

# CHAPTER I

## INTRODUCTION

### 1.1 Research Background

Indonesian scores of the last Program for International Student Assessment (PISA) in 2018 were below average (OECD, 2019). Moreover, Indonesian rank in PISA 2018 result was lower than PISA 2015 result. In PISA 2015 result Indonesia was in the ninth rank from the bottom, while in PISA 2018 result Indonesian rank was fall into the fifth rank from the bottom (OECD,2016; OECD,2019). Students' achievement both in PISA and their schools assessment influenced by some factors. Such as, teacher performance, self-efficacy, emotion regulation, school culture, and classroom environment.

Classroom environment could be shaped by the implementation of teaching models. Moreover, the implementation of learning model have a significant effect on increasing students' motivation, which becomes a basis to improve students' achievement (Islam et al., 2018). Different learning models can create different students' achievement or called students' learning outcome (Großmann & Wilde, 2019; Putri et al., 2019). For example, students with SAVI learning model, show the better learning outcome than students with direct learning model (Putri et al., 2019). Meanwhile, students with discovery learning, tend to know more, do more, and achieve more, since they encourage to explore the materials in the teaching-learning process by themselves (Großmann & Wilde, 2019). Besides, the implementation of gamification create the better learning environment than game-based learning (Al-Azawi et al., 2016).

On the other hand, students who experienced negative emotions like boredom, anger, and sadness frequently, tend to get low on their academic achievement (Kirbulut & Uzuntiryaki-Kondakci, 2019). Besides emotion regulation, students with high self-efficacy also tend to have high achievement than those who have lower self-efficacy. It's because self-efficacy more influences students' achievement than self-concept (Ardura & Galán, 2019). Also, students' self-efficacy becomes one of the influenced factors on students' environmental awareness based on PISA 2015 result of Indonesian students (Susongko & Afrizal, 2018). In addition, students' self-efficacy is one of the attitude toward science

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*THE CORRELATION BETWEEN STUDENTS' SELF-EFFICACY AND THEIR ACHIEVEMENT IN LEARNING SCIENCE IN DIFFERENT SCHOOL SYSTEM*

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which positively related with their science performance in PISA 2015 result (Lau & Ho, 2020). Thus, stronger self-efficacy leads the better students' science performance (OECD, 2016).

Self-efficacy defines as People's judgments of their capabilities to organize and execute courses of action required to attain designed types of performances (Bandura, 1986). Self-efficacy influenced by four sources, verbal persuasion, emotion arousal, vicarious experience, and mastery experience which is the most influenced one (Bandura, 1997). Verbal persuasion, like suggestion and encouragement giving by parents to the child for their success in science becomes the most influenced factor in students' self-efficacy. The other verbal persuasion is teacher's feedback such as giving rewards or punishment. The last strongest factors in students' self-efficacy were students' thinking about friend success in science or called as vicarious experience (Bat Shahr Dorfman, 2019). In addition, shadow education or familiarity as tutoring influenced students' self-efficacy. Students who have been conducted shadow education have a higher self-efficacy (Montebon, 2015). The other study found that the school system also responsible for how students' self-efficacy shaped (Dorfman & Fortus, 2019).

In Indonesia, formal education held in several types of systems according to their school culture and curriculum applied. Both public and private schools in Indonesia are applied kurikulum 2013 [curriculum 2013] or called K13 according to Kementerian Pendidikan dan Kebudayaan [The Ministry of Education and Culture] (MoEC) regulation. However, there some private school which combined K13 with international curriculum or used the international textbook as learning sources. In MoEC regulation of 2014 Number 31 about the partnership program between Indonesian institutions and foreign institutions, education becomes the foundation for some private schools to combine national and international curriculum. In some private schools, the combination of the K13 and Cambridge curriculum also combined with the boarding curriculum (Fahmi, 2009). The different curriculum applied and the facilities provided by the school may influence the teaching-learning process.

In some previous studies, some researchers compared the Indonesian public and private schools (e.g. Pamelasari et al., 2018; Stern & Smith, 2016). Based on

PISA 2009 result, private school students performed well rather than public school students in reading tests, but in contrast science score of public school students was better than private school students (Stern & Smith, 2016). In addition, international private school students are more expert in English compared to public school students (Pamelasari et al., 2018).

