

CHAPTER III

RESEARCH METHODOLOGY

In this part, the writer described about research method that was used in conducting the research. It is purposed to answer the problem of the study. This chapter consisted of research design, population and sample, instruments of the study, validity, reliability, data collection procedures, and data analysis.

A. Research Design

In this study, it is used the quantitative approach. According to Dornyei, “Quantitative research involves data collection procedures that result primarily in numerical data which is then analysed primarily by statistical method.”³⁷ It was the study which measures the effect of using Interactive media in teaching writing of descriptive text.

In the study, the writer used quasi-experimental design. Cook and Campbell in Dornyei state quasi-experiments are similar to true experiments in every respect except that they do not use random assignment to create the comparisons from which treatment-caused change is inferred.³⁸ Quasi-experimental designs are similar to randomized experimental designs in that they involve manipulation of an independent variable but differ in that subjects are not randomly assigned to treatment groups. Because the quasi-experimental design does not provide full control, it is extremely important that the researchers be aware of the threats to both internal and external validity and considers these factors in their interpretation.

³⁷ Zoltan Dornyei, *Research Method in Applied Linguistics, Quantitative, Qualitative, A mixed Methodologies*, New York: Oxford University Press, 2007.p.24.

³⁸ *Ibid.*,p.117.

Although true experiments are preferred, quasi-experimental designs are considered worthwhile because they permit researchers to reach reasonable conclusions even though full control is not possible. The use of this design, basically, because of the problem of the study in which, the writer want to find the answer may be answered using quasi – experimental design.³⁹ In a typical school situation, schedules cannot be disrupted nor classes reorganized to accommodate a research study. In such a case, one uses groups already organized into classes or other preexisting intact groups. The nonrandomized control group, pretest–posttest design is one of the most widely used quasi-experimental designs in educational research.⁴⁰

Table 3.1

Nonrandomized Control Group, Pretest-Posttest Design

Group	Pretest	Independent Variable	Posttest
E	Y1	X	Y2
C	Y1	-	Y2

In this study, the writer take the tenth grade students of SMKN 4 Palangka Raya as the subjects of the study. The subjects divided into two groups, the first group become experiment group that teaching by interactive video media and the second group become control group that teaching by without interactive video media.

B. Population and Sample

1. Population

The larger group about which the generalization is made is called a *population*. The population is defined as all members of any well- defined class of people, events, or objects.⁴¹ The population of this study is the tenth grade of SMKN- 4

³⁹ Donald Ary and Lucy Cheser Jacob, Chris Sorensen ,and Ashgar Razavieh , *Introduction to Research in Education Eight Edition*. Canada : Wardsworth, 2010, p..271.

⁴⁰ *Ibid.* p.316.

⁴¹ Donald Ary and Lucy Cheser Jacob, Chris Sorensen ,and Ashgar Razavieh . *Introduction to Research in Education Eight Edition*, Canada: Wardsworth, 2010, p.148.

Palangka Raya. The number of population was about 95 students. It was classified into three classes.

Table 3.2

The Number of the Eighth Grade Students of SMKN 4 Palangka Raya

No	Classes	The Number of Students
1.	X Multimedia 1	25
2.	X Multimedia 2	25
3.	X Multimedia 3	23
4.	X Kriya Tekstil	20
		93

2. Sample

The small group that is observed is called a *sample*. A sample is a portion of a population.⁴² To take the sample, the writer use cluster sampling because it is unit chosen and not an individual, but rather a group of individuals. In this study the writer determine the two classes into two groups. They X Multimedia 1 as experimental group and X Multimedia 2 as control group. Experimental group consist of 25 students and control group consist 25 students as the sample. In this study, the writer took X Multimedia 1 and X Multimedia 2 classes. The reasons why the writer took X Multimedia 1 and X Multimedia 2 classes as the sample of the study because those classes have represented the average English achievement of the whole of population.

Table 3.3

The Number of Sample

No	Classes	Groups	Number of Students
1.	X Multimedia 1	Experiment	25
2.	X Multimedia 2	Control	25
Total			50

⁴² *Ibid.* 148

C. Instruments of The Study

The data were very important in the study. They are needed to support and prove the study itself. The writer can be helped by them in order to find the aims of the study. They are to measure the effectiveness of interactive video media toward the students' writing score in descriptive text of the tenth grade students at SMKN 4 Palangka Raya. In this study, the writer uses a test to collect the data because the students' writing score can be known by using test.

