

CHAPTER I

INTRODUCTION

1.1. Background

Physics is the basic of science that learns natural phenomena systematically. Physics is subject that give us information and concept of natural phenomena occur in our daily life. Physics is an interesting subject, because we can directly observe in our daily lives. But in reality many students stating that physics is difficult, because many of the formulas should be memorized. This fact is reinforced by the results of their low physical exam. The low physics learning outcomes can be caused by various factors, among others, the low interest in students to learn physics, the way teachers teach less attractive, and less precise model of learning materials in teaching physics.

Based on interviews with physics teacher in SMA Negeri 1 Berastagi, physics learning outcomes is still low. This is evident from the mark of summative examination's students with an average 67, whereas the value of Mastery Minimal Criteria of physics is 75. In the learning process, teachers using conventional methods, learning process was teacher centered. In the learning process, the teacher explains the material and noting formulas and work on the problems. So that became synonymous with physics formulas and learning becomes less attractive.

Table 1.1 Percentage Student Reached KKM

| No | Year | Class | KKM value | % Student Graduate |
|----|------|-------|-----------|--------------------|
| 1. | 2010 | X | 75 | 13 % |
| 2. | | XI | 80 | 15% |
| 3. | | XII | 80 | 14% |
| 4. | 2011 | X | 75 | 15% |
| 5. | | XI | 80 | 12% |
| 6. | | XII | 80 | 14% |
| 7. | 2012 | X | 75 | 12% |
| 8. | | XI | 80 | 16% |
| 9. | | XII | 80 | 14% |

Source : SMA Negeri 1 Berastagi, 2013

From the table above we can make conclusion that student's learning outcomes of physics subject is still low. And from the questionnaire given by researcher in observation, student is not interest in physics subject, because their consider that physics is the difficult lesson, and teacher who teached them less engange them in learning, teacher just give lecturing and give them exercise about physics. So from this case, researcher want to use the model of teaching that can engage the student learning, and make the student as the center of learning. So, they get the knowledge of physics and feel interest to study physics. So, from that, teacher have role as facilitator of learning, and motivating student to learn.

Teachers are a crucial component in the implementation of a learning strategy. Teachers in the process of learning have very important role. The teacher's role is not only as a model or good example for the students he teaches, but also as a learning manager. Thus the effectiveness of teachers the rests process learning. Therefore, the success of a learning process is largely determined by the quality or the ability of teachers. According to Norman Kirby in Sanjaya, W (2011:52) states: "One underlying emphasis should be noticeable: that the quality of the teacher is essential, constant feature in the success of any educational system."

In line with the problems above, the learning process of physics required an innovative learning model that can encourage student learning, making students more active, and learning more fun, so that with increasing student motivation will also increase learning outcomes. One alternative to student motivation is to engage students in learning. Teachers must be able to create a comfortable atmosphere for learning and fun, as well as to actively involve students in the learning process .Therefore, the learning model used is a model that attracted students, enhance the spirit of learning, and fun. One alternative learning model that evokes the spirit of learning and engage students is cooperative learning.

According to Bruce, J and Marsha Weil (2003:13), "Cooperative learning procedures facilitate learning across all curriculum areas and ages, improving self-esteem, social skill and solidarity, and academic learning goals ranging from the acquisition of information and skill through the modes of inquiry of academic disciplines."

Based on the issues that have been presented previously, the writer tries to do research in an effort to improve student learning outcomes by implementing cooperative learning model type numbered heads together (NHT) with some methods of learning.

According to Slavin (2005:256), "Cooperative learning type NHT is a better approach to learning allows students to be more active and take full responsibility for understanding the subject matter both in groups and individually."

Therefore NHT learning model can be applied in day-to-day on the subject at the junior high or high school students. In this study the writer chose the dynamic electric topic because it is contextual topic explained with the steps of cooperative learning type NHT. In addition, cooperative learning model type NHT has not been used for research In SMA N 1 Berastagi. Dynamic Electricity also allows students to learn to identify concepts through visual aids and group discussions. Based on the description the writer wanted to do research on NHT model to improve student learning outcomes in grade X SMA Negeri 1 Berastagi Academic Year 2012/2013 on dynamic electric topic.

