

b. Measuring the mean of the testees's scores with the formula : $M = \frac{\sum Y}{N}$

c. Measuring the total variants with the formula:

$$Vt = \frac{\sum Y^2 - \frac{(\sum Y)^2}{N}}{N}$$

Where:

Vt = the total variants

$\sum Y$ = the total of score

¹² Sugiyono. *Metode Penelitian Administrasi*. Bandung, Alfabeta, 2007, p.137

$\sum Y^2$ = the square of score total

N = the number of testes

d. Calculated the instrument reliability using KR-21.

e. The last decision is comparing the value of Γ_{11} and Γ_t

$\Gamma_{11} > r_{\text{table}} = \text{Reliable}$

$\Gamma_{11} < \Gamma_{\text{table}} = \text{Not Reliable}$

To know the level of reliability of instrument, the value of Γ_{11} was interpret based on the qualification of reliability as follows:

0.800- 1.000: Very High Reliability

0.600-0.799: High Reliability

0.400-0.599: Fair Reliability

0.200-0.399: Poor Reliability

0.000-0.199: Very Poor Reliability

From the measurement of instrument try out reliability it is known that the whole numbers of test items are reliable and could be used as the instrument of the study.

4. Research Instrument Validity

Validity is a measurement which shows the grades of number of an Instrument. A valid Instrument must have high validity, it means that an Instrument which lacks validity is said to be Invalid instrument.

An instrument is called a valid one when it can measure something which is wanted by covering the variable studied exactly. The method used in measuring the validation of the instrument is called content validity. A test or a measurement can be called a content test when it measures the special purpose which is equal with the material or content given.

a. Face Validity

The types of face validity, if the test items look right to other testers, lecture, indicators and test. The types of test items, which would use in this research, can be suitable to the others at the same level of eleventh grades students of MAN Model Palangka Raya.

For face validity of the test items as follow:

- 1) The test used writing apprehension test and writing test.
- 2) The evaluation by essay test based on scoring system.
- 3) Kind of the essay test is report text.
- 4) The language of items used Indonesia language for questionnaire and English for writing test.
- 5.) The written test was suitable with syllabus of English writing for second year students at MAN Model Palangka Raya.

b. Construct Validity

It is capable of measuring certain specific characteristics in accordance with a theory of language behavior and learning. This type of validity assumes the existence of certain learning theories or constructs underlying the acquisition of abilities and skill.¹³ After the Instrument finished check by the judgment experts, continued testing of construct validity. It is conducted by field test. In order to find the validity, product moment Correlation will use as the formula to calculate from the try-out test result. To measure

¹³*Ibid*, P. 154

the validity of the instrument, the writer used the formulation of Product Moment by Pearson as follows¹⁴:

$$r_{xy} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{\{N \sum X^2 - (\sum X)^2\} \{N \sum Y^2 - (\sum Y)^2\}}}$$

Where:

r_{xy} : The coefficient of correlation

$\sum X$: Total Value of Score X

$\sum Y$: Total Value of Score Y

$\sum XY$: Multiplication Result between Score X and Score Y

N : Number of students

Furthermore, it was calculated using Test-t calculation below:

$$t_{observed} = \frac{r \sqrt{n-2}}{\sqrt{1-r^2}}$$

Where:

t = The value of $t_{observed}$

r = The coefficient of correlation of the result of $r_{observed}$

n = Number of students

The distribution of t_{table} at alpha 5% and the degree of freedom (n-2) with the measurement of validity using these criteria:

$t_{observed} > t_{table} = \text{Valid}$

$t_{observed} < t_{table} = \text{Invalid}$

¹⁴ Riduan, *Metode dan teknik Menyusun Thesis*, Bandung: Alfabeta, 2004, p. 110.

