

## CHAPTER I

### INTRODUCTION

#### 1.1. Background

According to Hasan (2011) education is an effort to prepare human resources who have expertise and skills appropriate to the demand of nation building, in which the quality of nation is strongly influenced by educational factors. The embodiment of quality people becomes one of the responsibilities in education, especially in preparing students to be subjects of acts showing superiority, creativity, independence, and professionalism in each area. Efforts to increase educational quality can be achieved optimally, if development and improvement to the educational component itself.

Education basically is one of the efforts to provide knowledge, insight, skills, and specific expertise to individuals in order to explore and develop their talents and personalities, through education humans try to develop themselves to face every change that occurs caused by the advancement of science and technology. Therefore, the issue of education needs to receive attention and serious treatment related to the quantity, quality, and relevance.

Increasing the quality of education has been done by the government among others by complementary facilities and infrastructure, increasing the quality of teachers, and improvement of curriculum that emphasizes developing aspects that lead to improvement and development of life skills are realized through the achievement of student competence to be adaptable, and succeed in the future.

The aims of the education program in the field of Mathematics and Sciences are to prepare professionals of education who have a knowledge foundation, technical skills, and professional values and attitudes in planning, conducting, managing instructional activities, developing learning resources, evaluating learning achievements, and solving problems pertaining to the profession in the field in the context of subject teaching, 1) this perspective views the teacher not as a storeroom of facts and ideas, but as “a source and creator of knowledge and skills needed for instruction”, 2) preparing pre-service teachers to be professionals should be

focused on the substance, which is what should be learned by the pre-service teachers and the best way to encourage them to learn it (Sinaga , 2014).

According to Mondolang (2013) learning physics education secondary school (SMP), often get notes as the learning that has value learning outcomes are low compared to the value of the results of the other study subjects.

Presently, the teaching approach in the physics lessons in secondary school classrooms seems boring and uninteresting. This is particularly true when one considers that the conventional method of chalk, board and talk are predominantly in vogue. Notwithstanding the call for the use of modern approach in the form of constructivist view, many teachers still use the conventional approach (Akanwa, 2014). Physics teacher still apply conventional learning characterised with relying on the use of the expository method is explaining, giving examples, asking questions, and giving assignments classically. Learning model like this shows that teacher still be central in learning, while students are less empowered ability to optimally so that the activity and participation of students is less meaning. At least varied learning methods are used and using media has not been optimal become a problem that can be ignored. Using media less attractive cause students get bored and not interested to follow learning activities in earnest.

Speaking about the study results, it can not be separated from the process of learning that occurs in self-learners. The learning process is less according to the student characteristics and the characteristics of the matter will result in less than the maximum outcomes that can even result in understanding the wrong concepts (misconception). According to Slameto (2010 : 1) suggests that the overall process of education in schools, learning is the most basic activity, which means that the success or failure of many educational achievement depends on how the learning process experienced by students as learners.

Teaching experience taught in SMAN 1 Sidikalang there are some problems in the process of student learning: 1) physics outcomes of student in class X SMAN 1 Sidikalang on physics still low, 2) learning implementation still use the conventional model, 3) using media is not optimal, 4) the learning process is still teacher-centered, 5) the students are less active in asking and giving argument in

learning process in the class, 6) students assumed physics is passive lesson and difficult to learn, 7) students are less socialize in learning process, 8) teachers explain the matter to students in one way, 9) students are not interested with physics lesson, 10) physics tend to solved with mathematical approach.

Besides, based on the result of interview with one of physics teacher at SMAN 1 Sidikalang, she revealed that difficulty in learning is difficult to motivate and encourage the students' interest to do the physics exercises. Then, the students less motivated and less active in asking questions during the physics learning process. The students aren't motivated to learn in group, they felt difficult to solve the physics problem and the students often memorize mathematical formula of physics than try to understand the concepts and principles of physics.

