

CHAPTER I INTRODUCTION

A. Background

Indonesian National Curriculum 2013 states that teaching learning process at school should bring the students to get five learning experiences which are observing, asking, experimenting, associating, and communicating (Kementrian Pendidikan dan Kebudayaan, 2015). Those five learning experiences is a series of scientific approach which expectedly can give the students a meaningful learning so that students can be scientifically-literated.

Based on Framework for Programme for International Student Assessment (PISA) 2015 Scientific Literacy Assessment, one of the competencies that the students have to get to be scientifically literated is a competency to explain phenomena scientifically. This competency includes the ability to describe or interpret phenomena and predict possible changes. In addition, it may involve recognizing or identifying appropriate descriptions, explanations, and predictions (OECD, 2015).

To reach the competency standard, students in schools should have a good communication skill as communicating also one part of five learning experience they have to get in every teaching learning process. Communicating is like speaking, drawing, or showing something is not only one of the ways to express the ideas but also help us to know what is thought and understood. The skill of communicating, beside is needed in learning process is also needed to draw up the students to interact with society (Harlen, 1993).

Before the treatment done by the researcher, the researcher collected the data about students' conceptual mastery in learning lights and optics to the upper class in the same school where the research done. The class was categorized as the class with the higher achievers in the school in 2016. From the data gotten, the average score of students' on Lights and Optics concept was 58. The average

score shows that based on the standard of minimum score at the school, it is still under the standard of minimum score at school since the standard is 75. From the interview done, the teacher got information that in learning the topic, students did not do laboratory activities when they learn lights and optics because there was no equipment to support it. Thus, the students did not have any laboratory activities which can train them to do the works cooperatively and to increase their activeness. The students were passively learned the materials that there was lack of communication between one student and another. The students only listened and paid attention to the teacher's explanation. From the problem found, the low score of students might probably be caused by the teaching learning process done. Lecturing is a teacher-centered teaching learning process and it is assumed that the students won't get much experience of learning with only lecturing because they learned the materials monotonously, and because they did not learning by doing much, their score was not really good.

Based on Ajaja & Eravwoke (2010), cooperative learning helps the students to enhance their academic achievement because they are engaged in the learning process so that they can improve their critical thinking, reasoning, and problem-solving skills. The most influencing factor in cooperative learning is peer interaction, because it could make the students who might refuse to speak in usual become actively involved in learning process through interactions. Cooperative learning strategy is also done as an endeavor to control the classroom as in learning process sometimes the students talk too much and interact too much in an unnecessary condition. There are several types of cooperative learning strategy like Think-Pair-Share, Group Investigation, Numbered Head Together (NHT), Jigsaw model, etc (Kagan & Kagan, 2009).

Several studies about Think-Pair-Share were done by researchers which used it on their teaching learning process. Sampsel (2013) found that Think-Pair-Share encourages students' participation in discussing and promotes forming and critiquing arguments both in small and large groups. Usman (2015) also found

that Think-Pair-Share is an effective strategy to improve students' speaking skills. Thus, it means that the students' communication skill is seen to be good. Chianson, O'kwu & Kerumeh (2015), found out that students get a higher achievement by using the strategy compared to the students taught by conventional approach. According to Bamiro & Ajayi (2015), Think-Pair-Share strategy could also promoting learning through discovery, which in effect enhances problem solving skills of students. The positive academic achievement gives a positive effect to students' academic self-esteem. When the students get a good self-esteem, they will be motivated to enhance their communication skill and they could get better learning outcomes.

In learning lights and optics, students will get theoretical content that have to be understood like in learning subtopic characteristics of lights, imaged formed by mirrors and lenses, and optical devices. The students will also get laboratory activities to support them in mastering the theory. The laboratory activities are also required since it helps the students to get the five learning experiences. To make the teaching learning processes more efficient, it is better to apply cooperative learning strategy. Think-Pair-Share would be good to be applied since the students can discuss with their pair about the concept they learn and in the laboratory activities the student will be easier to fill their worksheet better when they did it in pair since the worksheet is not only consist of theoretical problems but also calculations. However, the laboratory equipment in the school is limited, which is why the students cannot do the laboratory activities in pair but in a group consist of two pairs. Although in the laboratory activities they do the experiments a in a group consists of four students, the worksheet given was going to be assigned to be done in pair.

