

CHAPTER I INTRODUCTION

A. Background

Nowadays, traditional or conventional learning is more focus on students' academic achievement. Parents also more concern to their children test score rather than the students self concept and learning strategies. Also today traditional learning more focuses on memorizing information, conducting the experiment and performing mathematical calculation to solve problem in book. Knowledge is not attained but constructed (von Glasersfeld, 1989 in Kim, 2005). Based on that statement it can be evaluated whether current traditional teaching learning can make students construct their own knowledge or not. Based on study that carried by Colburn(2000 in Daniel, O.I and Bimbola, Oludipe, 2010) in lecture hall setting, it is found that only 20% of students still remember what lecturer discuss because they were too busy taking notes and internalize the information also, when the lecture conducted after eight minutes, only 15% of students who pay attention. This kind of traditional teaching and learning can arise some question about the ability of students to perform their creative and critical thinking to solve some problem that occur on their environment. Educators should invite learners to explore the world experiences, encourage them to have critical thinking and challenges them to solve the problem not only focus on academic achievement score.

In this 21st century, educators should provide a form of teaching and learning activity which is not only emphasized on what students learn and what teacher teaches. Teacher could facilitate students with learning activity which engage students to think deeply about the material in appropriate level. The major goal of science education today is fostering students to have independent learning, problem-solving, decision making and critical thinking skills(in ,2013). In other hand, to make those things come true, science teaching should be switched from conventional

approach to another approach that facilitate students to foster their critical thinking skills and ability to solve problem.

As human there are many problems that face in everyday situation. These problems arise from process of interaction both of our physical and the environment and our problem will be more complex by day. So, as human we have to be ready to face problem and issues in our life. Every people should have right knowledge, skill and competencies that required handle and solve problem. Based on that fact, we can conclude that education definitely has an obligation and function to equip the learners to deal with problems and urgent matter to fulfill their own life. That is why it becomes challenge for educators to build up students' ability and capability to deal with fast dynamic world and their unknown future. Education can use as tools to perfectly provide critical thinking and skills that will be needed students to face problem and issues in their environment. Adeyemi (2012) stated that person who tries to solve problem without having appropriate knowledge, skills and abilities often tend not only to behave irresponsibly and erratically, but also in ways that damage their own future and the human condition in the society.

Problem Based Learning is interactive learning process that using real life problem. Torp and Sage (2002, in Hmelo-silver,2004) described problem Based Learning as focused, experiential learning organized around the investigation and resolution of messy real world problems (in Sahin & Yorek, 2009). In this learning process students assume as problem solver who investigate problem and find out information that be needed to solve the problem, so students becoming self directed learners. Through Problem Based Learning approach student involve in collaborative groups to identify what they need to learn to solve problem which made them engage in self directed learning then apply their knowledge to solve the problem.

In Problem Based Learning process students are expected to use their higher order thinking. Critical thinking skill is one of skills that

include in higher order thinking. Critical thinking becomes so important because critical thinking plays role in science education as science fundamental reasoning. Scriven and Paul define “the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by observation, experience, reflection, reasoning, or communication as a guide to belief and action” (in Ebiendele, 2012). Hence, it means that critical thinking has an importance role in science learning.

Based on problem that explain above researcher interested to take research on how learning process using Problem Based Learning approach toward students’ critical thinking skills and concept comprehension.

B. Research Problem

Research problem for this research is “How is the enhancement of students’ critical thinking skills and concept comprehension in pollution concept trough Problem Based Learning approach?” To make it clearly the problem above elaborate into following questions:

1. How is the enhancement of students’ critical thinking skills in pollution concept through Problem Based Learning approach?
2. How is the enhancement of students’ concept comprehension in pollution concept through Problem Based Learning approach?
3. How is the students’ response toward implementation of Problem Based Learning approach?

C. Research Focus

Authors limit the issues in this research in order to focus research as follows:

1. Learning process that will be conducted is using Problem Based Learning approach which problem will be given by teacher. Process of learning will analyze by using observation sheet.

2. Students' critical thinking skills based on indicator of critical thinking that state by Ennis are basic clarification, decision, inference, advanced clarification and supposition and integration. To analyze the absence of students' critical thinking will be test by essay test item.
3. Students' comprehension will be test by multiple choice tests which are made based on Bloom's taxonomy cognitive aspects such as remembering (C1), understanding (C2), analyzing (C4) and evaluating (C5).

D. Research Objectives

The main purpose of this paper is:

1. To investigate the enhancement of students' critical thinking in pollution concept through problem based learning approach.
2. To investigate the enhancement of students' concept comprehension in pollution concept through problem based learning approach.
3. To investigate students response toward implementation of Problem Based Learning approach.

E. Significance of Research

1. For teacher, this research can be used as inspiration to develop learning process in classroom.
2. For students, this research is expected to make students become active learner and enhance students' critical thinking skills
3. For researcher, this research can broaden knowledge and experience in teaching science.