

CHAPTER 1 INTRODUCTION

I.I Research Background

Education is an educational process, namely a process in order to influence students to be able to adjust themselves to their environment, so that it will cause changes in themselves. A good education system also plays an important role in improving education efficiency. Various efforts have been made by the government in improving the quality of education, including raising or improving the curriculum, completing educational facilities and infrastructure, improving the quality of teachers through certification, development of learning outcomes assessment systems etc. (Trianto, 2011)

As stated in Law Number 20 of 2003 concerning the National Education System states that:

"The curriculum is a set of plans and arrangements regarding the purpose, content and material of learning and the methods used as guidelines for implementing learning activities to achieve certain educational goals. Based on this understanding, there are two dimensions of the curriculum, the first is plans and arrangements regarding the objectives, content and learning material, while the second is the method used for learning activities. The curriculum that was implemented starting in the 2013/2014 school year fulfilled both dimensions. (Permendikbud Number 69 of 2013 concerning the basic framework and structure of the SMA / MA curriculum)

The development of the 2013 curriculum is proof that the government is very concerned about the quality of education, as expected by educators and students. However, it is very unfortunate if this changing education system confuses teachers and students in its implementation at school. The quality of education is often seen as dependent on the teacher's role in managing the teaching components used in the teaching and learning process which is the responsibility of the school. The quality of education can be reflected in the results of student learning achievements.

Learning is the main activity in the school environment which determines the quality of human resources. The main problem in learning in formal education or schools today is the low absorption of students. This is evident from the average student learning outcomes are always still apprehensive. Therefore, efforts to improve the quality of learning are an important requirement. The overall reflection of learning is shown by the learning outcomes achieved by students. (Isjoni, 2009)

In this case, learning physics is a part of science which is essentially a collection of knowledge, ways of thinking, and investigation. Science is a collection of knowledge arranged systematically, and in its use it is generally limited to natural phenomena. Its development is not only characterized by a collection of facts, but by the existence of scientific methods and scientific attitudes. This scientific attitude is developed in students in student centered learning. Through this model, students can learn concepts well and can also look for new things.

Physics is one branch of natural science that is very important because physics studies the symptoms and phenomena that occur in nature and cannot be separated from the progress of science and technology. One character of physics is to have objects that are real. real is one of the supporting factors that can help students learn physics. But in reality, physics is considered as one of the subjects that is difficult for students to understand. As the researchers experienced while undergoing shootout PPLT at SMAN 1 Tebing Tinggi show that physics including hard lessons in school. So, most students don't like it. Especially seeing the number of educators in applying physics concepts. Because learning physics taught by teachers in this school is still teacher-centered, which means that the teacher only presents the physics as a lesson that memorizes formulas without understanding where the formula came from. As a result students feel bored and not interested in learning it.

Most students have difficulty in applying physics to everyday life. Students are not given the opportunity to express ideas related to physics, so that children forget quickly and cannot apply it in daily life. Students are not

accustomed to developing their thinking potential. This results in many students tend to be lazy to think independently. Students can think if the teacher explains it. For example, when students are asked about a question, only a few students are active in answering it, while the other students are just silent (Rusman, 2014)

Based on the results of interviews with one of the teachers who taught at the school, Mr. Adil Shadli, he stated that:

"Many students don't like physics because it is considered a difficult lesson compared to other science lessons such as mathematics, biology, and chemistry. So that it arises boredom and laziness when learning physics, because in general physics is difficult to understand and understand."

Then, from the observations carried out on January 26, 2019 at SMA N 1 Tebing Tinggi. Based researcher interviews with mom Nelfiza one of the teachers of physics, says that:

"The average score of the semester of physics is still far from what is expected when compared to other subjects and students get tired of learning physics. So that causes the value of students is still a lot below the KKM, namely the value of KKM 75."

Based on observation, the learning method that he did was a simple method by memorizing formulas without explaining the concept and only activating smart students that made students less cooperative, lacked courage when expressing opinions, feeling like sharing, and the level of cooperation that was still low, so that student learning outcomes are still low and students are less interested in learning physics. Efforts must be made to improve learning that activates students.