Based on the problems above, some students SMAN 1 Sidikalang is passive in learning process and other is quite, although not understand yet subject learned by teacher, cause learning environment is not interesting and communicative, its cause grade of some students is low. The physics average score obtained by students didn't reach the minimum completeness criteria (MCC) known as KKM.

It is necessary to use a learning model so that students outcome can be improved, especially in the teaching of dynamic electricity. There is a possibility of less precise application of learning model as a factor in the lack of ability of students to solve problem of dynamic electricity.

According to Hayat (2008) that the assessment should be an integral part of the learning process (a part of instruction) and must be understood as an activity to streamline the learning process. Therefore models of learning and assessment techniques regarded as the components are very important in improving student learning outcomes.

The Application of learning is teacher-centered, hampering efforts students to optimize the outcomes in physics. Resolve the problems, need media or visualization method that is easy to understand students such as using a computer with a projector, posters and other media. The application of conventional learning without variation can be an obstacle in the formation of knowledge,

particularly physics, so the variety and creativity is required in learning model, especially active learning.

According to Yasemin (2013) active learning is the leading one among new education strategies. Problem based learning, inquiry based learning, project based learning and cooperative learning models rank as part of active learning. One of active learning strategies is cooperative learning model. Cooperative learning is one of widely encountered models in the areas of theory, research and education applications besides it calls much attention to teachers and researchers.

During the past decade, a new approach called "Cooperative Learning" seemed to attract a lot of attention and became popular. Even though most college courses are taught in a competitive or individualistic manner, more is understood about the effectiveness of cooperative learning than almost any other facet of education. Cooperative Learning strategies demand a facilitator that transfers greater responsibility for knowledge acquisition, organization and application from the teacher to the student (Marzban and Fatemeh, 2014).

Cooperative learning has been defined as "small groups of learners working together as a team to solve a problem, complete a task, or accomplish a common goal". The cooperative learning model requires student cooperation and interdependence in its task, goal, and reward structures. The idea is that lessons are created in such a way that students must cooperate in order to achieve their learning objectives.

Cooperative learning activities also offer the opportunity to develop and practice strategies for learning and using language. Especially social-affective strategies such as asking for help and cooperation. Cooperative learning can provide a very pleasant learning atmosphere (Marzban and Fatemeh, 2014).

In recent years, studies involving cooperative learning, one kind of student-centered approach have emerged as an internationally important area of social science research among researchers. Many studies have been conducted in different settings of education, using different kinds of cooperative learning techniques, such as Learning Together (LT), Jigsaw Grouping, Teams-Games-Tournaments (TGT), Group Investigation (GI), Student Teams Achievement

Division (STAD), and Team Accelerated Instruction (TAI).

Cooperative learning can be defined as a learning model in which students help each other's learning on academic topics by forming small groups, self-confidence of individuals grow, their skills for communication develop, power of solving problem and critical thinking rises and they actively attend the education period.

Cooperative learning model has many type, among them group investigation (GI). In group investigation, students are actively engaged in planning and carrying out investigations and presenting their findings to peers and others. Then, the classroom should be organized to reflect the larger social order and students should be required to work in democratic problem-solving groups to study academic and real life problems using democratic processes and scientific methods of inquiry. Selection of the group investigation type in physics learning is good and has great potential in the success because it is easy in practice. This prompted the researchers choose group investigation type cooperative learning. In addition, by applying the group investigation type in physics lessons in class will create an atmosphere of active learning, communicating, sharing, giving and receiving, this situation can increase understanding of the matter and increase the interaction among the students, it will increase student learning outcomes, particularly physics.

Cooperative learning model type group investigation had been examined by Giawa (2014) the result of research focus on student's learning outcomes of his research in SMA N 1 Sei Rampah on dynamic electricity topic of physics. That were obtained: pre-test mean value of experiment class was 3,190 and 4,575 for control class and then post-test mean value of the experiment class was 6,138 and 5,488 was the mean value for control class. Standard deviation in pre-test were 0,882 in experiment class and 0,903 in control class and standard deviation in post-test for two classes were 0,906 and 0,977. Then, based on observation that done by observers by using observation sheet of students' affective and psychomotor.

