

## CHAPTER I INTRODUCTION

### 1.1. Background

Contemporary reforms efforts show the potential of bringing new and radical perspective about what academic learning means and how it can be best achieved (Arends, 1998). Peraturan Menteri Pendidikan Nasional (Permendiknas) Republik Indonesia No. 22 year 2006 about the Content of Standardization for Senior High School Education asserted that student should be able to relate their knowledge comprehension into Science, Technology and Society (STS) as the goal of our learning. In order to achieve this expectation, the involvement of thinking ability for every learning activity should be concern (Sanjaya, 2006). One of this thinking ability Ashman and Conway (1997) advocated is the critical thinking.

However in the real fact as mentioned by Sanjaya (2006) our science learning program at the school has not been dialed with student's ability to think critically and systematically yet. Based on his opinion this is occurs because our learning strategy doesn't involve thinking ability in every learning activity. The impact of this learning strategy then implies in students' non applicative knowledge.

Biology is a study of life which extends from the global scale of the entire living thing which has a close relation to the process inside of the living body with its surroundings (Kurniawati, 2010). One of the biology learning material which has a close relation to the organism is about the reproductive system. Reproduction is the organism characteristic that processes new organisms creation of the existing ones (Campbell, 2008). On the second grade of senior high school, our curriculum has been raised this topic concerning for the human.

Unfortunately, introduction this topic to the students has several obtains. Based on Sugiono (2008), Samodra (2009) and Kurniawati (2010) researches most of the teachers in the school tend to use conventional method and less utilize any media that suitable for the learning process.

Sugiono (2008) found that the impact of less media utilization in the study caused human reproductive lesson become less attractive and boring. Finally it made student understanding become low and reflected with the low student achievement test score.

Kurniawati (2010) found in her research that the limited teaching method and utilization of media has made the student rather feel boring and didn't motivate to study the human reproductive system. Finally only 65% of students passed the MSS (Minimum Score Standard) in the last examination (MSS for science course is 75) meanwhile others were failed.

The limitation on teaching media utilization that suitable to teach the human reproductive system also a problem in SMA Negeri 3 Medan. Mam Desi as one of the Biology teacher of grade XI science class in the researcher personal talked has mentioned that there is a need of finding new innovative media that enable to engage and stimulate students' motivation and critical thinking in learning human reproductive system topic in SMA Negeri 3 Medan now. Thus, researcher finally decided to conduct the research location in this school.

According to Tiwari, 1999 and Cook and Moyle, 2002, Problem Based Learning (PBL) model has been advocated as a promising strategy to promote students' critical thinking (include reasoning, communicating and connecting) in such a problem solving way. The components of PBL, using real world situations (problems), group learning, student-directed solutions for problems, and teacher serving as facilitators of learning has much promise for, and important applications in enhancing students critical thinking (Downing, 2013). Through a PBL model students' engagement and motivation can be construct by introducing them to the 'real world' problem which relevant to their study (Beasley and Ford, 2003). It is indicates that Problem Based Learning model was a promising method dealing with the learning problem in human reproductive system topic as mentioned earlier.

Moreover, the beneficial of Problem Based Learning not only dealt about students critical thinking increasement, a study that was conducted by the National Assessment of Educational Progress (NAEP) (U.S. Department of Education, 2001), shown that there was a link between critical thinking skills and

the increasement of student achievement in the classroom through Problem Based Learning model. Harold Wenglinsky (2004) found that teaching critical thinking is associated with higher test scores. Therefore it can be concluded that instruction emphasizing advanced reasoning skills in classroom promotes high student performance in Problem Based Learning model (Wenglinsky, 2004; Schmidt, 1993). Therefore, the Problem Based Learning model was a good answer to solve low students achievement problem in human reproductive topic.

Rusman (2012) argued that there are several factors that can engage and motivate the students to be actively participating in the learning process. One of them is the availability of learning media that suitable to the study concept. This statement indicated that the role of media is very important in learning activity. Thus to study human reproductive system topic, the learning media involvement is necessary.

According to Sugiono, 2008; Samodra, 2009; Kurniawati, 2010, the role of media is very useful to improve student understanding about the human reproductive system that contains with the abstract concept and difficult facts. Shankar (2007) on his book's: *Methods of Teaching Educational Technology* mentioned that the learning video as a media function is to stimulate the real world environments and creates an actual environment for experimentations.

