

CHAPTER I

INTRODUCTION

A. Background

The development of Curriculum in Indonesia causes some changes on the aim, the content and the implementation. The recent curriculum applied in Indonesia is curriculum 2013. In this curriculum, students are required to have the ability of observing, asking, attempting, reasoning, presenting, and creating. Students need to be more active in learning process, and the students should seek more knowledge not only from a teacher, but also from various resources. In consequence, learning methods involving more students' activeness is needed. One of the learning methods that can be used is role play. According to Craciun (2010), stated that learning using role play implies students to be more actively involved, more creative, more confident, more cooperative in group work and more cooperative to solve a problem. Role play really contributes to developing the creativity, communication skills, and leadership skills' aspects.

Role play is a method conducted in order to improve students' understanding. According to researches conducted by Solomon (1994), Perkovic (1997), Craciun (2010), and Eilks (2014) role play gave the positive effect to students' understanding, creativity, empathy, cooperative group work, communication skills, and leadership skills. Role play is often used in social studies, history, politics, science, and mathematics as a teaching method. However, role play has some disadvantages such as it spends more time to prepare rather than the classical method, and not all of the science topics is appropriate for role play method. Craciun (2010), stated that role-playing activities was rarely used in science education, but often used in cultural education or in social studies. The topic in science

that can be taught using role play should be a long process system which occur in students' daily life and need analogical analysis. Solar system is choosen

as a topic for this research because it is need long time to be occur, happening in a daily life, and it is hard to be observed directly, therefore the representative teaching of solar system is needed to improve students' understanding (Craciun, 2010).

Nowadays, role play is often used **in the end** of learning processes. In line with the study that conducted by Solomon (1994), the student need to have already been taught the concept firstly because without prior knowledge, the role-play is rather effective. In this research, students' understanding is investigated using the role play conducted in the beginning learning process (pre role play) to be compared to the role play conducted in the end of learning process. Virtual lab is used as a tool to help the teacher delivered the concept, in this research Stellarium is used.

One of the indicators to measure the differences between pre role play and post role play is the students' understanding. According to the research conducted by Heick (2012), Students' understanding was one of the important aspects to measure the students' improvement. Assessing students' understanding might be the most complex task for an educator or academic institution. Unfortunately, the professional development gives a low attention to develop the qualified assessments, and assesment training. The challenge of assessment is not only about figuring out what a learner knows but also where they need to go next. The students' performance in role play should also be assessed because it is one of the indicators to measure the learning objective achieved or not achieved by students.

B. Research Problem

The research problem of this study was “how is the use of virtual lab and role play in different sequence towards students' understanding in learning solar system?”

C. Research Questions

The research problems of this study are:

1. How is the difference between students' understanding in the experiment class 1 and experiment class 2?
2. How is the difference between students' understanding before and after conducting the learning process?
3. How is the students' understanding improvement for each indicator before and after conducting this learning process?
4. How is the correlation between pre role play and post role play with students' performance?
5. How are students' responds towards role play as a learning method in learning solar system concept?

D. Research Objectives

The aim of this research is investigate the comparison between pre role play and post role play towards students' understanding in learning the solar system concept. The specific objectives of this research will be describe as follows:

1. To investigate the comparison of students' understanding between experiment class 1 and experiment class 2 in learning solar system.
2. To investigate the students' understanding improvement in learning solar system by using role play.
3. To investigate the students' understanding improvement for each indicator in learning solar system.
4. To investigate the experiment class 1 and experiment class 2 performance in learning solar system.
5. To investigate students' responds towards the role play as a methodology in learning solar system.

E. Research Benefit

The result of this study are expected to provide the following benefit:

1. **For teacher**, the benefit of this research is to investigate the comparison between pre and post role plays towards students' understanding in learning solar system. To investigate which one is more effective between pre or post role plays and also investigate the advantages and disadvantages towards students' understanding in learning solar system. If the result show many advantages of pre or post role play, it can be used as a teaching methodology in the classroom in learning solar system concepts.
2. **For students**, the benefit of this research is to make students understand this concept easily, create more fun and improve some students' skills such as communication skills, leadership skills, confidence, group works and creativity. Through this research students are expected not to be stressed and achieve more in learning the solar system concepts.
3. **For another researcher**, this research can be used as a reference for further research, for example to investigate the comparison between pre and post role play towards students' understanding in learning other topic, comparison pre and post role play towards students' creativity, what kind of topic that suitable for using role play as a methodology and what kind of methodology that appropriate to learning solar system.

F. Research Structure

The organizational structure explain the sequence of the writing of each chapter in this research paper. This research paper has five chapters.

Chapter I explain the following things of the research:

1. Research Background
2. Research Problem
3. Research Objective
4. Research Benefit
5. Research Structure

Chapter II include the literature review and research hypothesis. The literature review has important role, it serve as the theoretical foundation in compiling the research questions, research objective and research hypothesis, chapter two explain the following things of the research :

1. Role Play
2. Student' understanding
3. Solar System concept

Chapter III include the detail explanation regarding research methodology as follows:

1. Research design
2. Participants
3. Population and sample
4. Research instrument (objective test, creativity rubric, impression questionnaire and self and peer assessment.
5. Research procedure
6. Data analysis

Chapter VI include the research result and discussion as follows

1. Result of Research (based on the data process and analysis)
2. Result Discussion

Chapter V serves the interpretation and the meaning of the researcher towards the result analysis and research findings. There are two alternatives as to how to write the conclusion, which are point by point or solid description, as follows:

1. Conclusion
2. Suggestion