

CHAPTER I INTRODUCTION

1.1 Background of Study

Biology is a subject-specific knowledge of biological systems and concepts that provide the knowledge, skills, responsibilities to the environment, and process of discovery (Budimansyah, 2002:34). A biology course allows students to develop practical and technical skills from laboratory sessions, communication skills are learned through report writing and making presentations, teamwork skills are developed through group projects and seminars, problem-solving skills are obtained from critical analysis to a problem.

Learning of biology should be carried out with emphasis on the direct learning experience through the use and development of process skills and scientific attitudes that needs critical thinking skill (BSNP, 2006). But the reality on the ground indicates that the learning of biology conducted predominant in the memorizing the concept. Students have not been taught to understand the information and relate it to life. Science lessons at school are more geared to the mastery of knowledge and lack of developing a scientific attitude (Meita, 2012:1). The National Assessment of Educational Progress (NAEP) as the nation's report card in America reports that the development of advanced reasoning abilities has declined in 12th grader because students are not learning how to think.

The interview result with biology teacher in SMAN 2 Balige obtained number of students that did not fulfill the score criteria of minimum completeness (KKM) 76 on semester final exam 2010/2011 was 48% in grade eleventh. The results of the National Final Examination (UN) 2009/2011 for the Science subjects that achieved by students were relatively low. Biology subjects were the most potentially subject lead to failure when compared to Physics and Chemistry (Source: BSNP Puspendik). Studies of science teaching in the late 1990s led to the observation that most teachers used the didactic methods of instruction and determined that "many students were low learning achievement, mastering disconnected facts in understandings and problem solving skills" (National Research Council, 2000:17).

Learning biology in high school had a lot of experience difficulties caused by the physiological abstract concepts of biology material that need analyzing, reasoning and critical thinking skill (Lazarowitz, 1992). Digestive system topic is categorized difficult to comprehend because of its complicated characteristics which deal with complex physical and chemical mechanism. It is supported by the low of average percentage achievement of National Examination 2008/2009 on digestive system topic in some areas like as Kab Nias, Kab. Binjai, Kab.Siantar and Kab.Tobasa are 64% that can reach KKM (PPMP, 2009).

The increasing of student's learning achievement and critical thinking in the learner necessary changes in methods, models and learning media in the school. SMA Negeri 2 Balige still use teacher centered learning thus creates the passive learners focused on teacher, learners are not accustomed to think critically. Learning media used by teacher is not internet based yet and does not stimulate to student's critical thinking skill (Source: preliminary observation).

A Cooperative Learning Model Type Group Investigation is offered in order to foster student's learning achievement and critical thinking. This model provide students to discuss and solving physiological abstract concepts, cognitive restructuring leads, enhance elaborative thinking, more receiving of explanation which has the potential to increase depth of understanding (Johnson,1986). Research by Johnson (1991) showed that cooperative learning enhanced more positive learning result towards subject members.

Computer-assisted teaching using the internet has radically changed the teaching paradigm. The traditional teaching style is no longer sufficient for learners. Development of science and technology develop IT/ICT based learning (Pazos, 2002:34). Internet based learning (e-learning) can construct a new learning style through internet. From the educational point of view, the e-learning media is more superior than the other learning media because this media contents illustrate the richness and diversification that combines sound, image, picture, motion and words, create life-time learning model in which the learner is the center of learning activities (Jhang,2004). E-learning assists learning and cognitive construction, pushes resource sharing and quiz online that can improve student's critical thinking.

As one of the best high school in North Sumatra and Tobasa, SMAN 2 Balige contributed to the development of science, especially in the field of information and technology. Majority of the learning process in SMAN 2 Balige has IT/ICT based learning use. Thus, the students are no awkward to access learning material course via internet. From the above background, the author is interested in doing research about **“A Comparison Between Cooperative Learning Type Group Investigation with E-Learning on Student’s Learning Achievement and Critical Thinking in Grade Eleventh SMAN 2 Balige at Academic Year 2011/2012”**.

