

## CHAPTER I INTRODUCTION

### 1.1. Research Background

Education has a very important role in the development of Indonesia fully human. Therefore, education is very necessary for the development of a wide range of science, because a quality education can improve the intelligence of a nation. Education is an important part of the national development process which involved increasing economic growth of a country. Education is also an investment in human resource development with increased skills and capabilities believed to be a contributing factor in the human effort through life.

The quality of education need to be considered to achieve the goal of education, while the quality of itself can be seen from the success achieved by a student during the teaching and learning activities. It is important in the learning process is to instill the meaning of learning activities for learners in order to learn the results beneficial to life in the present and the future. One decisive factor is how the teaching and learning process can run as expected. Meaningful learning is a learning process for the students where students are expected to be directly involved in the learning process and go directly to that knowledge.

Physics is one of sciences which very important to be learned. Physics is a science that studies natural phenomena as a whole. Therefore, by studying the physics means also studied the nature of the universe. In addition, by knowing the nature including the characteristics of the universe, human beings can find ways and tools that can help to facilitate efforts in meeting their needs. Based on it all, it is supposed that physics should be studied in enjoyable. Because studying the physics associated with human lives depend on nature. Physics discovered and developed by the problems faced by humans associated with life. From here, it appears that physics actually encouraged to be learned by everyone.

At the high school level education, Physics deemed extremely important subjects to be taught. Because, physics is one of the subjects which have great impact on the development of science and technology. In addition to providing

knowledge to students, the physics subject with all the problems to train students to think critically and creatively so that students can solve problems in everyday life. Critical thinking becomes one of the abilities to be owned by the students, it can be nurtured and developed through physics.

Most of the students admitted are interested in studying physics but others think that physics is a subject that is difficult. Because the models and media which teacher facilitate less attract students to learn physics so the impact on the activities of students in the class are passive and not oriented (disoriented). In solving the problems that teacher experience is the lack of effective models applied, It is better to upgrade the model that applied by the teacher in advance so that the model is being used more attracted the attention of students. The school which researcher choose for this research is SMA N 10 Medan.

Based on preliminary observation through interviewing the physics teacher in SMA N 10 Medan showed that some students are still less active in learning physics because of the lack of interest of the student. On the other hand, the students remain diligent doing task assigned by the teacher both homework and assignments at school, but a constraint anymore for teachers is the media that applied less attention to some students so that the class be not conducive. From the preliminary observation in SMA N 10 Medan is known that standard value (KKM) of physics that applied in that school is 75.

Based the interviews with the teacher, there are some students who received grades above the KKM average scores of 80 and there is also who scored below the standard value (KKM). Then, that is supported from the result of student's questionnaire that shows from 43 respondents of X grade, 11,6% of students receive score about 70-80, 46,5% of students receive standard value (KKM), and 41.9% of students receive score under the KKM. Those show that the students thinking ability still low and need a better improvement in learning and the media so that it will result in increased ability to think with students thinking ability in studying physics.

Then, based on the preliminary observation with questionnaire found about 65.1 % students in SMA N 10 Medan which like physics as an obligation

and 27.9% students who interested in learning physics. Most reasons of them that physics is difficult to learn and understand. Observation data show that 79.1% students said physics is difficult lesson and 41.9% students give reason that because the situation of the class which not supported. According to Teacher's interviewing, The teacher also said that the situation of the class becoming the main causing some students not active in class and it make the lack of physics knowledge and their critical thinking ability still low.

In general, the process of learning physics in class X SMA N 10 Medan not too bad because the learning process is still there are students who do not participate actively in the learning and there is also participating actively. Therefore the majority of students who do not participate actively in the learning of physics can eventually lead to disruption of the learning process for a class that is less conducive. It affects the underdevelopment of critical thinking ability of students in learning physics. Model that teachers already employ basically already good but less attracted the attention of some students.

In improving and upgrading the model that have been applied previously, model to be applied later have to make students active thoroughly and make the students better understand the actual physics concepts and their application in everyday life. Because by studying it will enhance student's thinking ability deepen the learning materials. Efforts to improve student's critical thinking ability and make the class are more active is by using cooperative learning model.

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.

Group Investigation have goal and impact, the cognitive goal of Group investigation are conceptual academic knowledge and conceptual knowledge, Focus to the goal of Conceptual Knowledge, according to Arends (2009) conceptual knowledge have learning outcomes are specific concept, nature concept, logical reasoning and Higher level thinking also communication.