1. Test

A test is an instrument or procedure designed to elicit performance from learners with the purpose of measuring their attainment of specified criteria. Tests are almost always identifiable time periods in a curriculum when learners muster all their faculties to over peak performance, knowing that their responses are being measured and evaluated. Tests can be useful devices among other procedures and tasks designed to assess students.⁴³ Brown states a test, in plain word, is a method of measuring a person's ability or knowledge in a given domain.⁴⁴ A test may be defined as an activity whose main purpose is to convey (usually to the tester) how well the tester knows or can do something.⁴⁵

In the study, the writer assigns the students to write descriptive text based on the story of descriptive text in interactive video media shown. The test do twice, they are pretest and posttest in experimental group and control group. The pretest was taken at Monday, October 28, 2013 at 07.15 - 08.35 in experimental group and Tuesday, October 29, 2013 at 06.30 – 08.00 in control group. And the posttest was taken at Wednesday, November 20 , 2013 at 08.00 – 09.30 in experimental group and ,Tuesday November 26 ,2013 at 06.30 –

⁴³ H. Douglas Brown, *Teaching by Principles an Interactive Approach to Language Pedagogy (Second Edition)*, p. 402.

⁴⁴ *Ibid.*, p. 384.

⁴⁵ Penny Ur, *a Course in Language Teaching Practice and Theory*, Cambridge: Cambridge University Press, 1996, p. 33

08.00 in control group. The results of writing test that assigned by the writer for experimental and control group showed that the students who were taught using the interactive video media got higher score than students who were taught without using interactive video media.

Based on the result of hypothesis test calculation, it was found that the value of t_{observed} was greater than the value of t_{table} at 5% and lower at 1% significance level or $2.01 < 4.046 > 2.68$. It meant H_a was accepted and H_o was rejected. In addition, the result of t test calculation using SPSS 18.0 found that the interactive video media gave significance effect on the students' English scores. It proved by the value t_{observed} was greater than t_{table} both at 1% and 5% the level of significance or $2.01 < 4.046 > 2.68$. (See Chapter IV).

2. Documentation

The writer collected some documents from the place of study. The documentation is used to collect the data. Using the document would help the writer to describe the situation of school. The data that would be collect in this research are:

- 1) Numbers of students of tenth grade students at SMK 4 Palangka Raya.
- 2) The result of student score at teaching writing in descriptive text.
- 3) The curriculum uses at SMK 4 Palangka Raya.

D. Instrument Try Out

In order to prove the test were suitable to the students who were the sample of this study, the writer would be conducting a try out test. Then the writer chose the students in the same school but different class to try out the test. The try out test would be conduct in SMK Palangka Raya at X Multimedia 3. The writer held the try out process on Wednesday, August 28, 2013: it was the try out process with followed by 23 students. If the result is valid, it meant that the test as the instrument of this study are suitable to be given.

These are the procedures that in carrying out this try out as follows:

- 1) The writer prepares the instrument.

- 2) The writer held the try out test to the students.
- 3) The writer gave score to the students answer sheet.
- 4) The writer calculated the result of the test by using formula.
- 5) The writer analyzed the data obtained to know the instrument validity and instrument reliability.
- 6) If the result is valid, it means that the test item as the instrument of this study are suitable to be given.

E. Instrument Validity

The most important variable in judging the adequacy of measurement instrument is validity. Validity refers to the extent to which the results of an evaluation procedure serve the particular uses for which they are intended.⁴⁶

Ary and et al. state validity is defined as the extent to which scores on a test enable one to make meaningful and appropriate interpretations.⁴⁷ Validity is the instruments. Historically, validity was defined as the extent to which an instrument measured what it claimed to measure. The focus of recent views of validity is not on the instrument itself but on the interpretation and meaning of the scores derived from the instrument.

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Three types of validation are important in the role as a classroom teacher: content validity, face validity, and construct validity.⁴⁹

⁴⁶Wilmar Tinambunan, *Evaluation of Student Achievement*, Jakarta: Education Department, 1988, p.11.

