

CHAPTER I

INTRODUCTION

1.1 Background

The era of the industrial revolution 4.0 is currently an important world issue (Crnjac & Banduka, 2017) including Indonesia. This era has influenced many aspects of life both in the economic, political, cultural, artistic, and even educational fields. Education in this era is demanded to be able to equip students with 21st century skills. The term 21st Century skills is a comprehensive description of knowledge, skills and dispositions as a prerequisite for success in the workplace in the future (Germaine, Richards, Koeller & Schubert, 2016).

The challenges of education in the 21st century are in the form of changes in the way of learning, thinking and acting of students in developing creative innovations in various fields (Surani, 2019). Partnership for 21st Century Skills (2015) emphasizes that 21st century learning must teach creative and critical thinking skills. Critical and creative thinking skills are two basic skills that can encourage students to look at each problem faced critically and try to find answers creatively (Herpiana, Rosidin & Abdurrahman, 2019).

Critical thinking is the skill to carry out various analyzes, assessments, evaluations, reconstructions, decision making that lead to rational and logical actions to make decisions (King, Goodson & Rohani, 2010; Dwijananti, 2010). Critical thinking is one of the skills demanded in 21st century education (Fatmawati, 2009). These skills require students to be able to use their abilities to try to solve the problems they face independently.

Creative thinking is a skill to discover new things as never before, is original, develops various new solutions for each problem, and involves the ability to generate new, varied, and unique ideas using imagination, intelligence and insight. (Leen, Hong, Kwan & Ying, 2014, Young & Balli, 2014). This skill is the basis of science

which is very important for students (Fatmawati, 2009). Skills that require students to be able to develop, implement and convey new ideas to others; being open and responsive to new and different perspectives.

Critical and creative thinking skills are very important to be equipped with students but this is not appropriate in the field. Based on observations showing that the learning process that has taken place has not stimulated students to think critically and creatively, the learning process carried out by the teacher still uses lecture methods and practice exercises only. When learning takes place, the medium used by the teacher is generally a blackboard, so students only hold all the information from the teacher without thinking of acting actively and the class looks passive because many students do not listen to the teacher, talk to friends and play mobile. Passive learning leaves students bored and uninterested. Lack of student involvement can be seen from the response of students during learning.

This statement is supported by the results of the initial tests conducted in class XI of SMA Negeri 5 Medan by giving questions related to students' critical thinking skills, obtained data from 34 students as follows: 21% of students are good at critical thinking levels, 32% are classified as medium critical thinking, and 47% of students are lacking critical thinking levels. The data shows that most students have below average level of critical thinking. In addition to the critical thinking skills test, the researchers also made preliminary observations related to students' creative thinking skills and the results were 15% of students whose creative thinking skills were classified as very good, 29% of students whose creative thinking skills were classified as medium and 56% of students whose creative thinking skills were classified less.

Other problems that affect the process of implementing learning are the absence of teachers in learning and the existence of a series of activities / events for example teacher's day activities at school. This results in the class sometimes being empty without the teacher as a companion to learn, sometimes the class is left without assignments or material that needs to be studied, so most students choose to play

games on the cell phone or leave the classroom. Not only that, lack of learning time due to the large number of bills to be achieved, also resulted in inhibited learning in the classroom. This causes students to have less time to interact with the teacher, and learning material delivered by the teacher becomes faster because of the limited time they have to interact.

The use of facilities in SMAN 5 Medan is also very adequate so that it can support the learning process for students and teachers. These facilities include internet networks, computer facilities, fairly complete laboratory equipment, and adequate libraries. Almost all students at SMAN 5 Medan also have an Android-based handphone. However, these facilities have not been maximally utilized by teachers and students in the learning process. Some things that underlie the lack of utilization include students who more often use mobile phones to open social media such as online games, Instagram, Facebook and other social media rather than utilizing existing cellphones and internet networks for the benefit of learning or looking for additional material references,

One learning model that is suitable for practicing critical thinking and creative thinking skills is blended learning. Blended Learning is a learning model that integrates traditional student-centered learning in the classroom using mobile and online in order to realize strategic advantages for the education system (State of Victoria, 2012). Blended learning by meaning is also interpreted as learning that combines face-to-face learning and distance learning using online learning resources and a variety of communication options that can be used by teachers and students (Harding, Kaczynski, & Wood, 2005; Gunawan, 2015; Capone, De Caterina & Mazza, 2017). This learning model is an inexpensive and effective way of learning (Suyono, 2011). The use of blended learning can be done by teachers anywhere and anytime (Alonso, 2005). Blended learning in its use can increase student knowledge (Chew & Wee, 2015) and can improve students' thinking skills (Gunawan, 2015). Blended learning is one of the solutions to overcome the limitations of time and place that can be implemented in the learning process (English, 2019), especially during the

current COVID-19 pandemic (WHO, 2020) all learning activities must be carried out from home, changing conventional patterns to be online-based (Narici, Baba, Achbani & Kharbach, 2020; Almarzooq, 2020). Blended learning can be one of the variations of teachers to be more creative in providing learning material, so that learning and teaching activities can continue even with technology intermediaries.

