

CHAPTER I

INTRODUCTION

A. Background

Science and Technology plays a central role in our modern societies. Various education methods were developed for teaching science at school to create scientific knowledge, understanding of its impacts on society and its underlying social processes (Wieringa *et al*, 2011). Role play activity is one of method in teaching science which is considerably unique, new, and revolutionary. Beside that some other research are rarely focused on the scope of role play which is devised and used by real people in real situation (Dorion, 2009).

Science especially biology subject considered as a difficult subject by students since the achievement of Indonesian students about biology is relatively low. It could be seen from PISA 2009 study result which shows that Indonesia's score is decrease into 383 and become the 60th out of 65 participants. This is caused by lack of students ability in identifying scientific problem, utilizing scientific fact, understanding life system, and understand application of science tools (Pusat Penelitian Pendidikan Balitbang Kemdikbud, 2011). More than most topics in biology, major misconceptions often persist in students' understanding of photosynthesis. Photosynthesis is preceived by most teacher to be one of the most problematic concept in biology (Finely, Stewart & Yarruch 2006). Essentially, biology especially photosynthesis is not difficult, besides it should be an attractive subject because biology as science knowledge consist of hands on, minds on, and hearts on activities.

Method of teaching which are used in Indonesia commonly is not variative and tends to be teacher-centered. It makes students feel bored, and do

not engaged into teaching learning process, that's why students consider photosynthesis as a difficult subject. Similar things happen in the school that this research taken. Based on the observation during observation stage of teaching practice, most of the students consider that exact lessons such as mathematics, physics, chemistry, and biology is a difficult subject. The achievement of biology is relatively lower rather than other subjects, it could be seen from the score of previous semesters. Students have difficulties in imagining biology phenomena in real life, so that they just remember the phenomena without knowing what is really happen there. Students tends to be passive and just listen to teacher's explanation. Students attitude toward biology lesson should not be that passive, students should be more active since attitudes are integrally linked to learning achievement (McLeon, 1992).

Role play activities are able to develop students' visualization through a range of modalities, which included embodied sensation and anthropomorphic metaphors. The essence of science role play at school is to shape a contextualization for science and technology with the aim to trigger imagination, raise questions, and stimulate debate among students to increase the understanding of science (Wieringa *et al*, 2011).

It has been claimed that drama, or drama typed activities such as role plays, can support learning of cognitive, affective and technical objective, especially higher order thinking skills related to analysis, synthesis, and evaluation (Harvard Project Zero, 2001; Wagner, 1998). Some experimental studies have suggested that role plays can enable meaningful learning (Metcalf *et al*., 1984). A central characteristic of these activities is that they are seen to promote opportunities for "interactive dialogue" (Wilson & Spink, 2005), dialogic teaching (Edmiston & Wilhelm, 1998), and student centered discourse (Somers, 1994). Furthermore the literature consistently highlights findings of high motivation among students, imbued in part by their

perception of empowerment and ownership during these events (Odegaard, 2003).

Although this method was proved to be successful, there is a possibilities that students personally do not be able to grasp the material maximally through this method, since each students are unique and have different attitude and characteristics toward role play learning method. Some of the students are able to learn well by this method, meanwhile the rest of them not. One of the student's learning characteristics that is measurable is student's multiple intelligence. Baset on multiple intelligence theory written by Gardner (1999), identifying each student's intelligences has strong ramifications in the classroom. If a child's intelligence can be identified, then teachers can accommodate different children more successfully according to their orientation to learning. Teachers in traditional classrooms primarily teach to the verbal/linguistic and mathematical/logical intelligences.

Considering those framework, reasearcher decided to do research about implementation of role play to determine the effect of role play learning method to improve students achievement in photosynthesis topic.

B. Problem Identification

This study was conducted to define the effect of role play. The effect itself spessifically is student's achievement. To measure student's achievement, comprehension test was choosen to measure improvement of student's achievement. This comprehension test consists of pre test and post test. To know exactly the achievement improve significantly or not, researcher use normalized gain (<g>) by Hake (Wardhani, 2006). The research was successful if the score at least reach medium level.

C. Research Problem

According to the explanation in the background, the research problem is ‘Can role play learning method improve student achievement in photosynthesis topic?’. Further, the research questions formulated and stated as the following questions:

1. How is the implementation of role play learning method in photosynthesis topic?
2. How is the effect of role play method to students achievement in photosynthesis topic?
3. How is students response during teaching learning process in photosynthesis topic?
4. How is the effect of student’s multiple intelligence to role play learning method?

D. Objective

According to the research problem proposed, therefore the aim of this research is to investigate the answer of this following question:

1. To investigate the implementation of role play learning method in photosynthesis topic.
2. To analyze the improvement of student’s achievement through role play learning method about photosynthesis topic.

3. To identify students response during teaching learning process in photosynthesis topic.
4. To analyze the effect of student's multiple intelligence to role play learning method.

E. Significants of Research

1. For teachers:
 - a. Increasing the learning method enrichment in science instruction to enhance teaching learning process especially in photosynthesis concept.
 - b. By role play activity teachers can enrich their ability in teaching science concept
 - c. To help solving problems in teaching learning activity.
 - d. Helping teacher to identify and classifying the students' mastery concept in photosynthesis concept.
2. For students:
 - a. Improving learning quality, this research hopefully can contribute in improving students biology ability.
 - b. Through role play activity students can enjoy and enggage into the activity in the classroom
3. For educational institution or school:
 - a. Hopefully it could contribute in effort to increase learning quality in school
4. For researcher:
 - a. By analysing role play activity, the researcher can prove further problem in science instruction.
 - b. Researcher can identify the further dynamics of Indonesian' students in understanding of photosynthesis concept.
5. For other researcher:

- a. By contribute in another research as an important data

F. Organization Structure of Research Paper

This research paper is arranged based on its necessity .In order to get organized structure of paper, this research paper is arranged based on the following organization structure:

1. Chapter 1 : Introduction

This chapter elaborates the background of the research followed by the problem proposed as well as its limitation. In this part also explain the aim of the research and the benefit for other parties in the same field of study.

2. Chapter II : Literature Review

This chapter describes some literatures and basic theories of the research. This research is reviewing role play learning method, student's achievement, and photosynthesis. Those theories are used to strengthen or support the data gained from the research in analysis part.

3. Chapter III : Methodology

This chapter examines the step of research procedures, the type of research, how the data will be obtained, what is the object of the research, the instruments, and the research plot.

4. Chapter IV : Result and Discussion

In this part, all of the data from the research will be interpreted as result of the research. The discussion of the result will be followed after, it analyzes the result of research and the correlation between the result and the theories.

5. Chapter V : Conclusion and Recommendation

As its title conclusion and recommendation, in this chapter all of research question will be answered based on the result. The difficulties and obstacles that found in this research will be discussed in recommendation part.