⁴⁷ Donal Ary, Lucy Cheser Jacobs, Chris Sorensen, and Asghar Razavieh, *Introduction to Research in Education Eight edition*, Canada: Wardsworth, 2010, p. 224.

⁴⁸ *Ibid.*, p.225

1. Content Validity

Sudijono in Mayasarah states content validity of a learning result test is the validity that is gained after doing the analysis, investigation or examination of the content that is contained in the learning result test.⁵⁰ Djwandono in Mayasarah states content validity demands a content suitability between a skill being measured and a used test to measure. Dornyei states content validity concerned expert judgment about test content.⁵¹

Table 3.4
Signification of Content Validity

Indicator of the study	Type of test	Total question
Students are able to write a text in form of descriptive text	Performance test	One question

2. Face Validity

Face validity is almost always perceived in terms of content: if the test samples the actual content of what the learner has achieved or expects to achieve, then face validity will be perceived. Ary et al. state face validity is a term sometimes used in connection with a test's content. Face validity refers to the extent to which examinees believe the instrument is measuring what it is supposed to measure.⁵²

3. Construct Validity

Dornyei states construct validity showed how the test results conformed

⁴⁹ H. Douglas Brown, *Teaching by Principles an Interactive Approach to language Pedagogy . Second Edition* , 1987, p.338.

⁵⁰ Mayasarah, *The Effectiveness of Video Compact Disc as an Audiovisual Medium toward The Students' Listening Comprehension Score of The Tenth Grade Students at MAN Model of Palangka Raya*, Unpublished Thesis, Palangka Raya: STAIN Palangka Raya, 2010,p. 16.

⁵¹ Zoltan Dornyei, *Research Method in Applied Linguistics, Quantitative,Qualitative, A mixed Methodologies*, New York: Oxford University Press, 2007,p.24.

⁵² Donal Ary, Lucy Cheser Jacobs, Chris Sorensen, and Asghar Razavieh, *Introduction to Research in Education Eight edition*, Canada: Wardsworth, 2010, p.228.

to a theory of which the target construct was a part.⁵³

Djiwandono in Mayasarah states the construct validity is to show them finding score that reflect the same construct with the target skill of its measuring.⁵⁴

In this study, the writer use inter – rater method(test of validity) to correct the student’s scores. Inter-rater was two rathers who score the students’ writing to get the score compositions as possible. The writer use product moment correlation as the formula to calculate the validity from the test result.⁵⁵ The formula :

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

Where :

- r_{xy} : Index Correlational Number “ r ”Product Moment
 N : Number of Cases
 $\sum XY$: Multiplication Result between score X and score Y
 $\sum X$: Total value of score X
 $\sum Y$: Total value of score Y

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Riduan in Mayasarah states the criteria of interpretation the validity:

High	Interpretation
0.800 - 1.00	Very High Validity
0.600 – 0.799	High Validity
0.400 – 0.599	Fair Validity
0.200 – 0.399	Poor Validity
0.00 -0.199	Very Poor Validity

⁵³ Zoltan Dornyei, *Research Method in Applied Linguistics, Quantitative, Qualitative, A mixed Methodologies*, New York: Oxford University Press, 2007.p.51.

⁵⁴ Mayasarah, *The Effectiveness of Video Compact Disc as an Audiovisual Medium toward The Students’ Listening Comprehension Score of The Tenth Grade Students at MAN Model of Palangka Raya*, Unpublished Thesis, Palangka Raya: STAIN Palangka Raya ,2010.p.17.

⁵⁵ Anas Sudijono, *Pengantar Statistik Pendidikan*, Jakarta: PT Raja Grafindo Persada, 1997,p.193.

⁵⁶ Mayasarah, *The Effectiveness of Video Compact Disc as an Audiovisual Medium toward The Students’ Listening Comprehension Score of The Tenth Grade Students at MAN Model of Palangka Raya*, Unpublished Thesis, Palangka Raya: STAIN Palangka Raya 2010.p.18.

F. Reliability

Reliability indicates how consistently a test measures whatever it does measure.⁵⁷ Reliability is concerned with the effect of such random errors of measurement on the consistency of scores. But some errors involved in measurement are predictable or systematic.⁵⁸ Reliability procedures are concerned with determining the degree of consistency in scores caused by random error.⁵⁹ The reliability of a measuring instrument is the degree of consistency with which it measures whatever it is measuring. Wilkinson and Dornay state reliable is a property of the scores on a test for a particular population and testtakers.

