CHAPTER III

METHODOLOGY

In this chapter, the researcher would like to present the methodology of the study. This chapter consists of research design, population and sample, data collection, validity, procedure of collecting data, data analysis.

3.1 Research Design

This research uses quantitative research design. To answer the first question of the problem statements, the researcher employed the descriptive research design. As stated by Mouton & Marais (1996) that descriptive approach in data collection gives the ability to collect accurate data and provide a clear picture of the phenomenon under study and give nature condition without any manipulation. So the researcher could not influence the subject. There are nine kinds of descriptive research such as case study, survey, developmental study, follow up study, discourse analysis, content analysis, assessment, curriculum and material development (developing study), and correlational study. In this thesis, the researcher used the survey which according to Creswell(2012) that descriptive survey research is one of the ways to obtain the data of the study. The goal of the survey is to collect data from individuals. The survey has the purpose to study what happens, not why it happens and to know more about the variables. Survey also could be used to compare conditions by certain criteria.

While to answer the second question of the problem statements, the researcher used quantitative correlation as the design of the study. Donald Ary (2010) stated that correlation research is a design which correlates between two variables or more. And this study has two variables, independent variable and dependent variable. This study correlates between the independent variable (English debate (X)) and the dependent variable (student's critical thinking (Y)).

3.2Population and Sample

3.2.1Population:

The researcher take 10 students who join debate program at SMAN 1 MANYAR as the population. The participants are the students from 12th IPA who joining in debate group.

3.2.2 Sample:

According to Ary (1990) sample is a group which is observed by the researcher. There are many kinds of techniques in getting samples. This study uses cluster sampling technique. It is the way to collect the sample by choosing random group/ class to get the class that is representative as the sample. The researcher chooses ten students who join debate program at SMAN 1 MANYAR.

3.3 Data Collection

3.3.1 Instrument

According to Arikunto (1998), an instrument is a tool which is used by the researcher in a method for collecting the data. Based on the research design which has been stated before, the researcher needs to use some instrument in collecting data which are suitable to support the data analysis in order to reach the goal of this study. There are three instruments which are used in this study. Those two are questionnaires and test.

The questionnaire is a data collection instrument or information that is operationalized in the form of questions. This questionnaire is used as a tool and as well as data collection techniques that contain a series of questions in the form of concrete data and the answer has been established so that students could choose one of the answers that have been provided. From the results of this questionnaire answer, the researchers could calculate the percentage for each question to facilitate the researchers in understanding and making conclusions from the results of the research. In this research, the questionnaire belongs to the closed questionnaire. The closed questionnaire is a questionnaire which asks the respondents to fill the items by choosing the response based on the answers in the

form of scale. In this research, the researcher used a likert scale. According to Donald Ary (2002) a likert scale assessed attitude toward a topic by presenting a set of statement about the topic and asking the respondent to indicate whether they strongly agree, agree, undecided, disagree, or strongly disagree. There are five scales in this questionnaire, each number represents one answer as like number 5 represent strongly agree, number 4 represent agree, number 3 represents undecided, number 2 represents disagree, number 1 strongly disagree.

The test is a set of questions used to measure the skill, intelligence, ability, and talent of an individual or a group. The test is used to check the understanding of the students when they learn English. The type of test used here is debate test.

3.3.1.1 Questionnaire for Student's Perception toward Debate

This Questionnaire to answer the first problem statement of this study. So this questionnaire focuses on the student's perception toward debate. There are three aspects in this questionnaire which is investigated by the researcher. The aspects are taken from the Department of Education (1982) that includes selection, interpretation, and reaction but the content is developed by the researcher. The contents of the questionnaire are going be like this. The selection includes number 1 until 5, interpretation includes number 6 until 10 and reaction includes number 11 until 15. And for the content of this questionnaire adapted from Pezhman Zare & Moomala Othman (2015).

