

CHAPTER III RESEARCH METHOD

Research is a study which is done by researcher through careful observation of a problem until found the problem solving.¹ Thus, a research has close relation with methodology. Methodology is a process, principle and procedure which is used to find the answer of the problem.² Generally, research method is scientific way to get data with specific purpose. Research method is also decipherable as scientific way to get valid data with purpose which can be gotten, developed, and proved from specific knowledge until it can be used to solve the problem.³ In this study, here are the research methods:

A. Research Design

The method which is designed in this study is experimental research. Experimental research is the only research which exam the hypothesis correctly which is about cause and effect relation.⁴ There are some kinds of experimental designs, but the researcher chooses to use Pre-experimental design (*nondesigns*)⁵. The researcher chooses this design of study, because there might be another reason outside variable independent in reaching variable dependent. This case might happen, because there is no control variable, and the sample is not chosen by random sampling. This Pre-experimental research is conducted to find out is there any effect of the critical reading strategies on students' critical thinking ability. In this research, researcher uses *One-Group Pretest-Posttest Design* as one of type of pre-experimental research to find the result whether variable independent effects the variable dependent. Thus, the objects of study will be given pretest and posttest. Before the objects of study are given a treatment, there will be pretest. Through

¹ Zainal Arifin, *Penelitian Pendidikan Metode dan Paradigma Baru*, (Bandung: PT Remaja Rosdakarya, 2012), 2.

² Deddy Mulyana, *Metodologi Penelitian Kualitatif Paradigma Baru Ilmu Komunikasi dan Ilmu Sosial Lainnya*, (Bandung: PT Remaja Rosdakarya, 2008), 145

³ Sugiyono, *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D*, (Bandung: alfabeta, 2016), 3.

⁴ Nana Syaodih Sukamadinata, *Metode Penelitian Pendidikan*, (Bandung: PT Remaja Rosdakarya, 2013), 194.

⁵ Furchan Arief, *Pengantar Penelitian Dalam Pendidikan* (Yogyakarta: Pustaka Pelajar), p.380

this way, the result of the treatment could be known accurately, because the result will compare students' critical thinking ability before and after the treatment. This design can be described below:

O1 X O2

X : Treatment

O1 : Pretest Score (Before Treatment)

O2 : Posttest Score (After Treatment)

Figure 3.0-1 Design of Study

The effect of treatment on students' critical thinking ability = $(O2 - O1)$.⁶

Experimental research is the most pure of quantitative, because all principles of quantitative can be applied in this method. Thus, the approach which is used in this research is quantitative approach and it would be analyzed using SPSS 16 (Statistic Product and Service Solutions). Quantitative approach is a research which use numbering data as the tool to get information from what the researcher want to know, the collected numbers become a result which is analyzed by statistics method.⁷ In this quantitative research, the data is processed by statistics technique which needs to consider the sampling technique. As a whole, this study is conducted to chosen sample.⁸ Quantitative approach in this study analyzes the result of pre-test, post-test and questionnaire which will be analyzed with T-test statistics. By those scores, the researcher could analyze whether Critical reading techniques improve students' critical thinking ability or not.

In collecting the data, the researcher designs the activity of the study by giving treatment application, pretest and posttest as what has been explained above. Here, the researcher provides a scheme of rundown of her study:

⁶ Prof. Dr. Sugiono. *Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitative dan R&D* (Bandung: Alfabeta 2016), p.110

⁷ Margono, *Metode Penelitian Pendekatan*, (Jakarta: Rineka Cipta, 1997), 103-105.

⁸ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik (Edisi Revisi 11)*, (Jakarta: PT Rineka Cipta, 2006), 310.

Table 3.0-1 Research Scheme

Test	Objects of study
Pre-test	√
Treatment 1	Applying CR Technique (Reading 1)
Treatment 2	Applying CR Technique (Reading 2)
Treatment 3	Applying CR Technique (Reading 3)
Post-test	√

√ : The Objects of study are given the tests.

B. Research Variable

There are two kinds of variable in this research: independent and dependent variable. Independent variable is the variable which is influence other variable. The dependent variable is the variable which is affected by independent variable.⁹ Independent variable resembles the *cause* which means that the technique which is used become the cause of the impact given after treatment. Meanwhile, Dependent variable resembles the effect derived from treatment of critical reading strategies. Thus, the independent variable of this research is Critical reading strategies and the dependent variable is the students' Critical thinking ability.