To know the validity level of the instrument, the result of the test was interpreted to the criteria or the correlation index as follows:

0.800 – 1.000	= Very High Validity
0.600 – 0.799	= High Validity
0.400 – 0.599	= Fair Validity
0.200 – 0.399	= Poor Validity
0.000 – 0.199	= Very Poor Validity ¹⁵

c. Content Validity

Content validity demands the appropriateness between the ability to be measured and the test being used to measure it.¹⁶ The researcher used writing test and questionnaire for students. The students in this study would write report text from essay test instruction, so the test would really measures the writing ability and writing apprehension of the students. The instrument which is using test, the tasting of content validity is done by asking the opinion of the judgment experts about the instrument is able to try out or not.

F. Data Collection

To measure the research problem: (1). Does clustering technique give effect on writing ability of the eleventh grade students at MAN Model Palangka Raya? (2). Does clustering technique give effect on writing apprehension of the eleventh grade students at MAN Model Palangka Raya? (3) Does clustering technique give effect on writing ability and writing apprehension of the eleventh grade students at MAN Model Palangka Raya?

¹⁵ Ridwan, *Metode dan Teknik Menyusun Thesis*, Bandung: Alfabeta, 2004, p.110.

¹⁶ M.Soenardi Djiwandono, *Tes Bahasa dalam Pengajaran*, Indeks, Jakarta. Cetakan pertama, 2008, p. 92.

To collect the accurate data in this study, the writer selects the instruments that appropriated for the problem statement:

1. Documentation

Documentation method is used to look for the data concerning matters or the variable that are taken in the form of the note, transcript, book, newspaper, magazine, inscription, notulen, lengger, agenda, etc. it refers to the archival data that help the writer to collect the needed data. In this study, this method is used to get the data that related to the object of research such as students' name list which are included in the population. In this case, the data was gained by the help of the English teacher

2. Test

Test is a set of questions or exercises and other tools which are used to measure skill, intelligence, knowledge, and ability those are had by individual or group.¹⁷ This method is used to get data about score of the pre-test and post-test that was given for both of groups. The test in this study is an essay test and questionnaire. In essay test of writing, the students are given a free chance to think as much as possible. They can freely express and organize their ideas in written form.

a) Pre- test

Before the teacher teaches new material by using clustering technique, the teacher gave test to the students. Pre-test is given to the experiment class and the control class. This test is given before the experiment applied.

b) Post- test

Post-test was given to the experiment class and the control class. The test was given in order to know the improvement of students' writing ability and apprehension in writing

¹⁷*Ibid*, p.150

report text. The post-test gave to the experiment class and control class after receiving treatment. The experimental groups taught writing report text using clustering technique the control groups taught writing writing report text without clustering technique.

For collecting the data, the researcher used some steps in the procedure as follows:

1. The researcher observed the class
2. The researcher determined the class into experimental group and control group.
3. The researcher given Pre-Test to experimental group and control group.

In the pretest, the writer was given two tests for both group; they are questionnaire (to measure students writing apprehension) and writing test (to measure students writing ability). These tests were given for both group to measure and find out their mean before gave treatment.

4. The writer analyzed the result of pre test so that the data gained from the test are valid and reliable.
5. The researcher gave treatment to experimental group that taught by clustering technique and taught control group using listing.
6. The writer gave a posttest to the experiment group and control group.

This posttest gave two tests (questionnaire and writing test) like in the pretest. Post test is the last test that gives for two groups (Experimental and Control Group). By using post test, the study was getting the score from both groups.

5. The writer gave score to the data from experiment and control group.

After post test is done by experimental and control group, the writer gave scores combine with the pre test scores of both group.

6. The writer analyzed the data that have been obtained from pretest and posttest.

7. The writer interpreted the analysis result.

The data that analyze should interpret. By interpreting the data analyze, it answers the problem of study.

8. The writer concluded the activity of the study whether the clustering technique give effect to the students writing ability and writing apprehension by using clustering technique or not, based on the obtained.

G. Data Analysis

The data of this is study students' writing ability and apprehension. Therefore, the data are in quantitative data. The data was analyzed by means of inferential statistics. This statistical analysis is suitable to answer the research problem. In this case, the researcher applied one way ANOVA to examine the students' writing ability and apprehension that teach using clustering technique in writing argumentative essay and the students' writing ability and apprehension that teach without clustering technique in writing report text.

