

CHAPTER I INTRODUCTION

1.1 Background

Technology has developed rapidly in recent years so that it has changed the minds of the public in seeking and obtaining information. In the past, people used to know the information from the newspapers, radio, TV or mouth-by-mouth and it was very limited. Nowadays, people have privileged in getting the information from many sources, one of them can be obtained through the internet network. Internet technology has a significant impact on the development of education. In the field of education, many are utilizing information technology to convey learning. According to Dogruera, Eyyamb, & Menevisab (2011) broad access to these technologies enhances the lives of people and those great opportunities are offered for those who need the broader access. Furthermore, any kind of information on the Internet can be accessed by people widely and it can be used for many of them, such as for social, educational, and entertainment purposes as well. This development is supported by the availability of hardware and software that are increasingly powerful.

Internet is a tool that has no limits on user knowledge because the internet has many benefits that can simplify a lot of work. Internet, as a facilitator and expedite, can improve the quality of the education. There are so many benefits obtained in the development of internet technology. Dogruera, Eyyamb, & Menevisab (2011) stated that as enormous information, internet can be quickly and easily accessed. In this point, it is also addressed to the students asynchronous where they can use the Internet whenever and wherever they need. It can be infer that the internet is a means of rapid distribution of information to a large audience that transcends time and space boundaries.

In the industrial 4.0 era, the growth of information technology and entertainment is increasing exponentially, so that children today can be called "Digital Natives". A digital native is a person born after digital technology

has been adopted. All groups of children who grow up using technology such as the internet, computers, and mobile devices are dubbed as "Digital Natives". Children nowadays tend to play with electronic devices and the internet because they deliver many items that are fascinating and exciting. Therefore, teachers of the 21st century must be able to construct an engaging and enjoyable learning experience so as not to lose to increasingly sophisticated times. It is no longer the age of using outdated methods such as lectures.

In several countries, the use of teaching media has stressed the interaction of science education and communication. Teaching media are commonly used in print media such as books, magazines and newspapers (Falk, Storksdieck, & Dierking, 2007). In science education, the use of teaching media is important because science education appears mainly via mass media such as newspapers, journals, radio and television where people hear about what they know about science (Detjen, 1995).

One instructional media that is used in learning is digital comics. Comics are visual media to deliver ideas through images and are combined with text for information. Serial images are typically created for comics. Learning implementation with comics makes a student excited (Hosler and Boomer, 2011). The student is inspired by a picture and text collaboration. Digital comics are one of the most common of media for learning since comic readers are very high.

Comic development will now be incorporated with digital development. Comics are published not only on paper, but also on the internet. Digital comics can be accessed easily using smartphone, laptop, computer, or other internet-enabled gadgets.

Nowadays, gadget users not only the adult. But almost all people, including children, have used gadgets in their daily activities. Gadgets also have their own value and benefits for certain people. However, there are many negative impacts that arise in it, such as children who spend their time with gadgets being more emotional, rebellious because they feel they are being bullied while playing games. Lazy to do daily routines and do not care

about the people around him. These behaviors are a sign that they are in need of help in stopping their activities with addiction to playing gadgets. Although actually playing gadgets has several benefits to form agile attitudes, train focus, and improve communication skills, one of them is by communicating using digital comics.

Teachers are expected to build enjoyable teaching and learning experiences with today's complexity of technology by using the technology in it. By making digital comics with several advanced features, students can develop their creative thinking skills. Creative thinking is defined as a group of activity which aims to direct a strong desire to find the best and reach the original solutions that are relatively new (Jarwan, 2008). In order to assist students in exploring the understanding of a concept, creative thinking capacity is required (Fasha & Ruqoyah, 2020).

According to (Bağçeci & Şenel, 2019) Creative thinking is divided into two points, namely passive thinking and active thinking. Passive thinking is no intervention or tangible result at the end of passive imaginative thought. Consequently, most individuals think and produce some of creative ideas. However, creative ideas will have no meaning if they are not executed. Active thinking occurs in very different structures as an action, for instance making a storyline, poetry, novel, drama and so on.