Student collaboration is one part of the learning process as revealed by Warsono and Hariyanto (2012: 163) that "Collaboration is not only a way to learn, but collaboration is also part of the content of learning." This opinion convinced researchers that student collaboration is the most important part of learning. Because in addition to students developing their intelligence also invites students to exchange ideas and participate in learning". Collaboration of students is the

most important part of the learning process, because students can improve their understanding when meeting other students and evaluating each other about learning that they feel lack of understanding and even solve and find solutions together. In addition, it can increase mutual respect and improve the communication fabric of students in achieving the same goals. So that it can be defined that student cooperation is a work relationship that is built between two or more students who are intertwined because of a bond and the need to achieve the same goal, the interlocking indicators can be seen through mutual support in completing academic tasks, interacting between students, interdependence and mutual respect for one another. (Suprijono, 2013: 39-40)

Student collaboration is one of the problems faced in learning, especially in Physics subjects. Low student collaboration can be seen from several things that occur when learning activities take place.

First, the learning conditions.

Most of the students showed passive learning conditions, students rarely pay attention to what the teacher explained. When teachers ask small questions during learning, only a few students try to answer the teacher's questions, students are more interested in other activities, for example; do assignments from subjects other than history.

Second, uneven distribution of tasks.

This is indicated when the teacher asks students to study in groups to discuss and share assignments regarding historical learning material. For example, in the group consists of five students, but in the course of the discussion only two students worked and shared tasks, while the other students were silent and did not participate.

Third, lack of respect for opinions.

It is observed when students discuss in groups, for example; student A gives an opinion on the discussion of the discussion material, but when student A is conveying his thoughts, suddenly student B cuts off the conversation. Even though student A has not finished delivering the results

of his thoughts then student B instead continues the conversation by conveying his thoughts.

Fourth, lack of student participation.

It was seen during group discussions, not all members devoted their opinions regarding their understanding and thoughts about the discussion material. In the end the group discussion did not go well because of the lack of interaction between members resulting in students working individually. These activities characterize that the majority of students still have individuality in learning, while also when discussion activities still look poor in terms of student performance in each group. It was proven from 5 members in the group, who worked to complete the task of history subjects only 2-3 people.

These problems indicate that student collaboration is low, this attracts the attention of researchers and intends to improve the learning conditions by increasing student cooperation. Physics learning should be aimed at students (student centers), especially student activities in discussions that show student collaboration. Can train students in the process of division of tasks and responsibilities in a group and it is expected that students learn to cooperate and participate in a discussion, so that student collaboration increases.

Therefore, there needs to be an innovation in learning physics changes in the learning model. The learning model that can prepare students to be able to think logically, critically, creatively so that they can properly argue in front of the class is to use the GI Type Cooperative Learning Model. In the process of this learning model the tendency is that learning will be more interesting if students express ideas that are in their minds. This is a way that will help students to improve their learning activities. So one effective method in this learning process is to use brainstorming methods.

The brainstorming method is very suitable for gathering ideas or opinions that are raised by all students to gather ideas or opinions that are expressed by all students either individually or in groups, both practical and non-practical in accordance with the problems being discussed. So that from this brainstorming a

variety of opinions will be produced which must be different, but it can be concluded that the right solution for the issues discussed. (Istarani, 2012).

By using brainstorming methods, students are expected to be more active and creative in giving ideas, can understand the meaning of the lessons learned, can solve physics problems and can apply them in daily life. The implementation of cooperative learning model type investigation group has been studied by Wahyuningsih, et al. (2012) with the title "The Implementation of Cooperative Group Investigation Model Based on Guided Inquiry Experiments to Improve Learning Activities" obtained an increase in learning outcomes in the experimental class and the control class at 0.62 and 0.52. From the results of this study, it was concluded that the use of experimental investigation group models guided inquiry is effective in increasing the activities and cognitive learning outcomes of students in the light reflection material.