From the problems found in school, the information about the research done to find out effect of Think-Pair-Share strategy to students in the previous statements, knowing about the demands of science education that the learning process which should be student-centered and the learning process should bring

the students to get a good communication skill, the researcher decided to conduct the research titled “The Effect of Think-Pair-Share on Students Communication Skill and Conceptual Mastery in Learning Lights and Optics”.

B. Research Questions

The research problem of this study is “How do Think-Pair-Share (TPS) Affect Students’ Communication Skill and Conceptual Mastery in Learning Lights and Optics?” And based on the research problem proposed, the research is carried out to explore the following questions:

- a. How does Think-Pair-Share (TPS) implemented in the research?
- b. How does Think-Pair-Share (TPS) affect students’ conceptual mastery in learning Lights and Optics?
- c. How is the profile of students’ communication skill in learning Lights and Optics?

C. Research Objective

The research has these following objectives:

- a. To investigate the effect of Think-Pair-Share (TPS) on students’ conceptual mastery in learning Lights and Optics.
- b. To investigate the effect of Think-Pair-Share (TPS) on students’ communication skill in learning Lights and Optics.

D. Research Benefit

- a. For teacher

This research can help the teacher to get the information about Think-Pair-Share (TPS) strategy, the benefits of this strategy, and the procedure to do this strategy. Then, the teachers may evaluate the procedure, and develop this

learning strategy in a more creative way so that this strategy could give better outputs.

b. For students

This research can help the students to get a new experience of learning in class. With Think-Pair-Share, it is expected that the students can enhance their communication skill and their concept mastery in learning science especially in learning lights and optics concept.

c. For other researchers

This research can help other researchers to find out more about the advantage of using Think-Pair-Share strategy, the variation of procedure used in the research, and the inadequacy of this strategy. Thus, this research could motivate the other researchers to do further research about Think-Pair-Share (TPS) which can be done to science learning, or other subjects.

E. Organizational Structure of Research Paper

In order to get systematic structure of the paper, this research paper is arranged based on the following organizational structure:

1. Chapter I: Introduction

In this chapter there will be the background of research, research problem and limitation of problem, research objective, research benefit, and organizational structure of research paper, and limitation of problem.

2. Chapter II: Literature Review

The second chapter will represent the literature review about students' conceptual mastery, students' communication skill, and Lights and Optics concept.

3. Chapter III: Research Methodology

The third chapter gives the explanation about research method, research design, population and sample, instrument, procedure, and data collection and analysis.

4. Chapter IV: Results and Discussion

The fourth chapter discuss about the result of research and how it interpreted.

5. Chapter V: Conclusion and Suggestion

The fifth chapter is about conclusion and suggestion.

F. Limitation of Problem

In order to make the research more focused, the problem is limited as follow:

- a. Communication skill which was measured is the written communication skill because it can easily be measured since the product of their written is in the form of real object. The students asked to create a simple poster to conclude about what they learned. The posters they made could express students' thought, ideas, and the graphic representation of a students' thought process which is measured using a rubric adapted from one used by Jones, et al (2012).
- b. Students' conceptual mastery that is measured in this research involves level cognitive of remembering (C1), understanding (C2), and applying (C3) based on Anderson and Kratwohl (2001).
- c. In this research, the topic learned is Lights and Optics that is limited by Standard Competence 6 in KTSP's curriculum which is *Memahami konsep dan penerapan getaran, gelombang dan optika dalam produk teknologi sehari-hari* (Understanding the concept and application of vibration, waves, and optics in daily life's technology) and some Basic Competences which are:
 - 6.3. *Menyelidiki sifat-sifat cahaya dan hubungannya dengan berbagai bentuk cermin dan lensa* (Investigating characteristics of lights and its relationship with any form of mirrors and lenses).
 - 6.4 *Mendeskripsikan alat-alat optik dan penerapannya dalam kehidupan sehari-hari* (Describing optical devices and their application in daily life).