3.3.1.2 Questionnaire for Critical Thinking Skill and Debate Test

3.3.1.2.1 Questionnaire for Critical Thinking Skill

This questionnaire to answer the second problem statement of this study. This questionnaire is focusing on the critical thinking ability. There are three aspects to this questionnaire which are investigated. The aspect is taken from Krathwohl (2002), but the researcher determines to take three from six aspects. Knowledge includes number 1 until 5, comprehension includes number 6 until 10 and application includes number 11 until 15. And the content is adapted from Zeta Brown (2015

3.3.1.2.2 Debate Test

Debate test is used to check how far the student ability is in debate. Because there are ten students that will be tested so there will be ten tests done. And for the material or motion in Debate test is suitable with the problem that occure around the students. To assessing the debate test, the researcher needs a rubric. Rubric that used is adopted from Owen Doody (2012). The rubric has several aspect includes preparation, organisation and presentation, the use of arguments and rebuttal

3.4 Validity

To check the validity of the test, the researcher uses content validity and construct validity. Content validity is the test items compared to the curriculum or syllabus while construct validity is construct or concepts related to the field of science to test the validity of the measuring instrument. Construct validity refers to the concordance between the results of the measuring instrument with the ability to measure. The validity is done by the purpose of checking whether the test is acceptable for the students or not.

To check the validity of the questionnaires, the researcher using SPSS program with bivariate pearson formula. The standard significance is 0,05 (5 %) and correlation coefficient (r table) is 0,6319. To find r table the researcher using degree freedom formula that is df = n – 2 (n = total respondent). And the score of r table must higher than r arithmetic. The score of r arithmetic can be seen from spss. To use bivariate pearson formula first, click anlyze – correlate – bivariate. Second, move all the item in column 1 to column 2 then click pearson, two tailed, and flag significantcorrelation then click ok.

While to check the validity of the debate test, the researcher uses content validity by comparing it with the curriculum or syllabus. However, because debate is not included in the category of subjects or activities that are generally done in class, so there is no syllabus or curriculum that is specific to debate. Because in general, debate is only used as a method or learning strategy. For that

the researcher uses syllabus from Vivin (2016) to check the validity of the debate test.

3.4.1 Validity for Questionnaire of Student's Perception toward Debate

Based on the result analysis, for the student's perception toward debate questionnaire the correlation value for item 2,4,8,11 are less than 0,6319. It can be concluded that the items are not significantly correlated with the total score or invalid. While on other items value more than 0.6319 and declared valid. For more detail will be explain in the table below :

		total
VAR00001	Pearson Correlation	,670*
	Sig. (2-tailed)	,034
	N	10
VAR00002	Pearson Correlation	,235
	Sig. (2-tailed)	,513
	N	10
VAR00003	Pearson Correlation	,688*
	Sig. (2-tailed)	,028
	N	10
VAR00004	Pearson Correlation	,605
	Sig. (2-tailed)	,064
	N	10
VAR00005	Pearson Correlation	,874**
	Sig. (2-tailed)	,001
	N	10
VAR00006	Pearson Correlation	,762*
	Sig. (2-tailed)	,010
	N	10
VAR00007	Pearson Correlation	,680*
	Sig. (2-tailed)	,030
	N	10
VAR00008	Pearson Correlation	,447
	Sig. (2-tailed)	,196
	N	10
VAR00009	Pearson Correlation	,802**
	Sig. (2-tailed)	,005
	N	10
VAR00010	Pearson Correlation	,815**
	Sig. (2-tailed)	,004
	N	10
VAR00011	Pearson Correlation	,532
	Sig. (2-tailed)	,113
	N	10
VAR00012	Pearson Correlation	,851**
	Sig. (2-tailed)	,002
	N	10
VAR00013	Pearson Correlation	,687*
	Sig. (2-tailed)	,028
	N	10
VAR00014	Pearson Correlation	,815**
	Sig. (2-tailed)	,004
	N	10
VAR00015	Pearson Correlation	,754*
	Sig. (2-tailed)	,012
	N	10
total	Pearson Correlation	1
	Sig. (2-tailed)	
	N	10