Based on previous thesis above used of group investigation method in learning process. The success of cooperative learning offers a proven, it is one of the great choices models of teaching to improving learning outcomes of students in dynamic electricity matter. Besides, to increase the physics outcomes in dynamic electricity matter, the research use the cooperative learning model type group investigation using macromedia flash, because previously research lack of using media.

Using the appropriate media can make more meaningful learning. Physics matter tend to be filled with mathematical calculations if poured in a conventional way will make the students easily bored. Learning use media such as macromedia flash can facilitate teachers to demonstrate lessons. For example, animation, experiments can be done as originally. Besides experiments that take a long time can be shortened so learning activities more effective.

Therefore delivery of matter is not only in text form tent to abstract and monotonous but more real and can be applied. Based on the above background, the author try to do research with the cooperative learning model group investigation (GI) to improving student learning outcomes, and the author take the title: **The Effect of Cooperative Learning Model of Group Investigation Type Using Macromedia Flash toward Physics Outcomes of Students SMAN 1 Sidikalang AY 2015/2016.**

## **1.2. Problem Identification**

Based on background above, we can identify of problems to be studied :

1. Physics outcomes of student in class X SMAN 1 Sidikalang on physics still low
2. Learning implementation still use the conventional model in physics
3. Using media is not optimal
4. The learning process is still teacher-centered
5. The students are less active in asking during learning process in the class
6. Students assumed physics is passive lesson and difficult to learned
7. Students are less socialize in learning process

8. Teachers explain the matter to students in one way
9. Students are not interested with physics lesson,
10. Physics tend to solved with mathematical approach

### **1.3. Problem Limitation**

The extent of problems and lack of expertise, time and cost, the writer need to make limitation of problems. Several limitation of problems are :

1. Learning model used is learning model group investigation type using macromedia flash toward physics outcomes of students
2. Learning outcomes of students in class X SMAN 1 Sidikalang in even semester academic year 2015/2016
3. This research will be conducted on students of class X SMAN 1 Sidikalang in even semester academic year 2015/2016
4. The subject matter is dynamic electricity of class X SMAN 1 Sidikalang in even semester academic year 2015/2016

### **1.4. Problem Formulation**

To explain the problems in study, formulation of problems are :

1. How the physics outcomes students taught using cooperative learning model group investigation type using macromedia flash in dynamic electricity ?
2. How the physics outcomes students taught using conventional learning model in dynamic electricity ?
3. Is there the effect of physics outcomes of students taught using cooperative learning model group investigation type using macromedia flash in dynamic electricity

### **1.5. Research Objective**

The objectives of the study are as follow:

1. To know the physics outcomes of the student was taught using cooperative learning model group investigation type using macromedia flash in material dynamic electricity

2. To know the physics outcomes of student was taught using conventional learning model in the material dynamic electricity
3. To know the effect in physics outcomes of the students was taught using cooperative learning model type group investigation using macromedia flash in dynamic electricity

### **1.6. Research Benefits**

The expected benefits of this study are:

1. For students

Result of study is very benefit for students in order to create the positive behaviors such as working together in solve the problems, active in physical activities so increasing physics learning outcomes of students.

2. For physics teacher

Provide reference for teachers in choose learning model in order to improving the quality of learning process in increasing student achievement especially in physics.

3. For high school institution

Result of study can provide a valuable contribution to improving the quality of education. Principal is expected to facilitate teacher to be able to implement cooperative learning model group investigation type, so teachers are not only use conventional model continuously.

4. For university student

As information matter for university student who conduct study using cooperative learning model in improving the quality of the learning process in education.

5. For researcher

Researcher will know more about problems that appear in learning and teaching activities, especially in cooperative learning model and as preparation for resercher to become teacher in future.