

CHAPTER 1

INTRODUCTION

1.1. Background

Physics study up to now is still become a lesson which difficult for most students to obtain good learning achievement in class. Results of data obtained during Field Training Program, show that the average value of X grade for physics class is often the lowest value compared with other lessons. Data of preliminary observations in SMA Islam Al-Ulum Terpadu Medan, also show that students average value is below of passing standard score, even based on the assessment carried out in school, students must master at least basic competence in classical and individual type above or equal to 75.

The low of student's learning achievement is caused by various factors, one of them is because students are less interested in physics, most students in X grade claimed that they followed lessons of physics only as an obligation. Although there are some students who are able to understand formulas in physics, but it is still difficult for them to implement these formulas in daily life, so they think that physics is not needed to solve various problems in daily life. It can be concluded that most students are not motivated in learning physics. Teacher who teach are usually using conventional model, where students in the compulsory to understand formulas without explaining to students of physics concepts contained therein and its relationship with other subject matter taught in classroom. In addition, use of media in learning is also very minimal, so students become very limited activity.

Learning as a process of activities to change behavior of students has many factors that influence it. From many factors that affect it, can be broadly divided into classification of internal factors (from within) of students and external factors (from out) of students. Internal factors are factors that exist within of learner, while external factors are factors that exist outside of learner. These internal factors are: (i) physical factors, (ii) psychological factors, and (iii)

fatigue factor (Slameto, 2002:54). The process of teaching-learning interactions related to internal factors is more focused on the problem of motivation and reinforcement. These internal factors actually related to physiological factors and psychological factors. But with reinforcement problem, hence the review about these internal factors will be devoted to psychological factors. Thomas F. Staton describes six kinds of psychological factors: motivation, concentration, reaction, organization, comprehension and repetition (Sardiman, 2011:39). This research is focus on psychological factors of intrinsic motivation.

Someone will succeed in learning, if in itself there is a desire to learn. This is the principle and first law in educational activities and instruction (Sardiman, 2011:40). Based on preliminary observations by giving questionnaire of motivation to students at SMA Islam Al-Ulum Terpadu Medan obtained data that most of them have a level of motivation that can be categorized as less. Factors that can affect students' low motivation in learning physics are: 1) physics study is made be an abstract lesson , 2) students are not encouraged to understand the concepts of physics; 3) lack of use of instructional media; 4) interaction between students is limited.

Uno (2011: 23) reveals that, indicators of motivation to learn can be classified as follows: 1) the desire abnd willingness to learn, 2) the encourage and need feeling in learning, 3) the hopes and ambition of the future; 4) the appreciation in learning, 5) the interest activity in learning; 6) the existence of a conducive learning environment.

When students do not have motivation to learn physics properly, this will affect their learning achievement, which can be ascertained that results of their learning achievement will also be low. The problem now is how to find the appropriate way to convey the various concepts so that students have a long-term understanding of physics concept and implement it in their daily live and how a good and wise teacher able to use variety of learning media?

To overcome all problems above, it is required learning innovation that uses a contextual approach to learning and teaching. The challenge is indeed for educators to design new learning environments and curricula that really encourage

motivation and independence to equip students with learning and problem-solving skills and competencies that employers are looking for (Tan, 2003: 99). Learning with a contextual approach (Contextual Teaching and Learning (CTL) links between the material being taught and students real-world situations and encourage students to make connections between knowledge that they have and its implementation in their daily lives is expected to improve student learning achievement. There are three models of CTL namely: Direct Instruction (DI), Cooperative Learning (CL) and Problem Based Instruction (PBI). In this research the model will be applied to Problem Based Instruction (PBI)

PBI is a learning model that presents problem to students before they construct their knowledge. The problem presented is problem which always experienced by students in their daily live. Through PBI students trained construct their own knowledge, develop problem solving skills, accustomed in using media, and used to enhance interaction among students of students, so students become independent, more confident and have a great motivation in learning physics. Meanwhile, Ibrahim reveals that the PBI, teachers try to encourage students to have intrinsic motivation (Rusmiyati & Yulianto, 2009:75). In his book of "How to Use Problem-Based Learning in Classroom", Delisle reveals that research and teachers' experience have demonstrated that active instructional techniques like PBL can motivate bored students and raise their understanding and achievement (Delisle, 1937: 5).