Beyond of this expectation, a video learning also has a potential in bringing a better learning quality. Video instruction to support the learning method in classroom is a more effective teaching technique than conventional lectures (Felton, Keese, Mattox, McCloskey and Medley, 2001). The findings of their research demonstrated that there was significant effect toward students learning achievement by using audio and video media aided than the conventional method. Through a video learning student comprehension will be increased due to their real illustrating experience, then it will engage them with the material and bring concrete understanding about the topic (Arsyad, 2004).

Mudin (2009) in *Sumber Dan Media Pembelajaran* stated that one of the learning video media benefits is the ability to stimulate students critical thinking by activating their imagination. He and Asyhar (2012) agreed with Edgar Dale Cone Experiences about the impact of learning video in order bringing a concrete

experience to students learning process. The more senses involve in the learning process, the more student comprehension can be construct.

Considering with that mainstream, researcher then conducted a research titled as: **The Differentiation of Students' Learning Achievement and Critical Thinking between the Using of Learning Video and Graphic as Media in Problem Based Learning (PBL) Model in SMA Negeri 3 Medan.**

### **1.2. Problems Identification**

Based on research background description, researcher identified the research problems as follow:

1. Human reproductive system topic contains with abstract concept and difficult facts.
2. Human reproductive system topic learning activity in the class is less attractive due to the conventional method that the teacher teach in human reproductive system topic.
3. Limited learning media utilization about human reproductive system topic.
4. Students low achievement about the human reproductive system topic.
5. Low students motivation to study human reproductive system.
6. Low thinking involvement stimulating in our learning system.

### **1.3. Problems Limitation**

In order to obtain an appropriate discussion, this research has some limitations as follows:

1. Focuses on human reproductive system topic.
2. Researcher use Problem Based Learning (PBL) model as the teaching method.
3. Analysing the differences of students' learning achievement and critical thinking between the using of learning video and graphics as media in PBL model.

4. Analysing whether there is a relation of students critical thinking and learning achievement between the using of learning video and graphic as media in PBL model.
5. Student learning achievement examine by Blooms' cognitive instrument test.
6. Students critical thinking examine by modified Cornell Critical Thinking Test Series Level X instrument.
7. For XI Grade Science Students in SMA Negeri 3 Medan academic year 2012/2013.

#### **1.4. Research Questions**

1. Is there any significant difference of students' learning achievement between the using of learning video and graphic as media in Problem Based Learning (PBL) model about the human reproductive system topic based on the Blooms' cognitive test result?
2. Is there any significant difference of students' critical thinking between the using of learning video and graphic as media in Problem Based Learning (PBL) model about the human reproductive system based on Cornell Critical Thinking Test calculation Level X result?
3. Is there any relations of students' critical thinking and learning achievement between the using of learning video and graphic as media in Problem Based Learning (PBL) model about the human reproductive system topic?

### **1.5. Research Objectives**

This research is conducted to achieve some objectives as follows:

1. To analyse the significant difference of students' learning achievement between the using of learning video and graphic as media in Problem Based Learning (PBL) model about the human reproductive system topic based on the Blooms' cognitive test result.
2. To analyse the significant difference of students' critical thinking between the using of learning video and graphic as media in Problem Based Learning (PBL) model about the human reproductive system based on Cornell Critical Thinking Test calculation Level X result.
3. To analyse the relations of students' critical thinking and learning achievement between the using of learning video and graphic as media in Problem Based Learning (PBL) model about the human reproductive system topic.