⁹ Arikunto Suharsimi, *Procedur Penelitian* (Jakarta: Renika Cipta 2002), p.97

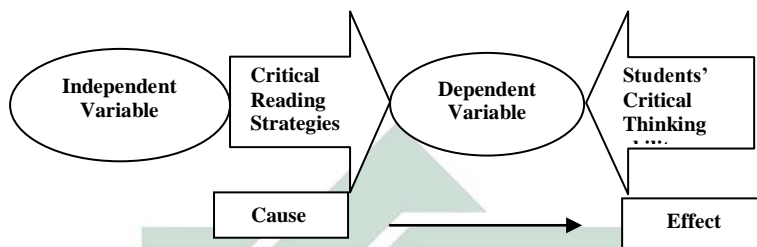


Figure 3.0-2 Variables and their relation in experimental study

C. Population and Sample

Population

Population is a group from all the object of study.¹⁰ The population of this study is taken from students of fourth semester in English Teacher Education Department UIN Sunan Ampel Surabaya in academic year of 2017/2018. In the fourth students, there are four classes consist of four class. There are Class A, Class B, Class C, and Class D. The number of students is 120 students as the population. The researcher chooses fourth semester, because at that time they will have critical reading class.

Sample

Sample is a little piece from the group of population which is taken as representative of all the population based on sampling procedure.¹¹ Because there are more than 100 populations, so the researcher may take 10%-15% or 20%-25% or more.¹² The researcher uses the simple random sampling from the population in this study.

¹⁰ Burhan Bungin, *Metodologi Penelitian Kuantitatif Komunikasi, Ekonomi, dan Kebijakan Publik Serta Ilmu-ilmu Sosial Lainnya*, (Jakarta: Kencana Prenada Media Group, 2011), 109.

¹¹ Maman Abdurahman dkk, *Dasar-dasar Metode Statistika Untuk Penelitian*, (Bandung: Pustaka Setia, 2011), 129.

¹² Suharsimi Arikunto, *Prosedur Penelitian Suatu. . .*, 134.

The researcher takes class B (consist of 42 students) because the lecturer of this class states that the students are relative homogeny (reading score), and because that class is 35% of 120 population, thus, those sample is representative of all the population.¹³

D. Data Collection Technique

Collecting data is systematic procedure and standard to get data which is needed. Data collection technique is important step, because data will be used to solve the problem to examine hypothesis which has been patterned.¹⁴ There is always a connection between Data Collection Technique with Research Questions. In research question number one, it tries to describe the implementation of critical reading strategies on students' critical thinking ability. In this data collection technique, documentation such as lesson plan and recording of the critical reading strategies become the data collection technique to answer research question number one.

Next, to answer research question number two which tries to signify students' critical thinking ability before and after treatment of critical reading strategies, the researcher gives reading comprehension pre and post-test to the one group. The pre-test and post-test consist of 10 questions, all of them are essay. Each question, the researcher gives score based on the critical thinking levels between 1 until 4. After the students pass the test, all score of the pre-test and the post test will be noted then calculated the average the score between before and after the treatment. Besides it, to answer research question number two, questionnaire became the data collection technique also.

Then, in research question number three which tries to classify the effectiveness of critical reading strategies on students' critical thinking ability, the data collection technique is documentation. The researcher chose video and lesson plan

¹³ Ana Nurul Laila, *Interview*, Surabaya, March 20th 2017

¹⁴ Syofian Siregar, *Statistika Deskriptif untuk Penelitian Dilengkapi Perhitungan manual dan Aplikasi SPSS Versi 17*, (Jakarta: PT RajaGrafindo Persada, 2014), 130.

as the data collection technique which are suitable with research question number three.

E. Research Instrument

According to Arikunto, a good instrument should be valid. The valid data obtained in the field must be derived from valid test as well. In this study, the researcher decides to use content validity. The content validity of the instrument is measured by relating the content of the instrument to the course objectives in order to make it valid in term of the content of validity. Thus, the test must be in line with the content of the research. The researcher adopts the instrument from articles which have been validated by the expert (lecturer) which is done on April, 2nd 2017. The instruments which are used by the researcher of the study for collecting data are Test, Questionnaire and Documentation. Before the researcher explains each instrument, here is a figure to make reader more understand about the relation between research questions and each instrument:

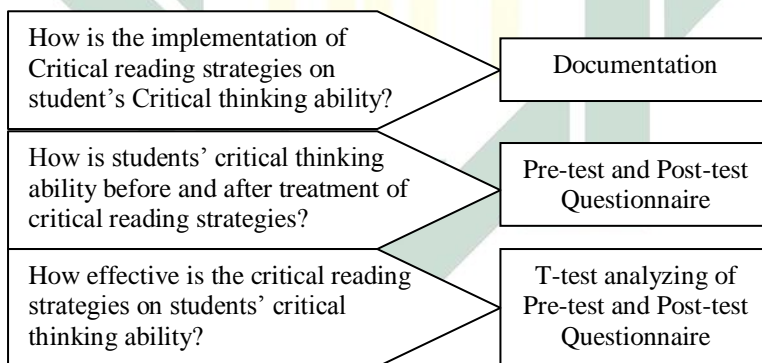


Figure 3.3 Research question and instrument relation

1. Documentation

Documentation is tools to document a proof of study, such as video, picture and written notes. So, documentation is a instrument which aims to analyze

video, picture or photograph and written note tools.¹⁵ In this study, the researcher uses lesson plan, photograph and video when critical reading strategies implementation as the instrument. This instrument can be a support to answer research question number one, because it shows the lesson plan, video and photograph of the critical reading strategies implementation process. The lesson plan and photograph will be enclosed in appendix.

