CHAPTER 1
INTRODUCTION

1.1 Background

Science is part of learning that cannot be dismissed. It connects students with the nature around them. Based on the development of the junior high school 2013 curriculum, science learning is divided into integrative science and integrated science. That is being integrated science which includes the development of curiosity, critical thinking, thinking ability, and being responsible for the environment. In another hand, integrative science combines several aspects such as skills, attitudes, and knowledge. Integrated science includes several subjects such as, biology, physics, chemistry, astronomy, earth science and other aspects of nature (Hewitt, P. G., Lyons, S. A., Suchocki, J. A., & Yeh, J. 2013). Therefore, science can be used as a learning tool to develop students' attitudes and skills.

The integration of science learning is proven by the existence of core competencies and basic competencies in the curriculum. Core competencies consist of four aspects. The four aspects are spiritual knowledge, social knowledge, cognitive knowledge, and psychomotoric skill. Core competencies are used as a reference in developing the basic competency. The results of cognitive and psycho-motoric knowledge can be immediately seen meanwhile spiritual and social knowledge cannot. It is an indirect result of learning because it cannot be assessed directly by numbers. Science learning will produce students who have better soft skills. Standards from science learning include process standards, content standards, scientific inquiry standards, and assessment standards. Scientific inquiry standards will make students think critically. Assessment standards will make students evaluations more in line with the learning (Prasetyowati & Si, 2014). Standardized processes make students use scientific thinking, content standards that make students have enough knowledge According to the regulation of Minister of Education in 2006, to take part in secondary education students should master the required knowledge. It reveals indicate that science learning should be emphasized on the concept of knowledge.

1

Students should master the concept of knowledge to be able to solve questions as assessment form. The question is in accordance with basic competence material in the 2013 curriculum. Biotechnology is listed in 9 grade, basic competencies number 3.7. Even though education about biotechnology has gained recognition, the effectiveness of biotechnology teaching has not been studied (Conner, 2000). Though the way of teaching can determine the achievement of learning objectives and determine students concept mastery of biotechnology lessons. It is related with the result of National Examination 2019. Students get an average score of 50.07 in subtopic biotechnology national exams for science subjects. This value is still below from the other subtopic. Whereas National Examination is a consideration of grades for admission to the next school level. National Examination which is held once a year leaves the teacher only a short amount of time to try to improve student grades in National Examination. With a restricted amount of time, the teacher must improve educational effectiveness to achieve learning objectives (Konrad, Joseph, & Itoi, 2011)

The teacher must provide another treatment during teaching to enhance educational effectiveness .The way learners take notes, for example. It is important to take notes because students can not remember all teaching material and teacher explanation in one class period or semester without taking notes (Blom, 2017). Students must take notes to remember the content, but taking notes from the teacher, or reading material can be a challenge (Konrad, Joseph, & Itoi, 2011). Strategy or media to take notes are needed as an alternative way. A traditional method called guided notes can become a choice. Guided notes are leaflets prepared by the teacher who has blank space on the leaflets that students must answer. The handout also contains key key facts, ideas or connections (Heward, 1994). Previous meta-analysis study has shown that guidance notes have a mild effect on post-secondary student accomplishment (Larwin & Larwin, 2013). Other studies show that guided notes also have a beneficial impact on teaching success for learners, helping them learn more effectively and taking notes (Strange, Collin 2013).

Using guided notes as a teaching media for learning can help students gaining knowledge. However, to increase the knowledge students also need more information about it. Students must find some information related to the material. There are many ways for students to get information. It is using internet and it is the most used by learners

2

to discover data. They use computers and the internet to do a lot of stuff like playing games, sending messages, and generating information. A survey conducted in March 2019 from the Indonesian Internet Service Providers Association (APJII) showed that 171.17 million people are connected to the internet, and most people who use the internet are between 15-19 years old.

According to Peter R Young, the cataloging distribution service at the Library of Congress, on the internet only 6 percent of educational or scientific sources, 17 percent of popular single search engines, and 83 percent of indexed sites contained commercial content. Not all content in the internet is reliable. This also makes it difficult for students to find reliable information. Students should think to choose, identify, access and evaluate sources that are reliable One of the key elements of understanding and acquisition is the ability to use information obtained from papers and electrical resources, information accessible in the correct manner or information literacy (Conde et al., 2011).

The most definitions from the American Library Association (ALA)1989 that use information literacy. People who are good at information literacy understand when they need information to identify information, find information required, evaluate, regulate and use efficient information to fix the issue. Especially in high school and post-secondary education.. Information literacy skills are of concern to teachers and librarians because research demonstrates that students in tertiary institutions do not achieve this skill (Gross and Latham, 2011).

1.2 Research Problem

The research problem of this study is "How is the use of guided note to enhance students' concept mastery and information literacy in learning biotechnology"?

1.3 Research Question

Elaborating the research problem, the research attempts to explain the following question

1) How the implementation of guided note in learning biotechnology?

2) How is the use of guided note to enhance students' concept mastery in learning biotechnology?

3) How is the effect of using guided note toward information literacy in learning biotechnology?

4) How is the relationship between students concept mastery and information literacy?

1.4 Research Objective

This research objective is specified as follow :

1) To investigate the implementation of guided note in learning biotechnology
2) To investigate the use of guided note to enhance students' concept mastery in learning biotechnology
3) To investigate the use of guided note toward information literacy in learning biotechnology
4) To investigate the relationship between students concept mastery and information literacy

1.5 Research Benefit

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

1) For teachers

The benefit of this research, the teacher can use this media in the teaching-learning process. The teacher can know the ability of information literacy to students and can make suggestions for treatment to students. Teacher can use this media to teach many material with limited time.

2) For students

Students can get advantage from this study, such as using this media to gain distinct learning experiences, increase their accomplishment and practice their information literacy.

3) For another researcher

This study can be used as a reference for the next studies by another researcher. This study may also use another aspect, such as other topic of study, media or the form of the guided note.The researcher can read this research to know the weakness of this research and do not repeat it again.

4

1.6 Limitation of Problem

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

a. Guided note

The guided note is a worksheet that teacher prepared for students through a lecture/discussion with standard cues and prepared blank space to write key fact, concepts or relationship (Herward 1994).

b. Students concept mastery

Concept mastery in this research is limited to cognitive dimension remembering (C1), understanding (C2), applying (C3), according to Blooms' Taxonomy Revision of cognitive level (Anderson et al., 2001). The reason of choosing the cognitive level until C3 is because in the 2013 curriculum, the standard of Biotechnology subject in basic competene 3.7 is apllying.

c. Information literacy

Information literacy in this research is students has the capability to locate, evaluate, and use information effectively (American Library Association (ALA) 1989. In this research, just see the effect of the guided note to information literacy. It iS different with students concept mastery.

d. Biotechnology

Biotechnology in this research as teaching material and limited to the basic principles of biotechnology, conventional and modern application of biotechnology, the positive and negative impact of biotechnology implementation. It is based on basic competence 3.7 in curriculum 2013.

1.7 Organizational Structure of Research Paper

The organizational structure of this research paper divided into five chapters, which are

1) Chapter 1: This chapter consist of background, research problem, limitation of problem, research objective, benefit, and organization of research paper structure

2) Chapter II: This chapter arranged by a literature review of science learning, guided notes, students' concept mastery, information literacy, and biotechnology

3) Chapter III: This chapter describes the research methodology that uses in this research, instrument explanation, data processing, and research flow diagram

4) Chapter IV: This chapter explains the result and discussion of this research based on data

5) Chapter V: This section mentions the conclusion and recommendation on results studies based on discussion in chapter IV