The present study connected the school system and students' self-efficacy for the following reasons. Firstly, most of the parents believe that the most expensive school has a better school system and can create a better quality of students. A previous study found that some parents predict that public school is better than private school (Hendajany, 2016). On the other study, most of the parents choose Islamic-based primary schools rather than public and private primary schools (Hidayati & Rifa'i, 2020). Secondly, the Indonesian educational system marked as under-developed compare to other Asian countries, it's proved by the score of PISA which has remained below average (Faisal & Martin, 2019). Therefore, this present study try to find out the correlation between students' self-efficacy and their achievement in learning science in different school system. Thus, the science teacher can create the better learning environment to enhance students' achievement in learning science.

## **1.2 Research Problem**

According to the background which already stated, the problem with this research is "How does the correlation between students' self-efficacy and their achievement in learning science in different school systems?"

## **1.3 Research Questions**

The research problem is elaborated into several questions. The research questions are:

- a) How are students' self-efficacy in learning science in public and private schools?
- b) Is there any correlation between students' self-efficacy and their achievement in public and private schools?

## **1.4 Limitation of problem**

The problems in this research is limited into the following:

- a) Students' self-efficacy

Students' self-efficacy in this research focused on students' self-efficacy in learning science or called as science self-efficacy (SSE). There were five highlighted indicators on SSE in this research, which state in the questionnaire (appendix B1). First, Conceptual Understanding (CU)-Students' confidence in their ability to use cognitive skills to understand the definitions of science concepts, laws, and theories. Second, Higher-order Cognitive Skills (HCS)-students' confidence in their ability to employ a scientific approach such as scientific inquiry skills, problem-solving, critical thinking, and other HCS. Third, Practical Work (PW)-students' confidence in their ability to accomplish laboratory activities, including skills in both the cognitive and psychomotor domains. Fourth, Everyday Application (EA)-students' confidence in their ability to apply science concepts and skills to everyday events. Last, Science Communication (SC)-students' confidence in their ability to communicate or discuss with others, such as peers.

b) Students' science achievement

Students' science achievement in this research, both public and private schools were based on science teacher assessment of 1<sup>st</sup> semester in the academic year of 2019/2020 (appendix C6 & C7).

c) School systems

This research employed six junior high schools in Bandung City. Three schools were public schools, and the other three schools were private schools. Two of three public schools were in the 1<sup>st</sup> cluster of junior high school in Bandung, and the other one public school was in the 3<sup>rd</sup> cluster. While for private schools, there was a bilingual boarding school, an Islamic-private school, and regular private school.

### 1.5 Research Objective

The objective of this research specified as follow:

- a) To analyze the level of students' self-efficacy in learning science both in public and private school
- b) To analyze the correlation between students' self-efficacy and their achievement in learning science in public school

- c) To analyze the correlation between students' self-efficacy and their achievement in learning science in private school

### **1.6 Research Benefit**

The result of this research expected provide some benefit:

- a) Teacher

This research result expected will give more information for the teacher about how self-efficacy influence students' achievement and the other factors that shaped students' self-efficacy. The additional expected benefit from this research result is helping the teacher create an excellent learning environment that can help students strengthen their self-efficacy and achievement in learning science.

- b) Students

The expected benefit of this research results for students is they will get information on how science self-efficacy influences their achievement in science and how the school systems could shape students' science self-efficacy.

- c) Researcher

The result of this research is expected to promote the other studies of the same field, which is science self-efficacy on the newest variation of variables.

### **1.7 The Organization of Research Paper**

In order to make the research is structured systematically, this research arranged based on the research arrangement explained below:

- 1) Chapter I: Introduction

This chapter consists of the research background, research problem, research question, research objectives, research benefit, and the organization of research paper. Chapter I is the foundation of this research.

- 2) Chapter II: Literature Review

This chapter elaborates the more details about theories of the research which used in this research. The theories in this research includes science self-efficacy, science achievement, and school systems.

- 3) Chapter III : Research Methodology

This chapter explains about the research method and research design that used in this research, subject of the research including the population and the sample,

operational definition, hypothesis, and instrument that used in conducting the research, data analysis and the research procedure

4) Chapter IV : Result and Discussion

This chapter consists of the data collected as the results of the research, and research discussion of the data collected. The author analyzes the data gained according to the research questions that have been determined before conducting the research.

5) Chapter V : Conclusion and Recommendation

This chapter consists of a conclusion based on the collected data that has been analyzed in the previous chapter. This chapter also shows the recommendation from the author for further research.