Writer fully aware that cooperative learning has been studied by the students. The results of previous studies reviewed were: Ertha (2012) states that: "There is a significant improvement in student learning outcomes about 61.23% after implementing NHT model. In other research, average student's pre-test mark is 46.41 and after implementation of numbered heads together model, student's post-test mark of experiment class is 78.46 that researched by Ebtan Sihotang in 2012. In his thesis, stated that cooperative learning type of NHT improved student

learning outcomes about 59.11%." Susanti (2009) stated that: "There is increasing on student learning outcomes taught by cooperative model types numbered head together by 49.37%."

The general difference with previous research is in method of teaching. In this research I use experiment method, so student more understand dynamic electricity while implementing NHT model. In this research, writer will develop the applicating Numbered Heads Together model to know student's learning outcomes.

Based on the description above writer conducted a research using cooperative learning model type numbered heads together (NHT) on student's physics learning outcomes on dynamic electricity in grade X SMA Negeri 1 Berastagi. The title taken by writer is : "The Difference of Student's Physics Learning Outcomes using Cooperative Learning Model Type Numbered Heads Together with Direct Instruction Model in grade X SMA Negeri 1 Berastagi "

1.2. Problem's Identification

Based on the above background, the main points of the problem is formulated as follows:

1. Lack of student motivation to learn physics
2. Student only memorizing the formula of physics without understanding the matter
3. Student still have low team work to do discussion
4. Student's learning activity is passive and student become have low learning outcomes
5. Teacher seldom use learning model in teaching and learning activity, so the learning become boring and not interesting

6. Teacher only explain the matter and give the exercise to student, so student think that physics only calculating, finally student think physics is difficult.

1.3. Problem Limitation

Based on the background problems described above and the identification of problems that have been described, the study is quite extensive and limited ability and time researchers, the researchers made the extent of the problem is important. The extent of the problem that will be examined are:

1. Implementation of cooperative learning model type numbered head together (NHT) in class.
2. Student learning outcomes by implementing cooperative learning model type numbered head together (NHT).
3. The topic is dynamic electric, and the sub topic is current, voltage, and ohm's law will implement in Grade X SMA Negeri 1 Berastagi Academic Year 2012/2013.

1.4. Problem Statement

Based on the background of the issues, identifying problems, and limitation issues, the problems in this study can be formulated as follows:

1. How student's physics learning outcomes (affective, psychomotoric, and cognitive) use cooperative learning model type numbered head together on dynamic electricity topic in grade X SMA Negeri 1 Berastagi Academic Year 2012/2013?
2. How student's physics learning outcomes (affective, psychomotoric, and cognitive) use direct instruction model on dynamic electricity topic in grade X SMA Negeri 1 Berastagi Academic Year 2012/2013?
3. Is there the difference of student's physics learning outcomes (affective, psychomotoric, and cognitive) use cooperative learning model type

numbered head together and direct instruction model on dynamic electricity topic in grade X SMA Negeri 1 Berastagi Academic Year 2012/2013?

1.5. Objectives

Based on the background of the issues, identifying problems, limitation issues, and the problems in this study, the objectives of this research can be formulated as follows:

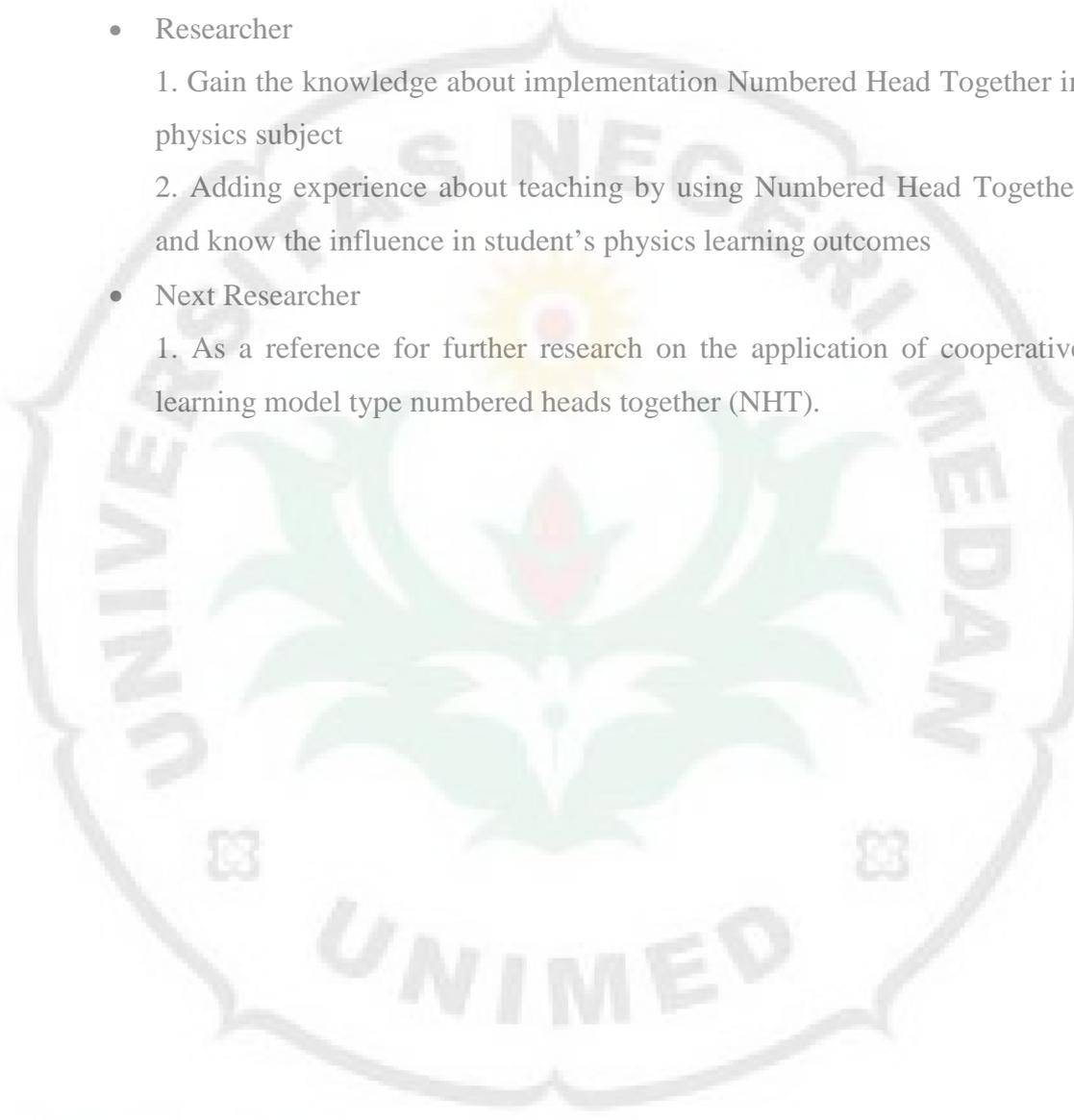
1. Identify student's physics learning outcomes (affective, psychomotoric, and cognitive) use cooperative learning model type numbered head together on dynamic electricity topic in grade X SMA Negeri 1 Berastagi Academic Year 2012/2013.
2. Identify student's physics learning outcomes (affective, psychomotoric, and cognitive) use direct instruction model on dynamic electricity topic in grade X SMA Negeri 1 Berastagi Academic Year 2012/2013.
3. Identify the difference of student's physics learning outcomes (affective, psychomotoric, and cognitive) use cooperative learning model type numbered head together and direct instruction model on dynamic electricity in grade X SMA Negeri 1 Berastagi Academic Year 2012/2013.

1.6. Advantages of Research

The research expected to be useful for:

- Physics Teacher
 1. Become a reference for physics teachers to use Numbered Head Together model for teaching physics in available physics topic.
- Student
 1. Increasing student interest and curiosity about physics.
 2. Increasing student's physics learning outcomes after apply cooperative learning model type numbered heads together.
 3. Make student usual to discuss with their group discussion and develop team work and responsibility.

- Researcher
 1. Gain the knowledge about implementation Numbered Head Together in physics subject
 2. Adding experience about teaching by using Numbered Head Together and know the influence in student's physics learning outcomes
- Next Researcher
 1. As a reference for further research on the application of cooperative learning model type numbered heads together (NHT).



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