Students can develop their innovative thinking skills by working out to learn creatively. The teacher's job is to provide students with teaching and learning processes to practice and strengthen their creative thinking skills (Agustin, Hidayanti, & Rochintaniawati, 2018).

In science learning, it is necessary to build innovative thoughts so that students can practice finding solutions to solve science learning problems. Therefore, knowledge is not only a collection of facts, ideas, or values, but also result (Fasha & Ruqoyah, 2020). Science education in secondary school is expected to be a foundation to learn science related to daily life for students. By using digital comics as a learning media, it is hoped that creativity and writing skills on students can be improved.

Making digital comics can improve creativity and writing skills because

it makes students' think differently. Comics make a person take three different components and put them together into one story. It is a visual, spatial, and textual. It's not just looking at picture books. On the other hand, making comic books requires a lot of complex thinking. It improves your cognitive function. Stronger brains are better at using creativity at all times. In making comics, this can also make students write better. In making comics, students are given limitations in using good and structured language.

However, the obstacles in writing and creative thinking can be a big problem on the level of self-confidence in students. Students have tendency in increasingly expressing what they know through writing and designing. If a student fails to learn these basic skills, as these demands grow, they will find more difficulties in writing and designing that needed to be reached. Indeed, the creativity and writing process interferes with learning for a child struggling with thinking creatively and writing. On the other hand, many of students find such difficult situation and trouble of staying motivated. Thus, a development problem in child's learning progress is a problem.

There are several obstacles that can hinder creative thinking, there are lack of goals and objectives to be achieved, fear of failure, fear of rejection, not proactive thinking, and too rational and not improvisation. Most students in this case do not determine the goals and objectives they want to achieve. They only focus on completing the learning material quickly but do not think about whether they understand the material provided by the teacher. Most people are afraid of failure, so they don't want to try new, innovative things, and are also afraid of making mistakes in the steps they take. In this case, people generally fear criticism, or fear ridicule, or rejection. As a result, people might be pretended to be liked and approved by others. Passive thinking is very difficult for developing creativity, because there is a refusal to create anything new and unique. Rationality is needed to explain the world of oneself and others. However, constantly thinking rationally can lead to not being able to learn to improve performance.

The main reason why creativity is important is creativity as problem solving and decision making. One of them is that the use of language in

writing such as punctuation, spelling, grammatical, vocabulary and so forth. For those who have difficulty in writing, it can be often confusing, particularly when it comes to the arranging sentences into a good paragraph. The outline arrangement might be difficult thing for some of students, especially when they have to deal with an appropriate style, vocabulary, the correction of mechanical and grammatical errors (Jordan, 1977). Meanwhile, based on Levine (1987) stated that there are several problems in writing skills such as attention problem, spatial ordering problem, how to sequence the ordering problem, remembering, and language problem.

There are characteristics of attention problem, for instance feel difficult in starting on writing task, easily distracted in the process of writing, feel tired, inconsistent legibility in writing, and finding many errors. In spatial ordering problem, the characteristics of the problem are poor use of lines on the paper, organizational problems, uneven spacing between letters, and many misspelled words. Then, students find difficulty in sequencing ordering problem such as the formation of letter, transposed letters and spelling omissions, poor narrative sequencing, and lack of transitions. After that, remembering problems are poor vocabulary, many misspelled words, and frequent capitalization, punctuation, and grammar errors. Lastly, the language problems are awkward phrasing and unconventional grammar, inappropriate use of colloquial language, doing wrong in ordering the words, and difficulty with word sounds, spelling, and meanings.

