

CHAPTER I INTRODUCTION

1.1 Background

The Covid-19 pandemic has significantly affected the education system worldwide, and it has responded with a sudden shift to distance learning (Klein, 2021). Although some online teaching and learning forms existed in the system, the whole education community was suddenly forced into an unplanned and unwanted remote teaching scenario nowadays. Distance teaching requires the careful thinking, planning, and development of technological and human resources for successfully achieving the desired learning outcomes. However, in the current situation, there was very little time for preparation, the instructors had to act quickly and adapt to remote teaching (Sunarto, 2021). In the process, they had support from their school in providing e-learning platforms and other digital learning management systems and communication tools.

The efforts to improve the quality of education are expected to increase the quality of human resources, especially students. During the pandemic Covid-19, improvement and renewal in education must always be made to improve Education quality. One nation's progress can be achieved with better quality of education (Myers, 2019). One of the efforts that teachers can make in improving the quality of education is by increasing the quality of learning especially for online learning. Therefore, teachers are expected to be able to use various methods in the learning process. Teachers should use creative and innovative learning, so that learning process will be more active, creative, and innovative.

Learning is a system or process of providing knowledge to students that have been planned or designed and will be implemented and evaluated systematically to achieve the goals effectively and efficiently (Wamalmia, 2019). Based on Wamalmia et al (2019), learning can be seen from two sides. First, learning can be seen as a system, which means that learning consists of some organized components, including learning objectives, learning materials,

learning strategies and methods, learning media or teaching media, class organizers, and learning evaluation. Second, learning can be seen as a process, which means that learning is a series of teachers efforts or activities to make students learn. Therefore, the success or failure of students influenced by the teachers. An educator must guide, direct, and creating conditions for active and effective learning.

One of the efforts that teachers can make to overcome the lack of student achievement is finding the source of students learning difficulties. Usually, one of the factors that influenced the learning process is that learning model cannot be accepted by students and impressed less attractive (Krischle & Cate, 2019).

Students' concept mastery is the most important aspect during learning process. Students' concept mastery can make an impact of students achievement and students learning outcomes. Students' concept mastery is students ability to become an important form to make academic achievement succesfull in learning (Shtulman, 2020). In science, students should improve their understanding because there are a lot of science in daily life. According to Shtulman (2020) stated that process of students' concept mastery of science concept can succeed when students can be simplified abstract concepts to be simpler, easy to understand, provides interpretation, and useful for many applications in daily life. They claimed that Students' Concept Mastery results from students' creativity and students thinking.

Ibrohim et al (2020) were researching in students concept mastery and the result was showed that many students get a low score in understanding concept on science because students have difficulty during learning process. They claimed learning disabilities as an experienced condition by students have failed to achieve academic objectives in the learning process. Furthermore, Students' Concept Mastery can be achieved in an instructional approach. Learning difficulties are commonly found in understanding basic concepts, principles, and skills.

In the other hand, creativity is a skill in 21st century skills that teachers and students should improved. For the students, creativity will be accepted as

an important ability in students achievement and students learning outcomes. Students' creativity should be developed based on learning experience and the knowledge. Students' creativity can be used in all subject and it will be an important role in innovation as a key aspect in foesting creativity (Camano, 2019). Creativity is one skill that can solve learning difficulties during learning process. However, the study by Suyidno (2019) reported that students' creativity in Indonesia still low. There are some factor that can make students' creativity in Indonesian still low. First, the teachers still confusing how to facilitate students' creativity during learning process. The other factor is the limitation of students knowledge and skills will be affected to students' creativity. The teachers should give opportunities to students to develop their creativity during learning process.

One of the media that can develop students' creativity and students concept mastery is mind mapping. Mind mapping is a system of thinking that works accordingly by the natural workings of the human brain and is able to open and utilize all the potential and capacity of the human brain so as to guarantee higher level of creativity and thinking ability for users (Adodo, 2013). Visualizing ofv the knowledge by using picture, maps, arrows, and icons can be accept quickly and easily for students. In science education, mind mapping has been widely recommended and used in a various way (Muhlisin, 2019). Mind mapping will help teachers and students to organized knowledge. Furthermore, it can evaluate what the learners know about the content by mind-mapping. Mind-mapping can be used for note-taking, brainstorming, problem-solving, studying and memorization, planning, researching and consolidating information from multiple sources, presenting information, gaining insight the complex subject (Adodo, 2013). Nowadays, related to online learning we can use technology for making a digital mind map. There are a lot of software application to making a mind map, one of them is Draw IO. Draw IO is a diagram tools that is the most flexible in making diagram. Some examples of diagrams can be made including flowchart process diagrams, Mind Mapping, org charts, UML, ER diagrams, network diagrams, and more. Draw IO can also support multiple collaboration tools such as:

online via browser, confluence & jira, g suite, as well desktop that can run on windows, linux, and macOS platform. In this research, Draw IO produces creativity products as the result of students learning output. Researcher finds out mastery of Students' Concept Mastery and creativity that will be applied in learning human influences on ecosystem based on Cambridge Curriculum.

