

CHAPTER I

INTRODUCTION

A. Background

One of essential lesson that studied by students at school is life science. Life science is important to learn by students because it will help them to understand their surroundings. There is common situation in learning process that students have difficulty in learning life science. Many concepts or topics in life science can be perceived as difficult to learn by secondary school students. The reasons why students had difficulties in learning these topics are life science includes a lot of concepts, various biological events that cannot be seen by the naked eye, some concepts are too abstract, and that there are a lot of foreign or *latin* words (Çimer, 2011). Plant organs includes as the difficult topic to be learn by students and includes as one important lesson. Living things depend on plants, by recognize plants parts and functions properly it will create awareness to the universe better. Plants is able to supply the needs of oxygen in large amount and become a main manufacturer in the food chain. All parts of the plants can be utilized for humans and other living things.

Factually not all of the students like life science. Some of them thought that life science is hard to learn. This might happen due nowadays in instructional process there are still teacher which teach in conventional way such as like teachers use chalk and talk, presentation slide and speech in front of class. These learning method giving less opportunity for students to develop and find their own understanding and because teacher use conventional method. Students seem to be less interested in the science class while they were in old-school learning strategy. If the teachers use various visual teaching and learning materials and tools, such as figures, models, computer simulations, videos, 3-D Materials, and real life object such as real plants both the teaching and learning process may become more effective (Çimer, 2011)

To solve this problem, it was designed the development of teaching aid as leaning media in the form of book project. Teacher will give a task for students to make book project. The pop-up card is an interesting form of paper craft in which a three-dimensional structure appears when the card is opened, and the structure is folded flat when the card is closed (Izuka et al, 2011). Constructing a pop-up card is relatively easy, anyone can simply cut out the pieces and glue them together if a template is available (Okamura et al., 2009). Pop-up constructions support students' inquiry while integrating art, craft, spatial, and creativity skills (Olsen, 2013). Students can make their own pop-up characters with teacher guidance and just a few papers sculpture techniques (Walkup, 2011).

Some of research finding proves that three dimension is capable to improve the students' conceptual mastery. Making 3D models in learning activities help students to enhance their understanding about plant tissue system and also ease students' mind to imagine the system when they learn (Suprpto, 2012). The effect of 3D form in learning are three dimension can help bridge the gap between the abstract world of literature, and the concrete world of real objects and pop-up books can help bridge the gap between subject content and literature science and literature (Glaister, 2012). Movable and pop-up books teach clever ways, making the learning experience more effective, interactive, and memorable (National Museum of American History, 2010). In this research pop-up book contain picture and text regarding plant organs.

As a teacher, it important to let students express their creativity. This activity will encourage child to think spatially, increase fine motor abilities, and hone crucial problem solving skills all while using imagination and artistic creativity. Pop-up book as students' product can be assessed to measure the creativity which affect on students' creativity. According to Munandar (2009) as stated by Besemer and Treffinger the term product in this case is not limited on commercial products, but involve the variety of the

objects or ideas. They also stated that creative product can be grouped in to three categories, those are novelty, resolution, also elaboration and synthesis. Additionally, the book project classroom activity promotes sequencing and narrative development, supports early literacy skills, and helps to build memory recall (Loop, 2013).

Furthermore, the important things in instructional outcome is a students' understanding. Students' understanding is able to represent as students' cognitive skill. In Bloom's taxonomy The Cognitive Process Dimension across the top of the grid consists of six levels that are defined as remember, understand, apply, analyze, evaluate, and create. Each level of both dimensions of the table is subdivided (Anderson et al., 2001). While creating and designing pop-up book and smash book there are the integration of content and learning skills and identified in the project outcomes.

Visualization is important in science learning. One of important reason is to help students bridge their mind from the abstract concept to be concrete, because there are lots organs, tissues and cell which need to be visualized. The visual representation has a function as an effective tool to understand difficult concept and functioning of cell (Perveen, 2012). Three dimension and two dimension models are examples of visual media, visual representation give illustration of abstract phenomenon that cannot be observed directly (Buckkley, 2000). That's way pop-up book and smash book is used as teaching aids will help the students easier in learning plant organs and function. Since the plant organs and function consist of anatomy and morphology structure, the pop- up book is enable applied to enhance students' understanding. When students construct and learn with three-dimension model as their project has positive role to help students' improve their conceptual mastery with the requirement of imagination in learning science (Atika, 2014).

