CHAPTER III

RESEARCH METHOD

In this chapter the researcher presents ,research type, research design, variable of the study, population and sample, researh instrument, data collections, data analysis.

A. **Research type**

This study wass quantitative research. Quantitative research was deals with questions of relationship, cause and effect, or current status that writer can answer by gathering and statistically analyzing numeric data.[1]

B. **Research Design**

The design of this study was experimental design. Experimental design was a plan for an experiment that specifies what independent variables was be applied, the number of levels of each, how subjects were assigned to groups, and the dependent variable.[2] The writer used the experimental design because the researcher wants to measure the effect of using british parliamentaru debate system in teachingcritical thinking. The type of this study is true-experimental study. true-experimental research is research in which the investigator can control the treatment and the measurement of the dependent

Donald Ary, (et, all), *"Introduction to Research in Education (Eight edition)"*, United State: Wadsworth (engange learning), 2010, p.39.
[2]*Ibid*, p.641.

variable but cannot control assignment of the subjects to treatment.[3]

The type of this study was True-Experimental study by the randomized control group; pretest-posttest design was one of the most widely used quasi-experimental designs in educational research.[4] The researcher used true experiment because it wass based on random assignment of subjects to experiment and control group. The researcher used true experiment by randomized control group, pre test–post test design. There were two groups in this model, they were experiment group and control group. Pre-test was given for both groups to measure the score of students before treatment given. Experiment group was given treatment by british parliamentary debate system and control group taught without using british parliamentary debate system .Posttest was given for both groups to measure the students score after treatment was given. True-experimental research designs had one clear advantage over pure experimental designs, which was that they were studied in natural educational settings. If we found programme effects we can at least be confident that these work in real schools and classrooms with all their complexity rather than just in the laboratory setting. This made true-experimental research a good way of evaluating new initiatives and programmes in education.

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[3]*Ibid*, p.648.
[4]*Ibid,* p. 305.

The design of this research can be seen in this formula:[5]

Table 3.1 Research design

Group	Pre test	Independent Variable	Post test
E	Y1	X	Y2
C	Y1	-	Y2

Where;

C = control

E = experiment

Y1 = test

Y2 = test

X = independent variable

C. **Variable of the Study**

Variable is a construct or a characteristic that can take different value or scores.[6] Based on this research, there were two variable of this reasearch dependent variable and independent variable.

Table 3.2 variable of the research

Dependent Variable	Students' critical thinking
Independent Variable	British Parliamentary Debate System

[5] Donald Ery. *Introduction to research in Education.* Canada. Nelson Education. P316
[6] *Ibid P37*

1. **Population and Sample**

   a. **Population**

   Gay says that population is a group to which the researcher would like the result of the study to be generalized and sampling is the processes of selecting a number of represent one the large group from which they selected. It means population is all individuals from the data are collected. The poulation of the research was the 3rd semester of ESL students of english education department in State islamic institute of Palangka Raya academic year 2015-2016. There were about 80 students divide into 4 class .

   b. **Sample**

   Sample is the small group that is observed.[7] Because of the large number of population, the researcher took samples as the representative poulation. The researcher used cluster random sampling technique because this research focus on group. The samples of this reasearch were be devided into two groups of sampling, experimental group and control group.

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[7] *Ibid. P148*

Table 3.3. Groups of Sampling

Experimental group		Control group	
Class	Number of students	Class	Number of students
A	18	B	19

D. Research Instruments

1. Test Type

Researcher used test as instruments. The first was test, test was a set of stimuli presented to an individual in order to elicit responses on the basis of which a numerical score can be assigned.[8] The test was be used by the researcher was perfomance assesment or performance test. Performance test is a technique in which the researcher directly observes and assesses an individuals performance of a certain task and judge the the finished product of the performance. [9] Kind of the test used by resercher was problem solving, because the research focused on students' critical thinking.

In this case the researcher asked the students to stand in front of class and explaine their own argument of some issues. This test was to know students' ability in critical thinking. students one by one to speak face to face with the teacher and friends in the class. Researcher recorded the oral speaking by using tape recorder or mobile phone.

2. Test Construction

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[8] *Ibid. P201*
[9] *Ibid. P204*

The construction was based on the objective of the study. The study was aimed at finding the significant effect of British Parliamentary debate system on critical thinking. To investigate the effect of British Parliamentary debate system on critical thinking skill of ESL students at 3rd semester of English Education in State Islamic Institute of Palangka Raya academic year 2015-2016, the subjects were assigned to present the video they watched from some sources.The result of two tests is investigated using statistical analysis and the outcomes were compared to see the effects of british parliamentary debate system on critical thinking skill.

