

CHAPTER I INTRODUCTION

1.1. Background

Higher order thinking skills include critical, logical, reflective, metacognitive, and creative thinking. They are activated when individuals encounter unfamiliar problems, uncertainties, question, or dilemmas. Successful applications of the skill result in explanations, decisions, performances, and product that are valid with the context of available knowledge and experience and that promote continued growth in these and other intellectual skills (King, 2008).

Now days, the education problems in Indonesia is student higher thinking order is still below standard. Reported in the daily Kompas (16/06/12), Program for International Student Assessment (PISA) in responds to memorize cognitive skills and high level thinking skills. The results obtained Indonesia has lower level. Why does Indonesia get a lower mark with achievement in PISA? Surely, we agree that the Indonesian students are not in lower level thinking. This phenomenon actually should response seriously by the school as a place to educate students.

Teacher as an educator should effectively choose learning model. The models that choose not for got knowledge only but also improved their higher order thinking according to bloom taxonomy. Student at senior high school should be able to think in this level. More effective the models that use in learn by the teacher will be more effective in improving student higher order thinking.

Based on researcher observation to SMA N.2 Balige, Data was obtain from teacher Happy Hutabarat, a Biology teacher in class X SMAN 2 Balige She admit that teacher is dominantly to teach with traditional models with a reason traditional learning is easy in process. She acknowledged that, using traditional learning models are still ineffective to improve student thinking in higher thinking order. This statement evidenced by student exam result. Teacher in SMA N.2 Balige using Anates and Excel technique to know the level of test difficulty. From the test result the text with cognitive C₄, C₅, C₆ (Analysis, synthesis, evaluation)

according to bloom taxonomy can not be answered, it's proved that student higher thinking order still in below standard, furthermore when student give a problem such as interpret data the student can't make an analysis for it. Based the problem of learning in this paragraph we conclude that the process of teaching and learning is mostly done by lecturer learning model, one-way communication (teaching directed). This phenomenon gives a reason for student higher order thinking is still below standard.

To face this problem is need to apply other learning models that can improve student higher thinking order. Cooperative Learning and Inquiry can be as an alternative that expected could build character become critically, logic, objective, creative and innovative then automatically can improve student learning outcomes in higher thinking order. Both of these models provides student with relevant life skills and offers them and added benefit of helping improve their content knowledge (King, 2008).

Cooperative learning is a model where the student learns with group and they are work together. Psychologists generally agree that students easily understand the complex and abstract concepts when accompanied by concrete examples and in working together (Isjoni, 1992). According to Slavin cooperative learning is a learning model where student learn and work in small group consist of 4-6 people with heterogenic structure. Patterns of employment as mention above enable emergence a positive perception about what they have to do to success their group. Cooperative learning consists of some type one of them is Group Investigation.

Guided Discovery as a learning model according to Warner (2011) with these model students is given to concrete materials and question. In order to answer the question, student work individually or in small group to explore, observe and discover answer so they able to think in higher level thinking without teacher solve the problem. The teacher just a guide the then teacher can then expand upon the discoveries the student make to provide explanation of the discovery and instruction.

There are many researchers in order to improve learning quality have developed, four of them as follows. Lavine (2005) suggested that the subject matter presented by means of Guided Discovery learning served to focus on real problem and adds relevance and motivation to mastery related basic science information. (Akinbobola et al.2009) their study result showed that Guided Discovery approaches was the most effective in facilitating student's achievement in physics. As a discovery has been done by Nasruddin (2010) his study was success to increase the quality of thinking skills and scientific attitude in science using Group Investigation. Khairina (2011) was success improve percentage of student passed KKM with Group Investigation Model with percentage 78 %. These literatures have shown that teaching models promote active learning, and improving student achievement.

Biodiversity is one of the Biology topics in student grade X that include in curriculum with Standard Competency 3. (Understand the benefits of biodiversity) and this research will apply in Basic Competency 3.4 (Describe the Phylum character in Animals and its benefit in life) the research topic selected was insect. The reason why did researcher choose this topic was because insect has a wide range of applications in the life sciences. So from the standard competence that describe before student must observe it directly to environment and SMA N 2 Balige has an environment that support learning process according to this research.

Memorizing facts and information is not the most important skill in today's world. Facts change, and information is readily available, what's needed is an understanding of how to get and make sense of the mass of data.

Based on the problem that described above, the research with entitled " Comparison of student's higher order thinking in insect topic between student that learning by guided discovery and group investigation models in grade X SMA Negeri 2 Balige academic year 2012/2013" has been done .

1.2. Problem Identification

Based on the background above, problems identification in this research are follow:

1. Indonesian student's higher thinking order is still below standard according to program for international student assessment.
2. Student's higher order thinking based on bloom taxonomy in SMA N 2 Balige is still under standard.
3. Teacher in choosing biology teaching models is still dominantly to traditional.
4. Traditional learning models are still ineffective to improve student thinking in higher thinking order.

1.3 The Scope of the Study

1. Comparison of student higher order thinking between students that learning by Guided Discovery and students that learning by Group Investigation models in sub topic Insect in Grade X SMA N 2 Balige at even semester Academic Year 2012/2013.
2. Applying Guided Discovery and Group Investigation models in sub topic Insect in Grade X SMA N 2 Balige at even semester Academic Year 2012/2013.
3. The student higher order thinking based on cognitive aspects C₄, C₅, and C₆ in Bloom taxonomy.

1.4 Research Questions

Based on the background and research scope, research question can be formulated as follow:

1. Is there any difference between students' higher thinking order in biology that is taught by using Guided Discovery and Group Investigation Models on sub topic insect in SMA N 2 Balige for X grade at even semester Academic Year 2012/2013?

1.5 The Objective of the Study

Based on the formulation of the problem above, the objective of this study is to know the comparison of student higher order thinking in biology that is taught by using Guided Discovery and Group Investigation Models on sub topic insect in SMA N 2 Balige for X grade at even semester Academic Year 2012/2013.

1.6 Significance of the Study

Practically, the significance of the study namely, for the Teacher , in order to implement Guided Discovery and Group Investigation as an alternative learning models to improve student higher thinking order in biology so that the student can master the concepts easier with analysis, synthesis , evaluate , and also to increase efficiency and quality of biology learning materials i.e. Biodiversity in high school class X. and to headmaster, this research could give solution and contribution in order to enlarge a knowledge how important using model in learning process is. For the researcher that will be a teacher soon this research will be as backgrounds in choosing effective learning models according to the subject matter will be taught.