Some research relating to the use of Problem Based Instruction method has already been done, among others; by Festiyed 1, Ermawati 2 (2008), where their reasearch showed that by using PBI in learning can provide an increase in activity and student's learning achivement, this thing can seen from average value of student learning achivement which have increased from 5.7 in Cycle I to 6.09 in cycle II. There is also an increase in value of the lowest in cycle I was 4, in cycle II, the lowest value obtained 5. Most student's scores have increase, initially they received score of 5 and 6 in cycle I, to 6 and 7 in cycle II. Research conducted by them is classroom action research using cycle model. They also

suggested that experiments of this study is more extensive, so as to ascertain how far this PBI method can increase activity and student learning outcomes.

Then by CA Hapsoro, H. Susanto (2011), where the results of their study showed that PBI-assisted learning aids can achieve basic competencies of students and student learning outcomes, in addition, PBI-assisted learning aids are better than conventional learning, this indicated by students' cognitive learning outcomes, with average value of 69.3415 in control class, while 73.5238 in experimental class. Increased learning outcomes in control class by 45% whereas in experimental class by 52%. The results of this research were obtained by using two classes as a grade control and experimental classes. Advice given in their research is aimed to improve the quality of education especially in learning activities, among others; teacher should consider PBI-assisted learning aids to be applied, because the learning method is proven improve basic competencies and student learning outcomes significantly, and also implementation of PBI learning takes a long time so that the efficiency of time is necessary for the purpose of learning can be achieved.

Next by Cecepullah (2011), describes the results of his research, among others; increasing creative thinking abilities of students based on the average normalized gain ($\langle g \rangle$) after PBI model is applied at 0.272 to a low category, and increased student achievement based on the average normalized gain ($\langle g \rangle$) after PBI model is applied at 0.271 with low category. The results of this research were obtained by using the method of quasi-experimental (Quasi Experiment). Advice given by him in his research are as follows: (1) setting the table on the PBI model should be quite comfortable to use a group of five to six people and do not hinder the mobility of teachers, (2) the number of groups is not too much, (3) required further research concerning the application of the PBI model, so as to obtain more consistent results.

Research about the implementation of PBI model to improve student motivation and learning achievement conducted at high school of grade X in Medan. This research is conducted by considering low motivation of students in learning physics which ultimately have an impact on learning outcomes of

students automatically become low. Method of this research is by using quasi experiments with one group post-test, pre-test design. This method was chosen to determine the increase of students's motivation and learning achievement after applying PBI model compared to before applying PBI model.

Based on description above, will be conducted research with title **"Implementation of Problem Based Instruction (PBI) Model For Increasing Students' Intrinsic Motivation and Learning Achievement in Optic Instruments Topic at SMA Islam Al-Ulum Terpadu Medan Academic Year 2011-2012"** expected the results could provide benefits for teachers, especially in providing an alternative model of learning in classroom, particularly in efforts to improve motivation and student's learning achievement.

1.2. Problems Identification

Based on description of background above, problem can be identified as follows:

1. Teacher is usually using conventional model.
2. Most students in X grade at SMA Islam Al-Ulum Terpadu Medan have low intrinsic motivation in learning physics.
3. Average student learning achievement is below of passing standards.

1.3. Problems Limitation

Problem that developed in this paper should be limited to provide a clear description of the issues that will be reviewed. In accordance by problem identification, problems limitation of this paper are as follows:

1. Using of appropriate learning model to enhance student motivation and learning outcomes.
2. Students's motivation towards learning physics.
3. Student learning achievement which consits of students' cognitive, psichomotoric and affective abilities.

1.4. Problems Formulation

Based on the problems limitation which described above, hence the problems formulation in this research are;

1. How the increasing of students' intrinsic motivation after applied Problem Based Instruction (PBI)?
2. How the increasing of students' learning achievement after applied Problem Based Instruction (PBI)?

1.5. Research Objectives

Referring to problem formulation, the objectives to be achieved in this research were to:

1. Knowing the increasing of student's motivation after been applied Problem Based Instruction (PBI).
2. Knowing the increasing of student's learning achievement after been applied Problem Based Instruction (PBI).

1.6. Benefits of Research

- For school: The results of this research are expected to increase the quality of school as students' learning achievement and teacher's professionalism increase.
- For teacher : The results of this research are expected to be input in expanding knowledge and insight about Problem Based Instruction (PBI) model in teaching science, that become one of alternative teaching models as effort to improve student's motivation and learning achievement.
- For student: The results of this research are expected to increase students' learning achievement and intrinsic motivation in learning physics.
- For researcher: The results of this research are expected to be description of learning model implementation in teaching physics and increase the quality of researcher writing.