Then it can be concluded that blended learning is a learning model that is built by combining face-to-face learning and independent learning online so that with this model, students will be independent on time, responsible, effective to force students to be more active in learning and able to think rationally and logically in receiving information and systematically in solving problems in implementing learning, it is able to foster critical thinking skills (King, Goodson & Spiritual, 2010). Learning using blended learning also gives students the freedom to find new perspectives or new ways to understand problems when doing assignments by utilizing technology in accordance with the demands of creative thinking skills (Leen, Hong, Kwan & Ying, 2014).

One important element in blended learning is application utilization (Suhartono, 2017). One application that can be used is google classroom. Google classroom is an application that can be used to support technology-based learning. Google classroom is a school-oriented learning platform designed to simplify the work of assignments, and distribute them without paper. The use of google classroom can be through more than one platform, namely through computers and cell phones. Teachers and students can enter the application through Playstore or iOS using the keyword google classroom. (Pradana & Rina, 2017). Other facilities provided by Google Classroom include downloading learning material, gathering assignments, doing quizzes,

The use of blended learning if it is actually done at school will have an extraordinary impact because students will be actively and independently involved in building their own understanding, then students will be able to act creatively by utilizing information technology as a source of learning, teachers and students can be more flexible in management and time efficiency, simplifying and accelerating the

process of non-stop communication between teacher and students, and the teacher can easily manage and control the learning done by students outside of class hours.

Based on this background, a study entitled:

"The Effect of the Blended Learning Model to Critical Thinking and Creative Thinking Skills Students in Senior High School"

1.2 Problem Identification

Based on the background of the problem that has been described, some of the problems that can be identified are as follows:

- 1) The learning process is more likely on the mastery of a number of information / concepts, usually just taking notes, and not involving the use of internet media in finding information and conducting learning activities.
- 2) The type of questions given by the teacher have not stimulated students to think at a higher level, the questions are still in the form of memorization with formulas, have not been linked to problems of daily life.
- 3) Often the learning process in the class is taken up because of a series of activities / events at school or the absence of the teacher at school.
- 4) Utilization of internet facilities is not optimally implemented because students rarely utilize the existing internet network for the sake of learning, as well as the lack of knowledge of teachers to use technology as a medium in the learning process.

1.3 Problem Limitation

In order to get a description of the problem in the writing of this thesis, the author limits the problem of discussion and research. Problem limitation needs to be done in order to provide a description of research. Based on the identification of the problem, the problem limitation are as follows:

- 1) This research was conducted in the second semester XI grade students of SMA Negeri 5 Medan in 2019/2020 Academic Year

- 2) The material used in this study is optical instruments.
- 3) The learning model used in blended learning.
- 4) The measured critical thinking and creative thinking skills of students are limited to the subject matter of optical instruments.

1.4 Problem Formulation

The problem formulation can be translated into research questions as follows:

- 1) Are there differences in students' critical thinking skills and creative thinking skills due to the effects of using blended learning ?
- 2) What is the correlation between students' critical and creative thinking skills after using blended learning?

1.5 Research Objective

Based on the formulation of the problem, the objectives to be achieved in this research are:

- 1) To know differences in students' critical thinking and creative thinking skills due to influence *blended learning* on the material optical instrument.
- 2) To find out the correlation between high school students' critical thinking and creative thinking skills on the material optical instrument using blended learning.

1.6 Research Benefits

The results of this study are expected to provide benefits in efforts to improve physics learning, namely:

- 1) For researchers, it can be used as to add insight into researchers in applying learning models, especially in learning physics and as information material for researchers as well as practical exercises in applying the knowledge learned during lectures

- 2) For schools, the results of this study are expected to be used as an evaluation material for school learning related to the effectiveness of the learning model used by teachers in learning physics.
- 3) For teachers, this research can be used as thought input in the implementation and development of learning activities in schools. Blended learning with the application of critical and creative thinking skills can be used as material for educators' consideration in choosing more innovative and effective learning models for students when teaching and learning.
- 4) For students, it is expected that students after doing blended learning by applying critical and creative thinking skills can improve students' abilities especially in solving physical problems and students can become more active during the teaching and learning process.

1.7 Operational Definition

- 1) Blended Learning is a learning model that integrates traditional student-centered learning in the classroom using mobile and online in order to realize strategic advantages for the education system (State of Victoria, 2012).
- 2) Critical thinking skills are skills to carry out various analyzes, assessments, evaluations, reconstruction, decision making that lead to rational and logical actions (King, Goodson & Spiritual, 2010).
- 3) Creative thinking skills are skills to discover new things that have never existed before, are original, develop new solutions for each problem, and involve the ability to produce new, varied, and unique ideas (Leen, Hong, Kwan & Ying, 2014).
- 4) Google classroom is a school-oriented learning platform designed to simplify work on assignments, and distribute them without paper. The use of google classroom can be through more than one platform, namely through computers and cell phones (Pradana & Rina, 2014).