In rather reliability, there are inter-rater reliability and intra rater reliability. A simple way to determine the reliability of ratings is to have two more observers' ratings. The resulting correlation is called the interrater.⁶⁰ It indicate accuracy in scoring compositions of two different raters. Meanwhile, intra- rater reliability indicated accuracy in scoring composition of a rater in correcting the student's test score twice. In this study, the writer used inter-rater to correct the students score. The scoring rubric for the measurement as follow:⁶¹

Table 3.4 The Scoring Rubric for The Measurement of Writing Test

Components	Score	Level	Criteria
	27-30	Very Good to Excellent	Very good in mastering the problem; the content is very solid complete and comprehensive; very appropriate with the problem and title.

⁵⁷ Donal Ary, Lucy Cheser Jacobs, Chris Sorensen, and Asghar Razavieh, *Introduction to Research in Education Eight edition*, Canada: Wardsworth, 2010, p.224.

⁵⁸ *Ibid.*, p.238.

⁵⁹ *Ibid.*, p.239.

⁶⁰ *Ibid.*, p.256.

⁶¹ M. Soenardi Djiwandono, *Tes Bahasa Pegangan Bagi Pengajar Bahasa*, Malang: PT. Indeks, 2008

Content	22-26	Fair to Good	Mastering the problem;the content is adequate; almost complete and comprehensive; appropriate with the problem and title,but is less detail.
	17 -21	Poor to Average	The problem mastery is limited; the content is not adequate enough; less complete.
	13-16	Very Poor	Does not master the problem; the content is not sufficient; not relevant with the title and problem; there is not enough material to evaluate.
Organization	18-20	Very Good to Excellent	Very harmonious; the main ideas are expressed and developed clearly. Organized well,logical order; close relationship among part (coheessive).
	14-17	Fair to Good	Less harmonious; thye main ideas are not organized well; less developed; logical order but less comprehensive.
	10-13	Poor to Average	not harmonious; the main ideas are not irregular; the sequence is less logically; the main ideas are less developed.
	7 – 9	Very Poor	Does not communicative ; no organized there is not enough material to evaluate
Grammar	22-25	Very Good to Excellent	Very effective in using simple and complex sentences; less errors in using grammar, sequence sentences, phrase and word form,preposition,etc.
	18-21	Fair to Good	Effective in using simple sentences, some errors in using grammar, sequence sentences, phrase and word form preposition,etc.
	11-17	Poor to Average	Error and difficult in using grammar, sequence sentences, phrase and word form,preposition,etc.
	5-10	Very Poor	Almost not mastering the grammar; full errors in grammar; cannot be understood; not enough material to evaluate.
Vocabulary	18-20	Very Good to Excellent	Repertory of words is wide , the chosen and use of exact and effective words ,mastery in word form and formation.
	14-17	Fair to Good	Repertory of word is enough,the chosen and use of words occasional not exactly, but the meaning not obscured.
	10-13	Poor to Average	Repertory of words are limited, most errors in choosing words,the meaning is hazy and obscured.

	7 – 9	Very Poor	Repertory of words are very limited until can not communicate the meaning less informative to evaluate.
Punctuation	5	Very Good to Excellent	Comprehense to the punctuation ,less error in spelling,punctuation, the use of capital letter,arrange of paragraph.
	4	Fair to Good	Occasional error in applying the rule, but not hazy the main content and meaning.
	3	Poor to Average	Most error in applying the rule of the spelling and writing difficult to read the writing, main content and meaning are hazy.
	2	Very Poor	Does not master the rule of the spelling and writing , full error in spelling, punctuation, the use of capital letter, arrange paragraph, difficult to read the writing, not enough information to evaluate.

G. Data Collection Procedures

In this study, the writer uses some procedures to collect the data. The procedures consist of some steps as follow:

1. The writer observes the school by headmasters' permission.
2. The writer asked the class with the English teacher who taught English in the class that become the class of research:
 - a. The number of the class.
 - b. The number of students.
3. The writer determined the class into experimental group and control group.
4. The writer gave pre test to the experimental group and control group. The schedule of pre-test for the experiment and control group is shown in table 3.5 and 3.6.
5. The writer taught the experimental group using interactive video media. The schedule of the teaching activities in the experimental group is shown in table 3.5.