The ecosystem is a topic to be raised in a learning using mind map presentation especially for human influence on ecosystems topic. The environment is always an important issue echoed in early 2021. Habitat Destruction and Pollution are some of the issues regarding the current damaged environment. Environmental impact resulting from this activity is the loss of several ecosystems, the increase of floods, landslides, and many other environmental impacts. Therefore, students as a young generation need to deep understand ecosystem topic. The interrelationship among the concepts is to prevent natural disasters that occur recently by applying the concept to their family and community environment. Therefore, the researcher decided to conduct research entitled "The Implementation of Draw IO as Digital Mind Map to Improve Students' creativity and Students' Concept Mastery in Learning Human Influence on Ecosystem". This research tries to improve two variables are students' creativity and students' concept mastery on human influence on ecosystem topic by using digital mind map.

Rather than most of previous research that aiming for critical thinking skills and creative thinking skills and it implemented on higher education, the novelty of this research will investigate the improvement on the use of digital mind map especially for Draw IO on the students' concept mastery and students' creativity for junior high school students on human influence on ecosystem topic. From the previous research by Hidayati, Nurkhairo and Zubaidah, Siti and Suarsini, Endang and Praherdhiono, Henry (2019) on the Research entitled "Examining the Relationship between Creativity and Critical Thinking through Integrated Problem-based Learning and Digital Mind Map" stated that both creativity and critical thinking involve new perspectives which can be empowered through the implementation of integrated Problem-based Learning (PBL) and Digital Mind Maps (DMM).

The present study attempted to examine the relationship between critical thinking and creativity through the implementation of the combined PBL and DMM learning model. The results showed that there was a significant relationship between critical thinking and creativity. It can be concluded that the Integrated PBL and DMM model can be used as an alternative approach for simultaneous empowerment of students' critical thinking and creativity.

In the Siswono's research on 2020, the assessment is used three aspects of divergent thinking, those are fluency, flexibility, and novelty. While in this research the assessment is developed in four aspects which consist of fluency, flexibility, originality, and elaboration.

1.2 Research Problem

According to what have stated above, the research problem in this research is "How is the improvement of the students' creativity and students' concept mastery in learning human influence on ecosystem by using Draw IO as digital mind map?"

1.3 Research Questions

Specifying the research problem, this research likes to explore the questions below:

- a) How is the improvement of students' creativity using Draw IO as digital mind map in learning human influence on ecosystem?
- b) How is the improvement of students' concept mastery using Draw IO as digital mind map in learning human influence on ecosystem?
- c) How is the implementation of Draw IO as digital mind map on learning process?

1.4 Limitation of Problems

The limitation of this research is:

- a) Students' Creativity

The creativity of the students examines only creativity of the products. It means that the teachers only evaluate the products. The product will be evaluated by creativity rubric.

- b) Students Concept Mastery

Student concept mastery is measured that involves cognitive levels

of remembering (C1), understanding (C2), applying (C3), and analyzing (C4) based on Cambridge Curriculum. This research will not use C5 (Creating) and C6 (Evaluating) because for Junior High School level it is too hard since the online learning. This research only analyze students' concept mastery based on cogninitve level.

c) Digital Mind map

Digital Mind map of the students only using Draw IO and it will be examines based on Guilford rubric namely fluency thinking skill, flexibility thinking skill, originality thinking skill, and elaboration thinking

d) Ecosystem Topic

For the topic, this research only focuses in Human Influence on Ecosytem topic especially for habitat destruction and pollution. As we know that this topic is biology topic, but in this research students must be able to integrate it in physics and chemistry.

1.5 Research Objectives

The objectives of this research are described as follows:

- a) To improve the impact of digital mind map on students' creativity in learning human influence on ecosystem.
- b) To improve the impact of mind map on students' concept mastery in learning human influence on ecosystems.

1.6 Research Benefit

The benefits of this research are described as follows:

- a) For Teachers : Teachers should be able to understand the students who have already learn the material. Small group with mind map presentation should be use for the students in the end of the class. Teachers was expected to be able to develop the activity using digital mind map presentation as their assesment to evaluate the understanding of the materials.
- b) For Students : This study is expected the students to explore their knowladge through making a mind map, and they should be able to illustrate their verbal statement. This study is expected for students to feel enjoy when they learn science in the visual. Through mind map, it was

hopefully that students should have more opportunity to develop their softskills and explore their mind.

- c) For Researchers' : This study is expected to provide experience in developing an alternative device in teaching and learning that can display the improvement of students' creativity and Students' Concept Mastery through mind map used as an evaluation tools in learning science.

1.7 Organization Structure of Research Paper

a. Chapter I: Introduction

In this chapter includes background, research problem, research question, limitation of problem, research objective, and research benefits

b. Chapter II : Literature review

In this chapter explains about the literature review about the theories, which was applied, on this research. The theories used in this research are the students concept understanding and students' creativity on human influence of ecosystem topic by using mind map.

c. Chapter III: Research Methodology

This chapter explains and describes the methods, which were used and applied in this research. This chapter explains in detail about the research method, research design, population, sample, hypothesis, assumption, and data analysis.

d. Chapter IV: Result and Discussion

This chapter focuses on the data gathered while this research was conducted, it describes detailed information on how this research analyses and process the finding data, which can be used to answer research, question of this research.

e. Chapter V: Conclusion and Recommendation

This chapter states the conclusion after the data gathered, processed, and analysed and it states the recommendation in order to give any suggestion to other researcher, teachers and students.