

CHAPTER III

RESEARCH METHODOLOGY

A. Research Method

Various methods might be applied to get the research data however, intend the objectives of this research paper are to contribute students' critical thinking skills and to investigate changes of students' ideas at each phase of Think – Pair – Share strategy in learning Addictive and Psychotropic substances use descriptive method. Descriptive method is to examine a phenomenon that is occurring at a specific place and time. A descriptive research seeks to provide an accurate description of observations of phenomena. The object of the collection of census data is to accurately describe basic information about a national population at a particular point in time (Harvard University, 2013).

B. Population and Sample

Population is a summation of all the organisms of the same group or species which live in the same area, and have the capability of interbreeding. The population in this research are 8th grade students at SMP X Bandung between 2013/2014 academic years. The only 8th grade bilingual class taken as a sample for this research and given treatment by providing Think – Pair – Share strategy to determine critical thinking of the students and changes of their ideas in each of the phase.

Purposive sampling technique was selected as a sampling for this research because it is one of the non- probability sampling techniques. Purposive sampling technique is also known as judgmental, selective or subjective sampling, and it relies on the judgment of the researcher when it comes to selecting the units that are to be studied. In comparison purposive sampling with some probability sampling techniques usually, the sample being investigated is quite small. There are many types of purposive samplings the one that aims to achieve a homogenous sample is homogenous sampling. A homogenous sample is often chosen when the research question that is being address is specific to the characteristics of the particular group of interest, which is subsequently examined in detail.

C. Instructional Tools

1. Lesson Plan

Lesson plan is the design of instructional arrangement that used to conduct the teaching learning process. It is used as a teacher's guidance during teaching learning session to achieve certain learning outcomes and objectives. The main outcome of implemented lesson plan was - "to know about addictive and psychotropic substances and their negative effect on human body". Lesson plan was provided in A. Appendix of this paper.

2. Power Point Presentation

Microsoft Power Point is a presentation program in computer advices that developed by Microsoft in the Microsoft Office application package. This application widely used for presentation purpose, as well as presentation due to scientific activities. In this research teaching and learning process was implemented by the help of Microsoft Power Point Presentation as well. Power Point Presentation used in this study available in B. Appendix of this paper.

D. Research Instruments

1. Students' Worksheet

The main research instrument used in this study is student's worksheet paper, with the help of this worksheet researcher able to collect data during teaching learning process. Student's worksheet includes in itself both of variable questions those are critical thinking skills and student's ideas change is available in C. Appendix of this paper.

Students' critical thinking skills questions were designed based on Assignment Rubric Scoring (ARC, 2010) assessment, it found in D. Appendix. There are six critical thinking skills indicators were presented by certain questions. Those questions pass through experts' judgment before giving to class for checking validation of certain questions, available in E. Appendices. The result of validation

test is all of the questions were accepted by ANATES program, available at F. Appendix.

2. Observation Sheet

In this research, observer's sheet is one of the instruments to check whether certain strategy here as Think – Pair – Share strategy implemented right. For this research observer was a Chemistry teacher that always teach in this class. She observed the situation in class and write down notes whether specific instruction was evident or not. The observer's sheet of this research is available at G. Appendix.

E. Research Procedures

In order to arrange research sequence systematically, there is research procedure arranged based on the Think – Pair – Share strategy implementation. There are three stages of research procedure that consist of preparation stage, implementation stage, and analysis and conclusion stage.

1. Preparation Stage

This stage consists of several steps of preparation those support research, those are:

- a. Formulate problem that will be investigated
- b. Focus on the variables of research
- c. Conduct literature review supporting variables of the research
- d. Arrange the research proposal that will be presented in proposal seminar
- e. Revise the research proposal within advices of experts
- f. Arrange the research instruments
- g. Give research instruments for judging to two different experts
- h. Revise research instruments
- i. Try out the research instruments on another population
- j. Revise research instrument based on instrument try out analysis result

2. Implementation Stage

This stage consists of research implementation steps, those are:

- a. Determination of class where research will be conduct
- b. Conduct the research based on lesson plan sequences
- c. Give an observational sheet to teacher that is going to observe situation in class during research

3. Analysis and Conclusion

This stage consist of research analysis and conclusion steps, those are:

- a. Analyze the result data
- b. Discuss and make a conclusion for the research study
- c. Arrange the report of the research

F. Data Collection

Data collection in this study was obtained through two steps; firstly questions of worksheet were given to two different experts where the experts judged the questions. Experts did add suggestions and evaluate the questions. Second step was given to students those able to answer critical thinking skills questions.

G. Data Analyze

The analysis of data was made based on 6 indicators of critical thinking skills, D. Appendix. Those six indicators are: Communication, Analysis, Problem Solving, Evaluation, Synthesis, and Reflection. Based on these 6 indicators there is a rubric scoring that indicates at which level is the certain student's critical thinking skill. Also determination of critical thinking levels are required from several other researches that determined by percentage of total and specifically each of the indicator.

However, analysis of data in changing of students' ideas was manually, and from the results of other researches. Analysis occur based on three phases of Think – Pair – Share strategy and recap of each students' ideas, there is a conclusion for each of the concept regarding to each of the student, after all the discussion part based on the literature of conceptual change concept.