

CHAPTER I

INTRODUCTION

1.1. Background

The purpose of national education in the National Education System Law No.20 in 2003 is to develop students' potentials to become a man of faith and fear of God Almighty, noble, healthy, knowledgeable, skilled, creative, independent, and become citizens of a democratic and responsible. This national education aim becomes a description how the students would be in the future after pass from their schools.

To achieve the above objectives of national education, the government should improve the quality of education. Improving the quality of education can be done in various ways, such as curriculum revision, improvement of the learning process even to the way of evaluation. In Indonesia curriculum revision has been done several times. The government through the ministry of education and cultural constructed, develop and establish a curriculum that applies in the academic year 2013/2014 which is called as curriculum 2013. In 2013, the implementation of the curriculum 2013 has been initiated in the majority of primary to secondary school education.

Curriculum 2013 is the development of the curriculum KTSP 2006. Curriculum 2013 is emphasized to point on the improvement and balance of soft skills and hard skills, covering the aspects of competence attitudes, skills and knowledge. The curriculum 2013 was developed by prioritizing personal experience through the process of observing, asking, reasoning/associating and experimenting. So the students are trained in the process of observing, asking and reasoning in solving problems (Fadilah, 2014).

From the above statement regarding the curriculum 2013, the curriculum was developed to build the capabilities of high order thinking skills through the activities to find out, is not notified. Curriculum 2013 has a pressure point on the improvement and balance of soft skills and hard skills, covering the aspects of competence attitudes, skills and knowledge. Thus, the curriculum 2013 carried out with the scientific approach.

Scientific approach is an approach used in learning done through scientific process. Scientific approach is an approach done by five processes. They are observing, questioning, experimenting, associating and communicating (Hidayati, 2014). Scientific approach makes learning becomes more meaningful. This is because what is learned by students is done by using their own senses so that they directly experience the process of obtaining such knowledge. Learning can build up attitudes, skills and knowledge of students to the fullest. Through this approach, students are able to face and solve the problems properly.

Learning based on worksheet can be done on a scientific approach because learning by Student Worksheet is one of the teaching material that can be tailored to the needs of students. Nessa in Hidayat (2014) which states that the worksheet was one form of teaching materials that can be developed and used to facilitate students' learning. Erdal in Hidayat (2014), Student Worksheet is a very important teaching material to construct their own knowledge of their thinking and encourage students to participate in class activities. The worksheets were highly rated among students in aiding their understanding of the key aspects of the laboratory (89% useful or very useful rating) (Bussemaker *et al*, 2011). WMB can be used as a guide and model for teachers and curriculum developers to design other activities that allow meaningful learning activities (Chong *et al*, 2013). A result of implementation of worksheets on "ethanol fermentation" in the study conducted is analysed, it is found that the rate of student success increased after the worksheets (Toman *et al*, 2013).

In addition worksheets that use a scientific approach will stimulate students to achieve the objectives of the curriculum 2013 is to improve understanding of the concept and the ability to reason and think a high level of students so that they can confront and resolve the problems they face. This is suitable with Nur (1999) that the understanding of a concept of Biology is not just enough to have just delivered from the teacher, but the students also reconstruct the understanding of the concept of Biology. Providing quality teaching materials, attractive, easy to understand, but it might enable students to learn independently and to develop higher level thinking abilities in accordance with the needs of students (Hidayat, 2014). Therefore, teachers of biology

students must design and create worksheets with scientific approach in order to fill worksheets to students' needs as most students' worksheets have content that does not correspond to the needs and abilities of students that expected.

Subject matter used in this research is human reproductive system, which reproductive system is one matter that contains many pictures and scheme that describe the anatomy structure of reproductive organ even the physiology of them. The introduction of organ can be made in Worksheet as a picture and using torso to make student more understand and clearer for the structure. Not only the structures but also many important concepts that need good analysis to understand it. The way to bring the students get that concept can be done by giving written instruction and critical questions where the answer will bring the student understand the important concept such as concept of menstrual cycle. Because of these reasons, researcher chooses reproductive system as the matter that will be taught by using worksheet.