1.2 Problem Identification

With reference to the background, the identified problems are:

- a) Students’ academic achievement is low noticed by number of students that did not fulfill the score criteria of minimum completeness (KKM) 76 on semester final exam is 48% .
- b) Low of critical thinking developing during learning biology in the class
- c) Teacher still use conventional method and teacher centered learning approach
- d) Learning model applied by teacher does not stimulate to student’s critical thinking skill
- e) Learning media applied by teacher does not stimulate to student’s critical thinking skill

1.3 Scope of Study

The scope of this study namely:

- a) Learning topic taught in this research is Digestive System in Grade Eleventh Natural Science SMAN 2 Balige at A.Y. 2011/2012.
- b) The developing of e-learning media on digestive system topic
- c) The implementation of e-learning media
- d) Implementation cooperative learning model type Group Investigation
- e) Comparison of student’s learning achievement that taught by cooperative learning model type Group Investigation with e-learning and without e-learning media on digestive system in class XI IPA SMAN 2 Balige at academic year 2011/2012

- f) Comparison of student's critical thinking skill that taught by cooperative learning model type Group Investigation with applying e-learning media and without e-learning media on the digestive system topic in class XI IPA SMAN 2 Balige at academic year 2011/2012.
- g) Critical thinking indicator in this research focuses to the question, identifying assumption, determine the solution of the problem and write down the solutions.
- h) Learning achievement researched in this research is cognitive test

1.4 Research Questions

The research questions of this study namely:

- a) How to develop e-learning media?
- b) How are the differences of student's learning achievement of students that taught by using cooperative learning model type Group Investigation assisted e-learning media and without applying e-learning media?
- c) How are the differences of student's critical thinking skill that taught by using cooperative learning model type Group Investigation assisted e-learning media and without applying e-learning media?
- d) How is the relationship between student's critical thinking with cognitive achievement?

1.5 Objective of Study

The purposes of this research are:

- a) Developing and applying e-learning media on the digestive system topic
- b) Knowing the differences of student's learning achievement that taught by using cooperative learning model type Group Investigation assisted e-learning media and without applying e-learning media in digestive system topic
- c) Knowing the differences of critical thinking skills of students that taught by using cooperative learning model type Group Investigation assisted e-learning media and without applying e-learning media in digestive system topic
- d) Knowing the relationship between student's critical thinking with cognitive achievement

1.6 Significance of Study

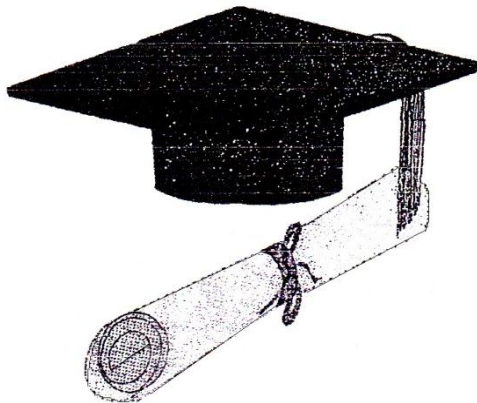
Theoretically, the result of this study gives the contribution in the biology learning, especially in the use of e-learning media using blog and extends the knowledge about the implementation of cooperative learning model type Group Investigation (GI) to improve students' learning achievement and critical thinking skills. Practically, e-learning media can help students to comprehend the learning topic easier so increasing students' learning achievement and critical thinking skills. For educator, e-learning media can be used as a media of learning to create the interesting learning activities, applying more innovative learning model such as cooperative learning model type Group Investigation that able to overcome student's difficulties problem in understanding biology concept. For school, optimizing facilities and infrastructure in schools that can support the learning process.

1.7 Operational Definition

Critical thinking in this research defined as a process of intelligent conceptualization, implementation, analysis, synthesis and generated the information by observation, experience, reflection, and reasoning. When students think critically, they will show the processes as follows submit the questions, knowing the difference between the observations and conclusions, knowing that it takes insufficient evidence to draw strong conclusions, provide an explanation and interpretation, make observations and predictions. Learning achievement is the result of student's cognitive test on the topic digestive system.

Group Investigation model consists of six syntax namely grouping, planning, investigation, organizing, presenting and evaluation that are able to stimulate student's critical thinking. E-learning media is a way of the acquirement of knowledge, experience and skill. In e-learning, teacher's role is guiding to learn and the learners become more active.

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