Table 3.4.1.1 Student's Perception Correlation

3.4.2 Validity for Questionnaire of Critical Thinking

		total
VAR00001	Pearson Correlation	,717*
	Sig. (2-tailed)	,020
	N	10
VAR00002	Pearson Correlation	,831**
	Sig. (2-tailed)	,003
	N	10
VAR00003	Pearson Correlation	,918**
	Sig. (2-tailed)	,000
	N	10
VAR00004	Pearson Correlation	,519
	Sig. (2-tailed)	,124
	N	10
VAR00005	Pearson Correlation	-,037
	Sig. (2-tailed)	,919
	N	10
VAR00006	Pearson Correlation	,194
	Sig. (2-tailed)	,591
	N	10
VAR00007	Pearson Correlation	,494
	Sig. (2-tailed)	,146
	N	10
VAR00008	Pearson Correlation	,918**
	Sig. (2-tailed)	,000
	N	10
VAR00009	Pearson Correlation	,717*
	Sig. (2-tailed)	,020
	N	10
VAR00010	Pearson Correlation	,581
	Sig. (2-tailed)	,078
	N	10
VAR00011	Pearson Correlation	,747*
	Sig. (2-tailed)	,013
	N	10
VAR00012	Pearson Correlation	,414
	Sig. (2-tailed)	,235
	N	10
VAR00013	Pearson Correlation	,646*
	Sig. (2-tailed)	,044
	N	10
VAR00014	Pearson Correlation	,444
	Sig. (2-tailed)	,199
	N	10
VAR00015	Pearson Correlation	,572
	Sig. (2-tailed)	,084
	N	10
total	Pearson Correlation	1
	Sig. (2-tailed)	
	N	10

Table 3.4.2.1 Critical Thinking Correlation

Based on the analysis result, for critical thinking questionnaire, the correlation value for item 4,5,6,7,10,12,14,15 are less than 0,6319. It can be concluded that the items are not significantly correlated with the total score or invalid. While on other items value more than 0.6319 and declared valid.

3.4.3 Debate Test

The syllabus from vivin (2016) will be explain below :

Standard competence :
Understanding, communicating, and applying the basic rule and information of debate
Basic competence :
1. Understanding the basic rule and information of debate
Sub-basic competence
1.1 Understanding the basic rule and information of debate about motion of debate
1.2 understanding the basic rule and information of debate about definition
1.3 understanding the basic rule and information of debate about background
1.4 understanding the basic rule and information of debate about goal
1.5 understanding the basic rule and information of debate about theme line
1.6 understanding the basic rule and information of debate about team split
1.7 understanding the basic rule and information of debate about argument
1.8 understanding the basic rule and information of debate about rebuttal

The standard competence of this test is the students are able to understand, communicate, and apply the basic rule and information of debate and for the

details are explained in sub-basic competence. In sub-basic competence, number 1 until 4 includes in preparation point, number 5 and 6 includes in organisation and presentation point, number 7 include in the use of arguments point and number 8 include in rebuttal point. These points are the aspect that will be assess in debate test. And to make the judgment given more valid then the researcher is assisted by debate coach during the debate test.

3.5 Reliability

The basic concept of reliability of a test is consistency of the test score. Reliability measurement supplied an instrument of how much a variance might expect under different condition. The reliability of the test is characteristically presented by means of reliability coefficient or the standard error of measurement. To define the reliability of the test in order to find out the stability of the test, the researcher used SPSS 22.0 with formula :

$$r_{kk} = \frac{K.Sx^2 - \dot{x}(k-\dot{x})}{Sx^2(k-1)}$$

$$\text{Where: } s = \frac{\sqrt{\Sigma F\square}}{n-1}$$

$\square = X - \dot{x}$

K : total accepted item

N : total students followed the test

$\square$: total of correct answer of the student

F : total of student who got the particular score in x

Criteria :

$0.0 \leq rkk < 0.20$ is the lowest reliability

$0.20 \leq rkk < 0.40$ is low reliability

$0.40 \leq rkk < 0.60$ is quite reliable

$rkk \geq 0.60$ is high reliability

3.5.1 Reliability for The Questionnaire of Student's Perception Toward Debate

Reliability Statistics

Cronbach's Alpha	N of Items
,775	12

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR00001	89,5000	90,056	,643	,755
VAR00002	89,4000	93,156	,684	,762
VAR00003	89,8000	86,622	,781	,743
VAR00004	88,8000	91,956	,745	,758
VAR00005	89,0000	92,222	,717	,759
VAR00006	89,1000	92,322	,759	,759
VAR00007	88,9000	90,767	,852	,754
VAR00008	89,2000	89,067	,849	,749
VAR00009	89,1000	91,211	,615	,758
VAR00010	88,9000	90,767	,852	,754
VAR00011	89,0000	91,778	,764	,758
total	46,7000	24,900	1,000	,927

Table 3.5.1.1 Reliability of Student's Perception

Based on the analysis result from the table above, the cronbach's alpha is 0.775 while r table is 0.6319. So the cronbach's alpha is higher than r table. And based on the classification stated that 0,775 belonged to the high reliability. So it can conclude that the instrument was reliable.