Then research as a title researcher, also conducted by (Solomon Leonardus Simanjuntak, 2013: 65) entitled "Effects of Cooperative Learning Model Type GI (Group Investigation) to the learning outcomes of students in the subject matter Electric Dynamic X class the second semester of SMA Negeri 1 Medan academic year 2012/2013 "in the study found that: 1) Student learning activities using the GI learning model experienced an increase in the first meeting, namely 51%, the second meeting 62% and at the meeting III 75%. 2) The average pretest is 32.88 and after being given the treatment increases to 76.00. This shows that there is an increase in student learning outcomes after being given treatment, means that classical learning completeness is achieved, but has weaknesses in conducting research that is still obtained difficulties experienced by students in learning the subject set and also less attention to the time allocation used.

Based on the description above, a study was conducted on " The Implementation Of Cooperative Learning Model Type Group Investigation Using Brainstorming Method To Improve Student Learning Outcomes On Wave Materials At XI SMA N 1 Tebing Tinggi A.Y 2018/2019.

1.2 Problem Identification

Based on the background of the problems described above, problems can be identified that are in accordance with this study:

1. Low interest in learning student physics.
2. Student learning outcomes for physics lessons are still low.
3. Difficulties of students in expressing opinions when discussing.
4. Involvement of students is lacking in teaching and learning activities.
5. The learning method used still activates the smart students.

1.3 Problem Limitation

To provide a clear scope in the discussion, it is necessary to limit the problems in this study as follows:

1. Student learning outcomes in the wave material at SMA N 1 Tebing Tinggi.
2. Models and learning methods that can enhance student learning activities in submitting opinions.
3. Student activities during the learning process using the GI type cooperative learning model with brainstorming methods.

1.4. Problem Formulation

Based on the focus of the problem raised on the boundaries of the problem, the formulation of the problem in this study is:

1. How is the student learning outcomes taught by the GI type cooperative learning model with brainstorming methods on conventional learning in wave material?
2. How do brainstorming patterns develop with the GI type cooperative learning model with brainstorming methods on wave material?
3. How is the brainstorming mechanism with the GI type cooperative learning model on student learning outcomes in wave material?
4. How is the quality of opinion expressed by the GI type cooperative learning model with the bulk method on wave material?
5. What is the activity of students using the GI type cooperative learning model with brainstorming methods on wave material?

1.5 Research objectives

The objectives of this study are:

1. To determine student learning outcomes before and after receiving GI cooperative learning model by the method of brainstorming on the matter waves.
2. To find out brainstorming patterns that develop with the GI type cooperative learning model with brainstorming methods on wave material.
3. To analyze the mechanism of brainstorming with GI cooperative learning model the learning outcomes of students in class XI in matter waves.
4. To find out the quality of the opinions expressed by the GI type cooperative learning model with brainstorming methods on wave material in class XI of SMA N 1 Tebing Tinggi.
5. To find out the activities of students taught by the GI type cooperative learning model with conventional brainstorming methods in the material of walking waves and stationary waves in class XI SMA N 1 Tebing Tinggi.

1.6 Research Benefit

The expected benefits from the results of the study are :

1. As an alternative information material using the selection of learning models in wave material in high school.
2. As information to plan learning with GI type cooperative learning models with brainstorming methods.
3. For students, adding to the experience and knowledge of students about variations in learning models especially the Cooperative GI learning model with the brainstorming method.
4. Increase the experience and knowledge of researchers about brainstorming with the GI type cooperative learning model.
5. As reference material that can be used to perform advanced research for further research.

1.7 Operational Definition

1. Learning is a process of business carried out by a person to obtain a change in new behavior as a whole, as a result of his own experience in interaction with the environment. (Slameto, 2003: 2)
2. Cooperative Learning Model type investigation group (GI) is one form of cooperative learning that emphasizes the participation and activities of students to find (information) lessons to be learned through available materials (Joyce, 2009: 36)
3. Brainstorming is a method used by teachers in the class by giving a problem to students, then students give different comments so that there are many ideas that train students to think creatively (Istarani, 2012)
4. Learning outcomes are the achievement of educational goals in students who follow the teaching and learning process. Learning outcomes are the realization / manifestation of abilities due to behavioral changes carried out by educational efforts. Learning outcomes are classified into three domains, namely: Cognitive Domain, Affective Domain and Physchomotor Domain (Purwanto, 2009:39).