3. **Planning the critical thinking test**

To produce a good critical thinking test, the researcher made plan on the test construction. In this sense, the objective of the test was determined.Then, the researcher decided 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 cared 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 .

a. Preparing The Critical Thinking Test

The critical thinking test was 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 be simple. The instruction was accompanied with several alternative topics. The topics were the ones the students familiar and could develop into composition.

4. Research instrument realibilty

Research instrument validity 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 was the degree of consistency with which it measured whatever it is measuring.

In rather reliability, there were inter-rater reliability and intra-rater reliability. Inter-rater reliability is the consistency of the judgment of several raters on how they see a phenomenon or interpreted the responses of the subject.It indicates accuracy in scoring composition of two different raters. Meanwhile, intra-rater reliability referred to the consistency of the rater in scoring the same paper at two different points of time. It points out an individual accuracy in scoring a particular composition.

In this study, the researcher applyed inter-rater reliability; two raters would employed to score the students' critical thinking

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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 speaking assessment. This made the raters be consistent in scoring and avoid subjectivity of the raters in scoring. For this purpose, the training was done to get inter rater agreement in order to give reliable scores to students' critical thinking.[10]

To obtain inter- rater reliability, the score of two raters are correlated using SPSS program. Then the researcher 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' speaking products both using British Parliamntery debate system and without using British Parliamentarry debate system had achieved the acceptable level of reliability.

Calculation result of r is 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 is lower than r_{table} so it meant unreliable. In

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

this case, the researcher applys the coefficient correlation and the interpretation of inter-rater reliability proposed by Winkle et al as shown in table 3.3. [11]

Table 3.4. 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

Table 3.5 Testing Correlation

		rater1	rater2
rater1	Pearson Correlation	1	.891**
	Sig. (2-tailed)		.000
	N	18	18
rater2	Pearson Correlation	.891**	1
	Sig. (2-tailed)	.000	
	N	18	18

**. Correlation is significant at the 0.01 level (2-tailed).

Based on the calculation above used SPSS program, the **r** was 0.891. Then it was consulted with r_{table} of Product Moment with df= 18-2= 16, the level of significance 5% so r_{table} = 0.497. Because **r**=0.891 >r_{table}= 0.497. It could be concluded that the try out was reliable.

Based on the Result of Instrument Reliability above, it was known that the coefficient of reliability was 0.891 with the Criteria High positive Reliability. It meant that the instrument could be used as the Instrumentation of the study.

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[11]Antony C. Winkle, and Jo Roy Mc Cuen, *Writing the research Paper,* Orlando: Harcount Brace Jovanovic Publisher, 1989, p. 35.

5. **Research Instrument Validity**

Validity is the strength of the conclusions, inferences or propositions In case, see that class participation do not increase after the policy is established. Each type of validity would highlight a different aspect of the relationship between treatment (strict attendance policy) and observed outcome (increased class participation).

Types of Validity

There are two types of validity commonly examined in social research.

a. **Face Validity**

The types of face validity, if the test items look right to other testers, teacher, indicators and test. The types of test items, which would use in this research, can be suitable to the others at the same level is Student university.

For face validity of the test items as follow:

1) The test usesd speaking test in speaking test instruction.

2) The evaluation by speaking test based on scoring system.

3) Kind of the critical thinking test .

4) The Language of items used English

5) The critical thinking test was suitable with syllabus of English speaking for 3rd students of English Education Department of State Islamic Institute of Palangka Raya.

b. **Content Validity**

This kind of validity depends on a careful analysis of the language being tested being testes and of the particular course objective. The test should be so constructed as to contain a representative sample of the course, the relationship between the test items and the course objective always being apparent. The instrument which used test, the tasting of content validity was done by asking the opinion of the judgment experts about the instrument is able to try out or not.

E. Data Collection

In collecting the data of this study, the researcher took the data from pre-test and post-test. Pre-test was given to the subjects before doing teaching and learning process (treatment). Meanwhile, post-test was given after applying teaching and learning process (treatment).

In this study, the researcher applied steps as follow:

1. The researcher observed the State Islamic Institute of Palangka Raya.

2. The researcher divided the students (sample) into two class (experimental and control) class by using cluster sampling.