Based on all premises this is particularly relevant to teach student by Cooperative Learning Model using Group Investigation type, That focus on Conceptual Knowledge as a goal. However, Group investigation developed by Shlomo Sharan and Yael Sharan in 1992, is a general classroom organization plan in which students work in small groups using cooperative inquiry, group discussion and cooperative planning and projects. Moreover, it is said to be one of the most student-centered methods as students have much freedom to choose their topics of interest for investigation, plan and carry it out, present and evaluate the results.

Group Investigation (GI) technique was developed by Sharan and Sharan in 1989. In the technique Secondly the class is divided into several groups that study in a different phase of general issue. After that, study of issue is divided into working sections among the members of the groups. It's provided to students that pair up the information, arrangement, analyzes, planning and integrate the data with the students in other groups. In this process, teacher must be the leader of the class and ensure that students need to the explanations Knight and Bohlmeier (in Akçay & Doymuş, 2014:18)

Group Investigation (GI) strategy is a cooperative learning strategy that can be used to encourage and develop metacognitive skills. The results of the research by Danial (2010), reported that the GI strategy could enhance metacognitive skills and concept understanding. GI also had the potential to empower students' thinking skills and abilities (Nasruddin & Azizah, 2010; Listiana, 2013). The results of the research by Akcay & Doymus (2012), and Koc, et al. (2010) reported that there was a difference in the learning results between the students taught by using GI and those taught by using conventional learning. Additionally, Tsoi, et al. (2004) confirmed that the GI effectively improved social

skills, responsibility, and problem solving skills. Siddiqui (2013) also stated that the GI increased the learning levels (investigation, participation, interaction, critical thinking, logical thinking, problem solving, decision making, communication skills). GI is also proven to increase motivation (Tan, et al. 2007), and creative thinking skills (Suartika, et al. 2013).

Many researches about Group Investigation method in physics have done by previous scientist and based on previous thesis above with Group Investigation method used in learning process. Its offers a proven, if Group Investigation is one of the great choices models of teaching to increase conceptual knowledge of students in the physics topic. And there is still low research about Kinematic Linear Motion. Therefore, in this case the writer chose research entitled **“The Effect of Cooperative Learning Model Type Group Investigation (GI) to Students Conceptual Knowledge on Kinematic Linear Motion Topic Grade X First Semester in SMA N 10 Medan A.Y 2017/2018”**.



## 1.2 Problem Identification

Based on the background that already consider, so the problem identification in this research are:

1. Many Student can't reach the minimum completeness criteria
2. Teacher less using various teaching models
3. In the teaching and learning process rarely doing experiment
4. Less of various book's learning
5. The teacher rarely teach physics using media
6. School doesn't have enough tools and materials for doing experiment
7. The physics teacher still using the conventional learning by lecture method
8. Less number of students who can solve conceptual knowledge of test

## 1.3 Problem Limitation

By considering subject matter in SMA N 10 Medan , this study is limited to

1. Many Student can't reach the minimum completeness criteria
2. Teacher less using various teaching models
3. In the teaching and learning process rarely doing experiment
4. The physics teacher still using the conventional learning by lecture method
5. Less number of students who can solve conceptual knowledge of test

## 1.4 Problem Formulation

Based on the limitation problem , so the problem formulation in the subject matter Kinematic Linear Motion Class X SMA N 10 Medan A.Y 2016/2017 are:

1. How is students conceptual knowledge using conventional learning?
2. How is students conceptual knowledge using cooperative learning model type group investigation (GI) ?
3. Is the students conceptual knowledge by using cooperative learning model type group investigation (GI) greater than conventional learning model ?

### **1.5 Research Objective**

There are some research objective in the subject Kinematic Linear Motion Class X SMA N 10 Medan A.Y 2017/2018, namely:

1. To analyze students conceptual knowledge by using conventional learning.
2. To analyze students conceptual knowledge by using cooperative learning model type group investigation
3. To analyze whether students conceptual knowledge by using cooperative learning model type group investigation is better than conventional learning.

### **1.6 Research Benefit**

Once this study is completed then the expected benefits of this research are:

1. For School : can give a good contribution in order to improve the learning process and improve the quality of schools by increasing student conceptual knowledge and teacher professionalism.
2. For teacher : As a consideration in selecting learning model better than conventional learning model.
3. For students : Students are more motivated to learn physics, because the abstract concepts of physics can be more real through cooperative learning model Type Group Investigation So, the learning process becomes more interesting and more attractive to increase students understanding.
4. For researcher : As a description to implement a more effective learning model and method that can be used as a reference.