Students need to learn, practice, apply, and extend these skills as part of the project design. Throughout the process of creating pop-up book students will engage in and develop proficiency in the following types of skills such as comprehension skill, research and writing skills, questioning skills, group processes or collaborative learning skills, sequencing skills, skills

with resources, skills with presentation tools, analysis skills, communication skills, problem solving, task and self-management skills (New York City Department of Education, 2009).

Furthermore, while producing pop-up book and smash book a taxonomy by Bloom's Taxonomy at different levels of thinking, is presented. Considering the explanations above, the researcher aimed to a research related to students understanding and creativity. Then researcher would like to do and entitled the research on "Assessing Students' Creativity and Understanding in Learning Plant Organs using Book Project".

B. Research Problem

The research problem of this study is "how is the effect of pop-up book toward students' creativity and understanding in learning plant organs?"

C. Research Question

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

1. How is students' creativity of class using pop-up book compare to the class using smash book in learning plant organs?
2. How is students' understanding in learning plant organs of classes that used pop-up book compare to the class that used smash book?
3. What is students' impression after learning the concept of plant organs by designing pop-up book?

D. Limitation of Problem

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

1. Pop-up book is an interesting form of paper craft in which a three-dimensional structure appears when the card is opened, and the structure is folded flat when the card is close (Izuka et al., 2011).
2. Conceptual mastery students' comprehension that is measured in this research involves level cognitive of remembering (C1), understanding (C2), applying (C3), analyzing (C4), evaluating (C5) and creating (C6) (Anderson *et al.*, 2001).

3. The sustainability of the impact of a creative pedagogy used, for instance, could be investigated, especially when the pedagogy is adopted in a context that is less supportive to creative development (Lin, 2011).
4. In this research, the topic is Plant Organs that is limited by Core Competency No. 3 and Basic Competence No.3.2 in grade VIII that is attached in *Kurikulum 2013* document. The topic that are going to be delivered are: the structure and function of root, stem, leaves, flower and transportation in plant.

E. Research Objective

This study has objectives, which are:

1. To investigate pop-up book on students' creativity in learning plant organs.
2. To investigate pop-up book on students' understanding in learning plant organs.
3. To identify students' impression after learn the concept of plant organs by using pop-up book.

F. Research Benefit

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

1. This research is beneficial for teacher by
 - a. giving experience and reference of how to create book project in the form pop-up book.
 - b. giving the visual material which is pop-up book and smash book that can help increasing students' science literacy.
 - c. sharing an insight on handling class activity fun.
 - d. enriches teacher's knowledge to identify students' creativity and understanding about plant organs.
2. This research is beneficial for students by
 - a. giving new experience of learning for students that differ than usual.
 - b. giving the alternative textbook in the form of pop-up book and smash book.
 - c. providing opportunity for students to construct their own knowledge.
 - d. train students understanding and creativity through producing a pop-up book and smash book.

3. Other researcher

This research is beneficial for other researcher by providing a reference to improve the usage of pop-up book and smash book as visual media.

G. Research Organizational Structure

The organizational structure explains the sequence of the writing of each chapter in this research paper. This research paper has five chapters.

Chapter I explain the following things of the research:

1. Research background
2. Research problem
3. Research question
4. Limitation of problem
5. Research objective
6. Research benefit
7. Research organizational structure

Chapter II include the literature review and research hypothesis. The literature review has important role, it serves as the theoretical foundation in compiling the research questions, research objective and research hypothesis, chapter two explain the following things of the research:

1. Pop-up book
2. Smash Book
2. Students' creativity
3. Students' understanding
4. Plant organs

Chapter III include the detail explanation regarding research methodology as follows:

1. Research design
2. Participants
3. Population and sample
4. Research instrument (objective test, creativity rubric, impression questionnaire and self and peer assessment).
5. Research procedure
6. Data analysis

Chapter VI include the research result and discussion as follows

1. Result of Research (based on the data process ad analysis)

2. Result Discussion

Chapter V serves the interpretation and the meaning of the researcher towards the result analysis and research findings. There are two alternatives as to how to write the conclusion, which are point by point or solid description, as follows:

1. Conclusion
2. Suggestion