Table 3.5
The Schedule of the Teaching Activities in the Experiment Group

Meeting	Date	Time	Material
Pre Test	Monday, October 28 , 2013	07.15-08.35	Pre –Test
1	Wednesday, October 30, 2013	08.00-09.30	Descriptive Text
2	Monday , November 4, 2013	07.15-08.35	Describe Kahaya Bridge
3	Wednesday,November 6, 2013	08.00-09.30	Describe Kahayan River
4	Monday, November 11, 2013	07.15-08.35	Describe Tahai Lake
5	Wednesday,November 13,2013	08.00-09.30	Describe Banama Stone
6	Monday, November 18,2013	07.15-08.35	Discussing
Post Test	Wednesday,November 20,2013	08.00-09.30	Post Test

6. The writer taught the control group using pictures media.

The schedule of the teaching activities in the control group is shown in the table 3.6.

Table 3.6
The Schedule of the Teaching Activities in the Control Group

Meeting	Date	Time	Material
Pre Test	Tuesday , October 29, 2013	06.30-08.00	Pre –Test
1	Thursday, October 31, 2013	08.00-09.30	Descriptive Text
2	Thursday , November 7, 2013	08.00-09.30	Describe Kahaya Bridge
3	Tuesday, November 12, 2013	06.30-08.00	Describe Kahayan River
4	Thursday, November 14, 2013	08.00-09.30	Describe Tahai Lake
5	Tuesday, November 19,2013	06.30-08.00	Describe Banama Stone
6	Thursday, November 21,2013	08.00-09.30	Discussing
Post Test	Tuesday, November 26,2013	06.30-08.00	Post Test

7. The writer gave post test to the experimental group and control group.

8. The writer gave scores to the data from experimental group and the control group.
9. The writer started to analyze the obtain data from the pre test and post test using t test.
10. The writer interpreted the data analysis result.
11. The writer concluded the activity of the study whether the audio visual media gave effect to the students' scores in writing descriptive text or not, based on the obtain data.

H. Data Analysis Procedures

The writer did some procedures in the data analysis. They were:

1. The writer collected the obtain scores.
2. The writer arranged the obtain scores into the distribution of frequency of scores table.
3. The writer calculated the mean, median, modus, standard deviation, and standard error of variable X1 from the experimental group.
4. The writer calculated the mean, median, modus, standard deviation, and standard error of variable X2 from the control group.
5. The writer calculated the standard error for the difference mean between variable X1 and X2.
6. The writer used t_{test} to answer the problem of the study, whether there was difference on students' scores in writing deascriptive text between using interactive video media and without using interactive video media, with the formula:

$$t_o = \frac{Mx_1 - Mx_2}{SE_{mx_1 - mx_2}}$$

Where:

- $Mx_1 - Mx_2$: Differentiation of Two Means.
 $SE_{mx_1 - mx_2}$: The Standard Error of the Difference between Two Means.

With the criteria:

If $t_{\text{test}} > t_{\text{table}} = H_a$ is accepted and H_0 is rejected.

If $t_{\text{test}} < t_{\text{table}} = H_a$ is rejected and H_0 is accepted.

The writer used the level of significance at 1% and 5%. If the result of t_{test} is higher than t_{table} , H_a is accepted but if the result of t_{test} is lower than t_{table} , H_0 is accepted.

7. The writer used SPSS 18.0 after using t_{test} to answer the problem of the study, whether there was difference on students' scores in writing descriptive text between using interactive video media and without using interactive video media.
8. The writer calculated the degree of freedom with formula:⁶²

$$df = (N1 + N2 - 2)$$

Where:

df : Degree of Freedom

N1 and N2 : Number of Cases

9. The writer determined the level of significant of t_{observed} by comparing the t_{observed} with the t_{table} .
10. The writer interpreted the result of the data analysis.
11. The writer discussed to clarify the research findings. The results of the analysis data are shown in Chapter IV.

After that, the interpretation is made to answer the research problem. To sum up, the procedures of collecting data and analysis data, as described in figure 3.1.

⁶² Anas Sudijono, *Pengantar Statistik Pendidikan*, p. 330

Figure 3.1 The Procedures of Collecting Data and Analysis Data