2. Test (Pre and Post-test)

Test is a measurement technique which consists of questions or assignment which need to be answered by the respondent. The test used in this study is English Reading test. There are two steps of test in this study, named pre-test and post-test. Pre-test will give before the material is taught and it will be done to find out the student's original competence. Then post-test is given in the last meeting in class after doing the treatment. Pre-test and post-test would be used in the one group chosen as the objects of study. The pre-test and post-test are different topic, for example pre-test is about animal and post-test is about person.

The test is adopted from by researcher from National Qualifications SPECIMEN ONLY, SQA and 501 Critical Reading Questions, Learning Express, New York. The total of the test is 10 questions. All of them are essay questions (especially in analyzing voice of the text in the test). The result of the test is became main data to analyze before and after treatment.

Based on the figure above, this instrument is to answer research question number two. It is because through this instrument, the researcher gets students' critical thinking score before and after the treatment.

3. Questionnaire

Questionnaire is a research instrument which consists of numbers of questions to sort out the data or information which need to be answered by the objects of study freely

¹⁵ Zainal Arifin, *Penelitian Pendidikan. . .*, 243.

based on their opinion.¹⁶ The questionnaire in this study consists of check list questions which used to know the effectiveness of critical reading strategies on students' critical thinking ability. This instrument is to answer research question number two also, because through this instrument, the researcher gets statements from objects of study whether they chose that the critical reading strategies are effective or not (Through the criteria of critical reading strategies).

F. Research Procedure

Procedure of this study is a strategy to organize background of study in order that the researcher gets valid data based on characteristics of variable and the objective of study. Research procedure in this study is also to facilitate research question number one, because it contains of the procedure of research and critical reading strategies. This instrument is also to find if there is a statistically significant difference between the achievements of the object of study group (apply material with Critical reading strategies) in terms of reading skills, the group is applied reading comprehension test from researcher as pre-test. Implementation was undertaken by the researcher in the objects of study group by applying appropriate method and strategies for 4 meetings on a basis of 2 h/meeting. Thus, here is the Procedures related to objects of study of Pre-experimental research design:

1. After the researcher decided the design of study, she decided the sample of study. The researcher uses the simple random sampling from the population in this study. The researcher takes class B (consist of 42 students) because the lecturer of this class states that the students are relative homogeny (reading score), and because that class is 35% of 120 population, thus, those sample is representative of all the population.¹⁷

¹⁶ Ine Amirman dan Zainal Arifin, *Penelitian dan Statistik Pendidikan*, (Jakarta: Bumi Aksara, 1993), 226-228.

¹⁷ Ana Nurul Laila, *Interview*, Surabaya, March 20th 2017

2. Next step is; the researcher started to take the data. The first data is Pre-tests. Pre-test is made in the first meeting of implementation. In the process of treatment, the researcher was observed by the real lecturer of the class who also became the one validated the instrument. Students are in the objects of study group is informed of the group works required by Critical reading strategies. The researcher explains how the group has been established, duties would be assigned and the activities would be carried out, taking into material consideration. The group is consisting of 42 students.
3. In the second meeting, the researcher started to do the critical reading strategies implementation, but, before it, the researcher did brain storming to the students to review short explanation which they have done in the previous meeting. To start the implementation, the researcher explained critical reading strategies through power point in LCD. After the explanation, the researcher opened question-answer session related to critical reading strategies explanation to the students. Then, the researcher gave an academic text to each student. The researcher asked the students to read it. The point which was needed to be concerned by students in the text is the “voice” which means statement or opinion of writer or linguist in the text. Then, the last activity in this meeting is the students are asked to find some voices of the text without analyzing the voice, using Critical reading strategies which have been explained and discussion between researcher and the students.
4. In the activities of third meeting of the implementation were; first, the researcher gave an academic text which is different with previous meeting to the students. The, she asked them to read it. After that, the students are asked to analyze the voices in the text, whether the voice belongs to the writer or the linguist. The researcher also asked the students to involve their experience and point of view while reading. This is also one of most important point of critical reading strategies. Next activity was; students were asked to write some questions about what they want to

know from the text related to writer and linguist's voice. This activity is also one of critical reading strategies' important points. In the last activity, the researcher opened question-answer session related to critical reading strategies which have been applied in analyzing voice of the text.