1. Techniques of Data Analysis

Before analyzing data using ANOVA Test, the researcher fulfilled the requirements of ANOVA Test. They are Normality test, homogeneity test and hypothesis test.

a. Normality Test

It is used to know the normality of the data that is going to be analyzed whether both groups have normal distribution or not. In this study to test the normality the researcher applied SPSS 17 program using Kolmogorov Smirnov with level of significance =5%. Calculation result of asymptotic significance is higher than α (5%) so the distribution data was normal. In the contrary, if the result of an asymptotic significance is lower than α (5%), it meant the data was not normal distribution.

b. Homogeneity Test

Homogeneity is used to know whether experimental group and control group, that are decided, come from population that has relatively same variant or not. To calculate homogeneity testing, the writer applied SPSS 17 program used Levene's testing with level of significance α (5%).

If calculation result was higher than 5% degree of significance so H_a was accepted, it means both groups had same variant and homogeneous.

c. Testing Hypothesis

The writer applies the one-way ANOVA statistical to test hypothesis with level of significance 5% one-way ANOVA could be applied to test a difference mean or more. The steps are as follows:

1). Find out the grand mean (X) each group: $\sum X_t^2 = \sum X^2 - \left(\frac{\sum X^2}{N}\right)$

2). Find out the sum of square among group:

$$SS_t = \sum X^2 - \frac{(\sum X_t)^2}{N}$$

Where

SS_t = sum of square total

$\sum X^2$ = each score squared, then summed

$(\sum X_t)^2$ = all the scores summed first, then this sum squared

N = number of score

3). The sum of squares between groups

$$SS_b = \frac{(\sum X_1)^2}{n_1} + \frac{(\sum X_2)^2}{n_2} - \frac{(\sum X_2)^2}{N}$$

4). The sum of squares within groups

$$SS_w = SS_t - SS_b$$

5).Find out degree of freedom between group:

$$Df_b = G-1$$

6).Calculate the between-groups mean square (MS_b) :

$$MS_b = \frac{SST}{df_b}$$

7).Find out the degree of freedom within group :

$$Df_w = N-1$$

8).Calculate within group mean score (MS_w) :

$$MS_w = \frac{SS_b}{df_w}$$

9).Find the F ratio

$$F = \frac{MS_b}{MS_w}$$

10).Determining the level of significant of F_{observed} by comparing the F_{observed} with the F_{table} .

2. Data Analysis Procedures

To analyze the researcher do same ways in data analysis procedure, they are as follows:

1. Collected the students' written scores of Pre-test and post- test.
2. Arranged the obtained score into the distribution of frequency of score table.
3. Calculated mean, median, modus, standard deviation and standard error of students' score.
4. Measured the normality and homogeneity.
5. Analyzed the data by using one-way analysis of variance to answer the problem of the study. In addition, the SPSS program is applied.
6. Interpreted the result of analyzing data.

7. Make discussion to clarify the research finding.
8. Gave conclusion.
9. Summary

To sum up, the step in collecting, analyzing and hypothesis testing can describe below. In the first step, the students gave pre-test that they answered a questionnaire of students writing apprehension adapted from dally miller and selected the topic for report text. The subjects were divided into two groups; experimental group and control group. Experiment group was assigned to write a report text using clustering technique and control group without clustering technique. Second step, the students writing both using clustering technique or without clustering technique was scored by two raters. To analyze the data of writing score, one way ANOVA test was employed. ANOVA test is a statistical computation used to test significant difference between within group and between groups. Before testing the hypothesis, normality and homogeneity measured to fulfill the assumptions. Third step, the researcher hypothesis would be test to answer the research problem. Lastly, discussion on the results was made to clarify the finding, as described in figure below:

Figure 3.3 Steps of Collecting, Data Analysis Procedure and Testing Hypothesis