Dharmawangsa SMA is one of the high schools that are already using the curriculum in 2013 as the school curriculum. Approximately, this school for three semesters had used scientific approach to teach each subject, one of those is biology subject. From some data that I can from interviews with biology teachers say that the application of scientific study has been carried out in the classroom such as observing, asking, trying, associating even communicating. Implementation of the learning is done by using group discussions by asking questions or problems to the students and presents the results of each group's discussion. The statement says the method and media used by teacher is cooperative and discussion, while the media is presentation and sometimes using poster that made by students. To give some variation in learning, teacher can make worksheet as learning media and source for student to more focus on the points in biology topics, for example is human reproductive system. Assessment carried out by teachers include cognitive, affective and psychomotor. The scientific study gives some increasing to student learning outcomes (cognitive, affective and psychomotor) when compared with study by KTSP. From the data, students' learning skill has risen in three skills (observing, questioning and experimenting) but two others (reasoning and communicating skills) are still low.

Reasoning and communicating skill cannot be gotten spontaneously. It needs treatment step by step from lower ability to higher ability. It should be practiced continuously by every student because of teacher instruction until student desire. Teachers also say that for cognitive level, only 10 of the 40 or about 25% students have High Order Thinking Skill. Which is in Bloom's taxonomy, High Order Thinking Skill is C4-C6 (analyzing, evaluating and creating). In this level student can analyze some problem and associate them with other cases and find the solution. In one class of this SMA have problem where, the ability of students' reasoning, evaluating and creating are still low. It signed when teacher give critical problems, teacher see only several of her students can analyzed the problem well. This means, teacher needs to improve students' analysis and build high order thinking. It can be done by giving analysis question continuously during learning activity.

Based on the explanation above, the implementation of worksheet with Scientific Approach on Human Reproductive System learning in Class XI MIASMA Dharmawangsa Medan Academic Year 2015/2016 needs to do. Where the Worksheet is one media can be used in learning and designed by teacher by implementing scientific approach in worksheet learning. So the use of worksheet with Scientific approach will make the student performs processes of observing, questioning, experimenting, associating and communicating. Worksheet will be more emphasis on question for C4-C6. It meant to support student exercise to improve high order thinking. An addition to being a variation of learning resources for students, but also as a learning tool that can improve the ability of High Order Thinking and associating skills of students.

1.2. Problem Identification

Based on background above, problem identification of this study are as follow:

1. The lower ability of students' high order thinking skill.
2. The lower of students' association and communication skill.
3. The less of learning media by using scientific approach.
4. The lack of students' Worksheet that compatible with students needs.

1.3.The Scope of Study

By regarding the extent identified problem so in this research, the scope of study limited in:

1. Enhancement of Student's Learning Outcomes in cognitive Domain (C4-C6).
2. Enhancement of Students' Learning Outcomes in affective domain (receive and responsive).
3. Enhancement of Students' Learning Outcomes in psychomotor domain.
4. Learning Process is Worksheet- Based Learning by Scientific Approach.
5. Subject matter is Human Reproductive System.

1.4.Research Question

In this study, the researcher questions are as follow:

1. How is the student learning outcomes in cognitive aspect by using worksheet with scientific approach?
2. How is the student learning outcomes in affective aspect by using worksheet with scientific approach?
3. How is the student learning outcomes in psychomotor aspect by using worksheet with scientific approach?

1.5.Research Objective

The objectives of this study are:

1. To enhance student learning outcomes in cognitive aspect by using worksheet with scientific approach.
2. To enhance student learning outcomes in affective aspect by using worksheet with scientific approach.
3. To enhance student learning outcomes in psychomotor aspect by using worksheet with scientific approach.

1.6.Significance of Research

By implementing this study, the advantages of this research as bellow:

1. This research can increase the SLO in cognitive aspect (C4-C6).

2. This research can increase the SLO in affective aspect (receive information and responding).
3. This research can increase the SLO in psychomotor aspect.
4. This research is able to become a new alternative as learning media for student.

1.7.Operational Definition

The operational definitions used in this study are as follow:

1. Worksheet is a set of activity of students and contains scientific learning and emphasized to High Order Thinking Skill.
2. Scientific Approach is an approach where the learning core activity done by observing, questioning, experimenting, associating and communicating and contained in worksheet.
3. Learning outcome is concentrated in students' cognitive domain on C4-C6 level properly,
4. Learning outcome is also focus on affective and psychomotor aspect.