3. The researcher gave a pre-test to both classes (experimental and control) class.

4. The researcher checked the result of pre-test of experimental and control class.

5. After the pre-test given, the researcher taught the students in experimental class by using British Parliamentary debate system and control class without using British Parliamentary debate system. After doing the treatment, the researcher will give the post-test to both classes.

6. Then, the researcher recorded the students' critical thinking test peformance in the post-test.

7. The researcher gave scores to students' answers by using scoring rubric. In this case, the researcher applied T-test for correlated samples to examine the significant difference score between experimental class and control class.

8. Finally, the researcher compared the students' scores in the pre-test and post-test. It was done to know whether the students' scores in experimental class are higher or not than students' scores in control class.

F. Data Analysis

The Method of data analysis used the statistical procedures. The formula that used was a t-test. The purpose is to find the significant differences of critical thinking ability between experimental group and control group.

The data of this study was students' critical thinking ability score. Therefore, the data was in quantitative data. The data was analyzed by means of inferential statistics. This statistical analysis was suitable to answer the research problem.

1. The researcher gave test to the students of 3rd semester of English Education Department of State Islamic Institute Palangka raya.

2. The researcher collected the data of the students' test result.

3. The researcher gave score the students' test result by using the formula of scoring critical thinking.

4. The researcher tabulated the data into the distribution of frequency of score table, then looking for the mean, median and modus of students' score, standard deviation, and standard error of experiment group and control group.

    a. Mean

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

    Where:

    Mx : Mean

Fx : Total result product between each score with frequency

N : Number of case

b. Median

$$Mdn = \frac{1}{2}(n+1)$$

Where:

N : Number of case

c. Modus

$$Mo =$$

Where:

d. Standard Deviation

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

Where:

SD : Standard Deviation

i : Interval

N : Number of students

e. Standard Error

$$Sem = \frac{sd}{\sqrt{n-1}}$$

Where:

Sem : Standard Error

Sd : Standard Deviation

N : Number of students[12]

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[12]*Ibid*, p. 60.

5. The researcher will calculate normality and homogeneity.

a. Normality

It is used to know the normality of the data that is going to be analyzed whether both groups have normal distribution or not.

Chi square is used here:[13]

$$\chi^2 = \Sigma[\frac{(f_o - f_h)^2}{f_h}]$$

Where:

χ^2 = Chi square

f_o = frequency from observation

f_h = expected frequency

Calculation result of χ^2 is compared with x table by 5% degree of significance. If χ^2 is lower than x table so the distribution list is normal.

b. Homogeneity

It is used to know whether experimental group and control group, that are decided, come from population that has relatively same variant or not. The formula is:[14]

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[13]Sudjana, *Metode Statistika*, Bandung: Tarsito, 1996, p. 273.
[14]*Ibid.,* p. 280.

$$F = \frac{\text{Bigger Variant}}{\text{Smaller Variant}}$$

Where:

F : Frequency

The hypotheses in homogeneity:

$F_{value} \leq F_{table}$, means both of variants are homogeneity.

$F_{value} > F_{table}$, both of variants are homogeneity.

If calculation result of F is lower than F table by 5% degree of significance so H_o is accepted, it means both groups have same variant.

6. The researcher calculated the data by using t-test if data distribution as normal the researcher use t-test if it is not normal .the writer used non parametric to test the hypothesis of the study. To examine the hypothesis, the researcher uses t-test statistical calculation as follows:

$$to = \frac{M1 - M2}{SEm1 - m2}$$

Where:

M1-M2   : The difference of two mean.

SEm1-m2 : The standard error of difference between two mean.

To know the hypothesis is accepted or rejected using the criterion:

If t-test $\geq$ t$_{table}$, it means Ha is accepted and Ho is rejected.

If t-test $\leq$ t$_{table}$, it means Ha is rejected and Ho is accepted.[15]

7. The researcher interpreted the result of t-test. The researcher account degree of freedom (df) with the formula as follows:

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

Where:

df : Degree of freedom

N1 : Number of subject group 1

N2 : Number of subject group 2

2   : Number of variable[16]

8. The researcher will discussed and concluded the result of data analysis.

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[15] Anas Sugiono, *Pengantar Statistik Pendidikan*, Jakarta: Rajawali Press, 1978, p. 372

[16] *Ibid*, p. 284