5. In the last meeting, the researcher gave Posttest and Questionnaire to the objects of study which use same questions with pre-test. The objects of study are given questionnaire related to their improvement in their critical thinking ability that along those treatments and tests they have practiced critical reading strategies to analyze voice in their class.
6. After the researcher collected the data, she analyzed the data by using hypothesis testing and t-test through SPSS. This has been proven by the improvement in average score of students' critical thinking ability before treatment is 57.5000 and after treatment students' score achieve 75.7000, it means that they have increased 11.10140. The hypothesis test in this research used t-test analysis of two samples in pairs. Based on calculation t with a significance level of 5% with $(dk) = 40-1 = 39$ will be obtained t_{count} of 10,209 whereas the prices of t_{table} with significance level of 5% with $(dk) = 40-1 = 39$ will be obtained t_{table} 1,684. T_{count} value is higher than t_{table} ($10,209 > 1,684$). means, H_0 is rejected and H_a is accepted.
7. The last procedure is concluding the result of study. From the analysis result, this study is concluded that Critical reading strategies is effective in increasing fourth semester students' critical thinking ability level in critical reading class (analyzing voice material) at English Education Department in Islamic State University of Sunan Ampel.

Besides seven procedures have been explained above, here is a procedure table which completes with the schedule:

Table 3.02 Research Procedure Schedule

No.	Research Procedure	Schedule
1.	Decide the sample	March 14 th , 2017
2.	Pre-test	April 3 rd , 2017
3.	Treatment 1	April 10 th , 2017
4.	Treatment 2	April 17 th , 2017
5.	Post-test	April 28 th , 2017
6.	Questionnaire	April 28 th , 2017
7.	Analyzing the data	May 13 rd , 2017
8.	Concluding the result of study	May 27 th , 2017

From that research procedure, it can be seen that from research procedure number two until six, these procedures are provided to show description of the implementation of critical reading strategies on students' critical thinking ability which was stated in research question number one. Next, the instruments which are used in research procedure number two, number five and number six are the tools to get answer from research question number two, because it states to signify students' critical thinking ability before and after treatment of critical reading strategies. Then, to answer research question number three, research procedure number seven and eight are the answer, because it classifies the effectiveness of critical reading strategies on students' critical thinking ability through t-test.

G. Data Analysis Technique

Data analysis is a simplification process of data into easier to read and to be presented. Early approach is to explain

with data simplification.¹⁸ In this point, to answer research question number one which describes the implementation of critical reading strategies on students' critical thinking ability, is the match between lesson plan with the critical reading strategies based on Anna Dell's theory. Then, after both of them are matched, the researcher divided the data analysis technique to answer research question number two.

In research question number two, the researcher tried to signify students' critical thinking ability before and after treatment of critical reading strategies. In this data analysis technique, the researcher analyzed the significance of students' critical thinking ability between before and after the treatments by pre and post-test scores.

Last, data analysis technique which used in this research is to answer research question number three, because after collecting data from the treatment of objects in the class, the researcher try to find out the differences their scores between before and after treatment, Whether the strategies given by the researcher are effective to students' critical thinking or not. The researcher analyze the data by using statistical calculation of *t-Test* to find out whether the differences the differences of the score between significant or not. There are two formulas that use by the researcher.¹⁹ First, to analyze the significance difference between the result of the pre-test and post-test:

$$t = \frac{Md}{\frac{\sqrt{\sum x^2 d}}{N(N-1)}}$$

Where:

t = the t-ratio

Md = mean from the different pre-test and posttest

¹⁸ Masri Singarimbun, *Metode Penelitian Survei*, (Jakarta: LP3ES, 1995), 263.

¹⁹ Arikunto Suharsimi. *Procedur Penelitian* (Jakarta: Renika Cipta 2002). P. 349

x_d = the deviation of each subject (d-Md)

$\sum x^2 d$ = the sum deviation square

N = subject on the sample

$$Md = \frac{\sum d}{N}$$

So, to find out the significant between mean of each objects of study with t-test:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2} - 2r \left[\frac{s_1}{\sqrt{n_1}} \right] \left[\frac{s_2}{\sqrt{n_2}} \right]}}$$

Note:

\bar{x}_1 = Average of sample 1

\bar{x}_2 = Average of sample 2

s_1 = Standard Deviation of sample 1

s_2 = Standard Deviation of sample 2

s_1^2 = Sample Varian 1

s_2^2 = Sampel Varian 2

r = Correlation between two samples

Then to find the difference of the sample object:

$$df = N_1 + N_2 - 2.$$