In this research, global warming was chosen as the topic of student learning. Global warming is a very important topic so that students know the causes, effects, and also how to overcome it. This climate change can threaten the life of the earth and all its contents, including humans. Due to human habits that may not be realized, such as the use of fossil fuels, the more hot gases are produced by humans, the more heat is trapped by the atmosphere to be reflected back to the earth. This is the main problem that contributes to global warming, therefore the topic of studying global warming is very important.

1.2 Research Problem

Based on the background of the study described, the research problem addressed in this research is "How do digital comics develop student creativity, writing skills, and concept mastery in learning global warming?"

1.3 Research Question

The elaboration of the research problem in the form of research questions are follows:

- 1) How is student creativity in learning about global warming developed through digital comics?
- 2) How is student writing skills in learning about global warming developed through digital comics?
- 3) How is student concept mastery in learning about global warming developed through digital comics?

1.4 Limitation of Problem

The issue in this research is limited as follows:

1) Digital Comic

In this research, students were free to choose the software. Therefore, students are limited by the existing aspects such as writing texts on comics that are made and the topics specified. Therefore, this research is limited by only using the tools provided in the software.

2) Students' Creativity

Creativity in this study is coming up with new solutions to problems. A creative student looks at the problem from various and creative viewpoints and explores their creativity through the media that has been provided.

3) Students' Writing Skill

Students' writing skill limited to the written that they write in the digital comic they made. The students' writing skill rubric aimed to analyze the writing skills of students. In addition, the use of writing rubric will be adapted to evaluate students' performance.

4) Students' Concept Mastery

In this research, students' concept mastery is divided into six-C levels

based on Bloom's revised taxonomy. C1 is remembering, C2 is understanding, C3 is applying, C4 is analyzing, C5 is evaluating, and C6 is creating. In this research, only use remembering (C1), understanding (C2), applying (C3), and analyzing (C4).

5) Global Warming

The global warming is limited according to the core competency number 3, basic competency no 3.9, and core competence number 4 (skills) for 7th grade. The competencies are based on 2013 national curriculum of Indonesia for junior high school. The sub-topics are limited into 5 parts: the greenhouse effect, the understanding of global warming, the cause of global warming, the impact of global warming, and the prevention of global warming.

1.5 Research Objective

The research objectives of this research are as follows:

- 1) To investigate student creativity in learning global warming developed through digital comics.
- 2) To investigate student writing skills in learning global warming developed through digital comics.
- 3) To investigate student concept mastery in learning global warming developed through digital comics.

1.6 Research Benefit

After doing this research, this paper will expected provide some benefit:

1) Teachers

This study is beneficial to teachers because the teacher can assess new creative media for learning in the classroom, give new experiences in a fun method, and as an improvement of having a successful teaching-learning process.

2) Students

Students can make their own comic with their own knowledge after learning global warming by using digital comic. This research explores and improves creativity and writing skills also giving students new experiences of using digital comics for learning global warming.

3) Other Researchers

This research is beneficial to give experience for the other researchers for teaching that applies digital comics to develop students' creativity, writing skills, and, concept mastery.

1.7 Organization of Research Paper

The organizational structure of this research paper is divided into five chapters. There are sub-chapters in each section:

1) Chapter I: Introduction

Chapter I consists of the background, research problem, research question, limitation of problem in this research, research objectives, research benefit, and the organization of research.

2) Chapter II: Literature Review

Chapter II explains information about digital comics, students' creativity, students' writing skills, students' concept mastery global warming, and relevancy of the literature review based on the previous studies.

3) Chapter III: Methodology

Chapter III describes what the research methodology used which consists of the research method and research design, population and sample, operational definitions, assumption, hypothesis, research instruments, data analysis, research procedure and research flowchart.

4) Chapter IV: Result and Discussion

Chapter IV describes how the data obtained as a result of the study. The data were analyzed in order to respond to the research questions that were identified prior to the start of the study.

5) Chapter V: Conclusion and Recommendation

Chapter V contains the summary of the data collected and analyzed in the preceding chapter. It also includes implications and recommendations, which can be used by teachers or other researchers who wish to do further research.