3.5.2 Reliability for The Questionnaire of Critical Thinking

Reliability Statistics

Cronbach's Alpha	N of Items
,794	8

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR00001	59,4000	28,044	,736	,774
VAR00002	59,5000	27,167	,816	,763
VAR00003	59,6000	26,267	,940	,751
VAR00004	59,6000	26,267	,940	,751
VAR00005	59,6000	27,600	,672	,771
VAR00006	59,8000	27,511	,689	,770
VAR00007	59,8000	27,956	,602	,776
total	32,1000	7,878	1,000	,908

Table 3.5.2.1 Reliability of Critical Thinking

3.6 Procedure of Collecting Data

3.6.1 Procedure of Collecting Data for Student's Perception toward Debate

To collect the data to answer the first problem statement, the researcher takes the data from the questionnaire. There are some procedures to collect the data. First, the researcher prepares the questionnaire to know the student's perception of debate. Then collect the students. After that gives the questionnaires to the ten students who join the English debate. Then the researcher explains the way to fill out the questionnaires then asks the students to answer the questionnaires. The questionnaires are submitted to the researcher if the students have done answering it. And, the last the researcher calculates the result of the questionnaire.

3.6.2 Procedure of Collecting Data for Correlation Critical Thinking and Debate Test

To collect the data to answer the second problem statement, the researcher take the data from the questionnaire to know the student's critical thinking and from score of debate test. There are some procedures to collect the data. First, the researcher prepares the questionnaire to know the student's critical thinking. Then collect the students. After that gives the questionnaires to the ten students who join the English debate. Then the researcher explains about the way to fill the questionnaires then ask the students to answer the questionnaires. The questionnaires is submitted to the researcher if the students have done answering it. And, the last the researcher calculates the result of the questionnaire. Secondly, give the test. The researcher uses a test to know the student's ability in debate. The researcher ask the debate coach to help the researcher to test the students. The procedure to test the students: first, the researcher collect the students. Then the coach from SMAN 1 MANYAR explains the rule of debate. After that the students practice debating. And the last the researcher, the coach from SMAN 1 MANYAR and the coach from University of Muhammadiyah Gresik give the value. Then the result of questionnaire and test are calculated using SPSS 22.0 to know the correlation from both of them.

3.7 Data Analysis

3.7.1 Data Analysis for Questionnaire of Student's Perception toward Debate

Data analysis is an effort to find and set the result of the research. To answer the first question of problem statements, the researcher analyzes the score of questionnaire by using the formula as follows:

$$P = \frac{F}{N} X \quad 100\%$$

Where : P = Percentage

F = Frequency (the number of the students who fulfilled the questionaire)

N = Total number of respondents

This formula above has a purpose to know the percentages of the number students who fulfilled the questionnaire. To know the average of the students'perception,the researcher used formula as follows:

$$Mean = \frac{Score}{Max} X \quad P$$

Where :Score = Score of each students

Max = Amount of multiplying total number of item and maximum score each item

P = Percentage of respondents who fulfill the questionnaire

Then the researcher made the categories of students' perception based on the table of range of scale criterion below :

Range of scale (%)	Students' Perception
81 – 100	Very Positive
61 – 80	Positive
41 – 60	Average
21 – 40	Negative
0 – 20	very Negative

3.7.2 Data Analysis for Questionnaire of Critical Thinking and Debate Test

To answer the second question, the researcher needs variable both English debate and student's critical thinking ability. The student's critical thinking ability was gotten from questionnaire. The researcher analyze the score of questionnaire by using the formula to calculate the questionnaire for student's perception towards debate

