

CHAPTER 1 INTRODUCTION

1.1. The Background of Research

Biological knowledge plays an essential role in most aspects in the world (Burns and Batino, 1989) but, there is found many difficulties of biological learning, those are caused by models and methods of teaching that lead the students to learn the material only through memorization and prevent students to understand the meaningful of biological learning, the abstract concepts of biology, and difficulties to understand the textbooks (Lazarowitz and Pensa, 1992; Chiapetta & Fillman, 1998; Osborne and Collins, 2001; Teckaya Et al., 2001).

In this research are used three biology topics, regulatory system, reproductive system, and immune system where these topics are included in difficult biology topics based on (Çimer, 2012), which concluded five biology topics students had difficult to learn: matter cycles, aerobic respiration, genes and chromosomes, cell division and endocrine system and also in (Teckaya, et al., 2001) which found hormones, genes and chromosomes, mitosis and meiosis, mendelian genetic, and nervous system as difficult topic in biology. Regulatory, reproductive, and immune system have depth relation with endocrine system especially in human body, it means these topics are very urgent for students to change their brain pattern that still regard the endocrine system is the difficult topic in biology. Motivation, interest, and goals always give effect for learning process, academic performance, and learning outcome (Bloom, 1980; Hidi & Harackiewicz, 2000; Mc Cleland, 1985; Weiner, 1986) and also decrease the level of students' boring in the class (Ebenezzer & Zoller, 1993; Dolpooh, 2002).

The phenomenon of low students motivation, learning outcome, and memory retention in the subjects of biology were found in SMAN 15 Medan based on the result of observation and interviewed with Tinorma Skegar S.Pd as biology teacher. The result of observation showed, the students only sat and listened the teacher explanation and then, the students wrote the task that are given by teacher (teacher centered). So, the students often may lose their

motivation, sleepy, noisy, and difficult to develop their critical thinking because they didn't have chance to share their ideas, fun in the class, understand the relationship between what was taught in the class with their daily lives and express their creativity. The student's learning outcome especially for cognitive aspects is still low, it can be proof by seeing their biology score in report where only less than fifty percent that has score above eighty although their score has achieved above seventy two as the standardization of minimum score (KKM) in this school. The student's memory retention is also still low, it can be proof by the result of interviewed with the biology teacher in this school where the students difficult to remember the learning materials that have explained by teacher after one week and will be decreased significantly after three until four weeks.

Based on this problems, the teacher should design the learning environment to be fun in the class to increase the motivation, learning outcome, and retention of the students and the best choice is game, because play a game is the natural process that stimulates everyone to be more spirit and interactive to be a winner to encourage their creative behavior and divergent thought of students and also self confidence to answer the obstacles that are found in the game (Gee, 2003; Puzard, 2001; Sadiman, 1990; Sriestyo, 2011).

The design of games should be fun and giving new experiences for students through practice, success/ failure, reflection, and the development of knowledge level as the reference to design first step of game which started from easier to be harder (Gee, 2005; Gredler, 2004; Kebritchi and Hirumi, 2008; Nielsen, 2005; Wilson et al., 2009) to promote the cooperation among the students (Duchenet & Moore, 2005) and to solve the problems and make decision together by using their critical thinking especially for biological learning that famous only as subject material to be memorized and uninteresting to be studied. It will suggest realizing student's learning centered where the teacher only be a facilitator to help students to make their reflection by using instructional design.

Team Games Tournament (TGT) is the best model/method to solve these problems. In (Renzki, 2001), TGT success increased student's motivation significantly, it is similar with (Symons & Gill, 2008) research where the TGT

could help teacher to increase engagement, long term motivation and achievement among students, and also in (Michral, 2001) TGT success increased the student's learning outcome although the student's retention is not significantly different with control class, but contrasted in (Silitonga, 1999), TGT exactly didn't give significant effect of student's learning outcome. Based on this explanation, we can find out the difference result for every research, it can be possible happened because the condition, location, sample, subject matter, strategy, method, and techniques of learning that use in Team Game Tournament's Model are different between one for each other. So, in this research, Team Game Tournament's model will be designed effectively in the class to find out the significant effect to motivation, learning outcome, and student's memory retention.

1.2. Problems Identification

Based on the background above, the problems identification of this study now, there are found many difficult topics in biology that make students difficult to understand the biology, students do not enjoy with biological learning because the learning process are not designed by effectively method that cause they never fun and always feel boring in the class, students are not motivated on biological learning because they always only perforce to memorize the knowledge without understand the meaningful and outcome that will be achieved by students from biological learning that will give effects for learning outcome and students' memory retention, and also Team Game Tournament that was ever done in several research is not yet able to show the significant effect to motivation, learning outcome, and student's memory retention.

1.3. The Scope of Study

This research focuses on the effect of Team Games Tournament for biological learning especially for regulatory, reproductive, and immune system topics in the class to motivation, memory retention, and learning outcome of students that will be done for grade XI- Science SMAN 15 Medan academic years 2014/ 2015

1.4. Research Questions

In accordance with the issues that have been stated, then the problem can be formulated: (1) Is there any significant differences of Team Games Tournament's Model on students' motivation in biological learning, (2) Is there significant differences of Team Games Tournament's Model on students' memory retention in biological learning, and (3) Is there significant differences of Team Games Tournament's Model on students' learning outcome in biological learning?

1.5. Research Objectives

The objectives of this research are to find out (1) The significant differences of Team Games Tournament (TGT) on students' motivation in biological learning, (2) The significant differences of Team Games Tournament (TGT) on student's learning outcome in biological learning, and (3) The significant differences of Team Games Tournament (TGT) on student's memory retention in biological learning for grade XI- Science SMAN 15 Medan academic year 2014/ 2015

1.6. Significances of Research

It is hoped that this research can give benefits as follows: (1) For teachers, they can enhance the innovative learning instructional with apply Team Games Tournament on teaching and learning process in the class (2) For students, they can interest, fun, active, creative and mastery to understand the meaningful of biological learning (3) For researcher can implement Team Games Tournament in

teaching and learning process in the class and (4) As an idea donation for the next researcher and it can be useful in developing of educational science

1.7. Operational Definition

a. Team Games Tournament

Team Games Tournament in this research is the model/ method of teaching that will use in experimental class where, the students will divide into several groups that consist of 4- 5 members in a group. The games tournament will be done by following syntax of cooperative learning. First, teacher will explain the indicators and learning objectives in front of class, then, discussion activities in their group and the last process is tournament as a fun review process.

b. Motivation

Motivation in this research is the motivation to learn biology by using the indicators from *Keller* to know the change of students' behavior (feeling, behavior, and activities) in the learning process

c. Biological Learning

Biological learning in this research are biological learning in second semester academic year 2014/ 2015 in SMAN 15 Medan that will study three difficult topics in biology, those are: regulatory system, reproductive system, and immune system

d. Learning outcome

Learning outcome in this research consist with students' cognitive where the result of learning outcome will be measured from the average of student's pretest and post- test in the class.

e. Memory Retention

Memory retention in this research consist with long term student's memory retention for biology topics especially, human regulatory system which consist of nervous system, endocrine system, and sensory system that will be measured from the retention test after 21 days according with *O'day* that said the students just can remember about 25% after one week and about 21% after 2- 4 weeks and supported by *Dele cone's experience*.