

CHAPTER I INTRODUCTION

1.1. Background

Education has a very important role to ensure the survival of a nation and the state, because education can improve and develop the quality of human resources (HR). In Law Republic Indonesian Number 20 Article 1 of 2003 on National Education System has determined that: "Education is a conscious and deliberate effort to create an atmosphere of learning and learning process so that learners are actively developing their potential to have the spiritual strength of religious, self-control, personality, intelligence, noble character, as well as the necessary skills themselves, the community, the nation and the state". Therefore education is obliged to prepare a new generation capable of facing the challenges of the coming age.

Education also plays an important role in nation building, because education is the foundation of nation building. Success of development in the field of education will affect development in other field. The development of education will influence the development of science and technology (science and technology). This can be seen with the rapid development of science and technology. All of this, can't be separated from the progress of physics that produce a lot of new findings in the field of science and technology. Therefore, physics is placed as one of important subjects.

Physics as part of Natural Sciences that studies the phenomena and natural phenomena, is one of the interest subjects and require more understanding than memorization. When studying physics, students will be introduced to the materials, concepts, theories, and laws and physics formulas. In addition, students will also be taught to perform experiments in the laboratory and outside the laboratory for more understand the physics subject.

But in fact, the students feel bored when studying physics, since most teachers teach by lecture method (conventional learning) and tend to be monotonous and teachers-centered, which resulted in students becoming passive and bored when learning physics. Teacher more emphasis on students to memorize theories especially the formulas that can be used by students in answering general tests or national exams, without emphasizing the understanding and application of concepts in their daily lives. Thus, students will further assume that the learning physics has no meaning for their life, abstract and hard to understand.

Similarly in SMA Negeri 3 Medan when doing observations there, by giving the questionnaire instrument to the students class X which have 40 respondents and interview the physics teachers, the observation results indicate that: 44.4% of students stated that learning physics in classroom is difficult to understand and boring, 33.3% stated that learning physics ordinary, and 22.2% stated that teaching physics in class is interesting and challenging. Based on the questionnaire also found that before the physics material taught in class, 10% said students are studying at home and notes what they don't understood, 25% said sometimes learn at home, 35% just look at the topic title, and 30% did not learn and open physics book (nothing their preparation). Through a questionnaire instrument is also known that almost all respondents said that the usual way of teaching by physics teacher is lecturing, note and give the question to do.

From the interviews with 6 physics teachers at the school, said that when students are taught the theory with the direct instruction in class the students' interest towards physics lessons are less. Meanwhile, when the students were taken to the laboratory for experiment it takes a lot time, and laboratorium facility is also incomplete, so the learning model used is a direct learning with lectures, notes, do the problems, and sometimes making demonstration. Minimum competency standart in the school for physics subjects is 75. However, 52.5% of students do not achieve the minimum competency standart at the end of semester exams.

Therefore, to overcome the low physics student learning outcomes, it is necessary to use an approach or method or model of learning that can drive the spirit of each student to be actively involved in the learning experience. One of the learning model is suitable for that purpose is Problem Based Learning. This model is chosen because in learning process, the student faced to the really daily lives problem. So, student able to solve the problem and get the knowledge and important concept by their selves (L. A. Kharida, A. Rusilowati, K. Pratiknyo, 2009). Problem based learning aims improve students' ability to work in a team, showing their coordinated abilities to access information and turn it into viable knowledge (Ibrahim Bilgin, Erdal Senocak, Mustafa Sozbilir, 2009). Problem based learning is an effective method for improving students' problem-solving skills. Students will make strong connections between concepts when they learn facts and skills by actively working with information rather than by passively receiving information (Valerie Ross, 2001).

Problem-based learning model begins by presented a problem to the learners. The students will search for, collect and process data logically related to the problems encountered, either through discussion or through guided practice and facilitated by the teacher, in this learning model students are expected actively to find answers or solutions to these problems. The use of problem-based learning model is expected to improve student learning outcomes. Learning activities that involve thinking, problem solving, and understanding often have more positive effects on student achievement than do more traditional teaching methods Brown & Palincsar (in Arends and Ann Kilcher, 2010).

Based on research conducted by Nurjannah Sitanggang (2012) in MAN 1 Medan in the subject matter of rigid body equilibrium using PBL, obtained an increase value of pre-test to post-test in the experimental class is 44.29 and 37.68 at controls class. Avolen Berly Siahaan (2013) also conducted a research in SMP N.1 Tebing Tinggi using PBL in subject matter is light in class VIII, the increase of the average pretest to posttest value in experiment class is 46.04 and in control class is 12.9. And the research also conducted by Janiar Satrini Gultom (2013) in SMA N. 3 Medan for topic static fluid using PBL that conducted in the second

class, had the increase of value pretest to posttest in experiment class is 38,95 and in control class is 35.744. From these studies it can be seen that, there is the effect between problem based learning model and student learning outcomes.

Based on the explanation above, the researcher want to do a research with the title **“The Effect of Problem Based Learning Model on Student’s Learning Outcomes in Static Fluid Topic of Class X SMA Negeri 3 Medan Academic Year 2013/2014”**.

1.2. Problem Identification

Based on the background described above, some problems can be identified as follows:

1. Teaching and learning process in school is still teacher-centered.
2. Learning model still not varied that used by teacher
3. Learning physics is boring and monotonous
4. Low of student’s learning outcomes for physics
5. Students are not actively in learning process.

1.3. Problem Limitation

In order to keep this research become more focused and directed, the researcher limit the problems as the following:

1. Students that observe are high school students grade X in SMA Negeri 3 Medan Academic Year 2013/2014
2. Learning model used is a problem based learning model on the experimental class and conventional learning on the control class.
3. The material that will be taught is static fluid topic.

1.4. Problem Formulation

The problem formulation of this research are:

1. How does the student's learning outcomes after teaching use problem based learning model in Static Fluid topic of Class X SMA Negeri 3 Medan Academic Year 2013/2014?
2. How does the student's learning outcomes after teaching use conventional learning in Static Fluid topic of Class X SMA Negeri 3 Medan Academic Year 2013/2014?
3. Is the student's learning outcomes in the Static Fluid topic using problem based learning model greater than conventional learning?

1.5. Research Objectives

The research objectives as follows:

1. To know the student's learning outcomes after teaching use problem based learning model in Static Fluid topic in SMA Negeri 3 Medan Class X Academic Year 2013/2014?
2. To know the student's learning outcomes after teaching use conventional learning in Static Fluid topic in SMA Negeri 3 Medan Class X Academic Year 2013/2014?
3. To know is the student's learning outcomes in Static Fluid topic using problem based learning model greater than Conventional Learning in Class X SMA Negeri 3 Medan, Academic Year 2013/2014.

1.6. Benefits of Research

The expected benefits of this research are:

1. Adding the experience of researchers in improving student's learning outcomes based problem based learning model that can be used in the future.
2. Opening teachers thinking conception in developing teaching and learning model on using problem based learning.