While for English debate variable was gotten from the test score which wass analyzed from rubric of debate test. Rubric that was used was adopted from Owen Doody (2012). In this rubric, it contains four aspects that are usually used in assessing student performance during debate namely preparation, organization and presentation, use of arguments and rebuttal. In each aspect the researcher gives a percentage based on the point that is considered more important or has a more dominant influence that was judged during the debate. This percentage amount is also made to facilitate researcher in calculating the students' scores. In each of these aspects there are also some assessment criteria with the maximum score is 4 points and the minimum score is 1 point. For more details can be seen below:

Aspect	**Score**	**Statements**
Preparation	4	Prepared a broad scope of information. Deep,

(P) 20%		critical analysis of the given topic. Information is collected from a wide range of sources. Present perspectives which effectively contribute to development of arguments
	3	Satisfactory preparation of information and analysis for the given topic. Issues relating to the topic are well covered.
	2	Demonstrated preparation for the basic information of the given topic. Little evidence of analysis was shown.
	1	Failed to prepare only the basic and essential information of the topic provided.
Organisation and Presentation (0) 30%	4	Logical flow in the presentation of arguments. Organised in a coherent manner. Powerful and persuasive presentation.
	3	Generally clear flow of arguments. Presentation is persuasive manner but minor problems.
	2	Able to give the basic framework of the presented ideas. Lacked persuasive power.

	1	Information not appropriately digested. Lack of focus. Lack of logical flow.
Use of Arguments (A) 30%	4	Plenty of very strong and persuasive arguments.
	3	Many fairly strong arguments but some not persuasive
	2	Arguments are generally on the right track but not convincing and strong enough.
	1	Arguments are not significant or persuasive to the debate topic
Rebuttal (R) 20%	4	Excellent defence and attack against the opposite side. Able to identify the weakness of the opposite side.
	3	Satisfactory defence and attack against the opposite side. Attempted to find out weakness of the opposite side.
	2	Failed to defend some issues. Some successful attack against the opposite side.
	1	Fail to defend issues. Unable to attack the opposite side in most of the issues.

Adapted by Owen Doody (2012)

$$\text{Calculate the Score} = \frac{(20 \times P) + (30 \times 0) + (30 \times A) + (20 \times R)}{4}$$

Criteria Score :

81 – 100 = very good

68 – 80 = good

56 – 67 = enough / average

45 – 55 = low

< 45 = very low

And to know the correlation of those two variables, the researcher used *Pearson's correlation coefficient*. As Muijs (2004) explained that if the researcher wanted to know the correlation between continuous (interval) and continuous (ratio) variables, the researcher needs to use a rank of correlation coefficient like *pearson's r*. There are two variables in this research, they are the independent variable (X) is continuous (interval) and the dependent variable (Y) is continuous (ratio). Dependent variable is what will be measured. It is what the researcher thinks will be affected during the experiment. While independent variable is what is varied during the experiment. It is what the researcher thinks will affect the dependent variable. Continuous (interval) data comes from debate test and continuous (ratio) comes from questionnaire. The correlation coefficient vary between -1 and +1 which -1 indicates a perfect negative relationship, +1 indicates a perfect positive relationship, and 0 indicates no relationship.

A correlation calculate :

$$r = \frac{n(\Sigma XY) - (\Sigma X)(\Sigma Y)}{\sqrt{[n\Sigma X^2 - (\Sigma X)^2][n\Sigma Y^2 - (\Sigma Y)^2]}}$$

Where r = pearson's correlation coefficient

n = number

ΣXY = sum of the product paired score

ΣX = sum of x scores

ΣY = sum of y scores

ΣX^2 = sum of squared x scores

ΣY^2 = sum of squared y scores

A Correlation Criteria :

r value	Criteria
0	there is no correlation
0 - 0,5	Weak
0,5 – 0,8	Strong
0,8 – 1	Very Strong

The hypothesis of this research is: Ha means there is correlation between variable (X) and variable (Y) and H_o means there is no correlation between variable (X) and variable (Y). Based on Best (1991) that 5 % (0,05) alpha level (significance level) is used as the standard for rejection. So if *P* value (sig.) is more than 0,05 % Null hypothesis (Ho) can't be rejected but if less than 0,05 % Null hypothesis (Ho) it can be rejected.