### **1.6. Research Significants**

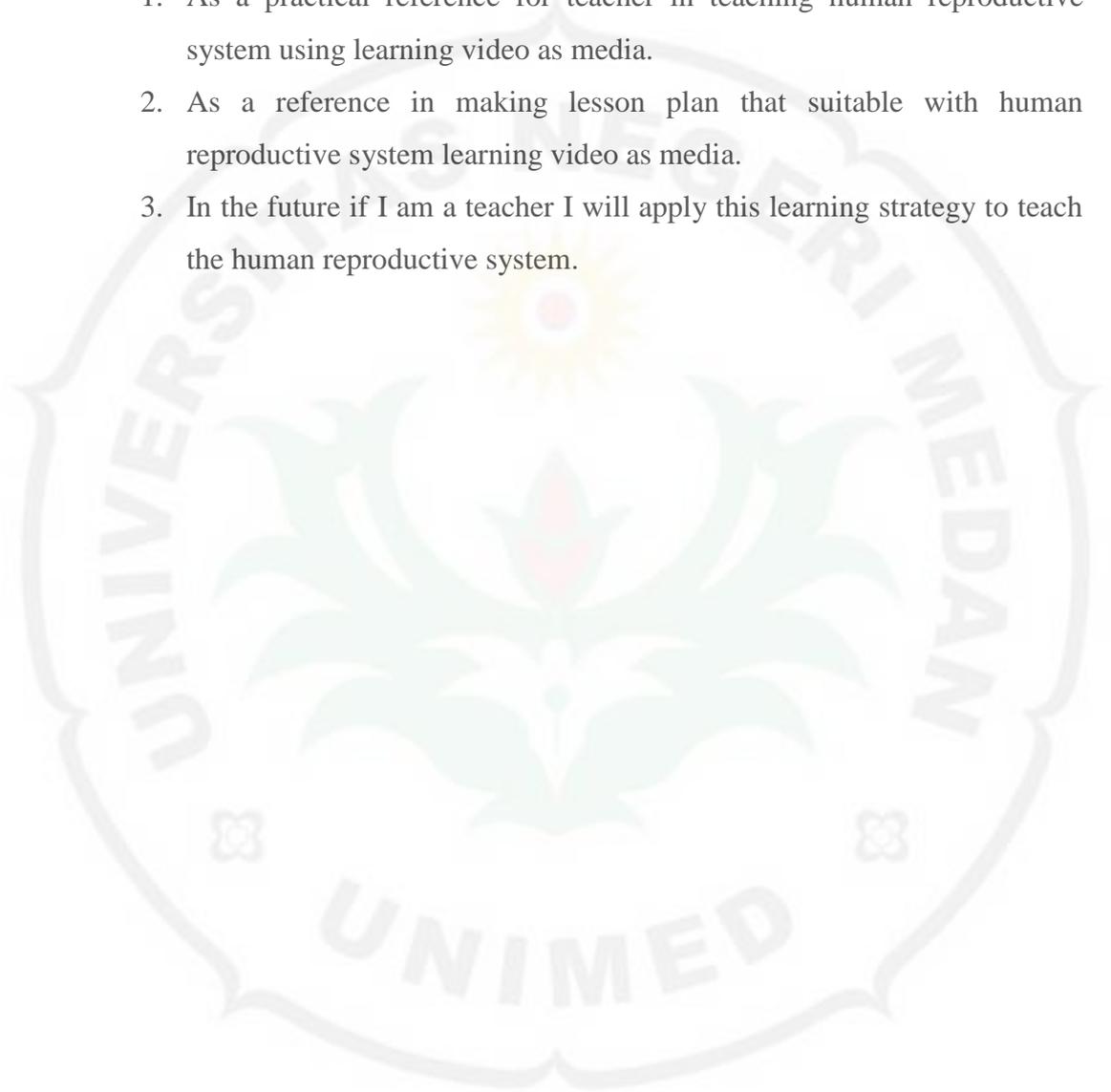
Considering about the research results and discussion, the researcher expects this research has some benefits both theoretical and practical.

In theoretical, this research significants as follows:

1. As a reference of learning methods to teach the human reproductive system in senior high school.
2. Contribute an idea in providing learning media that suitable for teaching human reproductive system in senior high school.
3. Contribute an idea to improve human reproductive system learning quality achievement.
4. Contribute an idea to involve critical thinking skill in learning about the human reproductive system topic.
5. Contribute an idea to improve students' critical thinking skill in learning human reproductive system topic.
6. As another researcher reference to develop other further research

Meanwhile, in practical. This research significant as follows:

1. As a practical reference for teacher in teaching human reproductive system using learning video as media.
2. As a reference in making lesson plan that suitable with human reproductive system learning video as media.
3. In the future if I am a teacher I will apply this learning strategy to teach the human reproductive system.



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