

CHAPTER I

INTRODUCTION

1.1 Background

Education is one of efforts to develop the intellectual life of the nation and to improve the quality of human resources. Therefore, education plays an important role towards the progress of a nation. This has been recognized both by the government where so many efforts have been undertaken to improve the quality of education in Indonesia. Such as curriculum improvement, teacher quality improvement, provisioning the International/ Bilingual schools that have the ability to competing and so forth.

Education is not just acquired in a short time, but it requires a learning process. Learning is a process of one's effort to obtain a new behavior change as a whole, as a result of his own experience in the interaction with the environment.

Therefore, researchers and other educators give the considerable time to do a study on improving the quality of education, particularly in improving the quality of teachers. As Slameto states that "the role of teachers has increased from as a teacher became a director of learning process. As director of learning process, duties and responsibilities of teachers are more increase, including increasing the function of teachers as lesson planning, learning managers, appraisers learning outcomes, learning motivator, and as a mentor".

Nowadays, when students do the learning, students are usually dominated by the writing, recording, listening to the teacher explain and read a book. These habits are only elements of writing or words that cause only the left brain to work, while the right brain is not working at the time of study. This unbalance makes the students think that learning is not fun. Same with learn physics at school.

During this time, physics is one of subject that are less attractive to students. It is evident from the low percentage of students' mastery learning. This is because in addition to the material in these subjects is difficult to understand, sometimes the delivery of content by teacher lacking attract student. In general,

physics teacher at school more often discussing the theory of the handbook, providing formulas, and provide examples problems. This led to a physical science reading material and students can only imagine.

Learning models like above causing physics to be one of the subjects which are not interested by student and paradigm of student who assumes that physics is difficult. Thought physics is a subject that close to the daily life and its application can be found directly in our environment. In this case the teacher has an important role in instilling positive paradigm for students. So physics is no longer a daunting subject and boring.

Based on preliminary study through the direct observation by interviewing the physic teacher at SMAN 11 Medan suggests teachers tend to still use the conventional learning with lecture and question and answer that is teacher centered. In presenting the subject matter, the teacher explain to the class and give a summary of the material with notes on the board and the student listen and record the important things of the material being taught. This leads to students not directly involved in the learning process and passive. From interviews said also that the students learning outcomes in physics subject is low. When the value of KKM 75, approximately 65% of students who did not complete the study in the physics subject.

Many thing can cause low physics student learning outcomes, one of which is the learning process that is not pavor of the students. Student was just as listeners and teachers are more instrumental or teacher-centered. Dominance of teachers in this study led to more students waiting for a dish of knowledge from the teacher rather than finding themselves the knowledge, skills, and attitudes required in the acquiring knowledge.

Based on the observation found that only about 30% students' in SMAN 11 Medan which like the physics. This is because physics is a subject which is not interesting and not easily. Moreover, if the method of teaching is very nice, it will make them more interested in learning physics. In their daily life, they've responded well to the subjects of physics, this can be seen when teachers teach them, they observe and record things that are important.

According to constructivist view of learning every student construct their own understanding about the content of every case. This perspective based on premise that every people construct their own views of the world around, through integrating the individual experiences and schema with new knowledge. Therefore, constructivism focuses on preparing the students to solve problems in ambiguous situations. From a constructivist perspective, knowledge is not independent of the knower; knowledge consists of physical and abstract objects in experience. For example, there is no one true definition of inquiry waiting to be discovered, but an understanding of inquiry is constructed by individual himself. Every students needs to be active to investigating around, because by involved directly in an investigation, student construct their own understanding and built the ability in solve problem and new knowledge. Furthermore, physics is not only a theoretical science, so many of physics concepts can be seen in real life or done using models and media in experiment.

Based on the above condition teachers should apply an appropriate model of learning and can improve students' learning outcomes in physics. Learning model that suitable for used is inquiry-based learning model. Inquiry-based learning environment is one that provides and supports development of learning experiences where students observe events, ask questions, construct explanations, test those explanations, use critical and logical thinking, generalize observed patterns, and consider alternative explanations. The questions lead to the curious for answers to the question (or for solutions to a problem) and result in the beginning of exploration and hypotheses creation. These hypotheses lead to an investigation to test the hypothesis or find answers and solutions to the question and/or problem. The investigation leads to the creation or construction of new knowledge based on investigation findings.

Inquiry-based learning models not only include the development of intellectual abilities, but the entire development potential, including the emotional development and skills development. The learning materials are not given directly. The role of students in this model is to seek and find their own subject matter, while teachers act as facilitators and mentors students to learn.

Study entitled “Effects of Inquiry-based Learning on Students’ Science Literacy Skills and Confidence” done by Peggy Brickman, Cara Gormally, Norris Armstrong, from University of Georgia and Brittan Hallar from West Virginia Higher Education Policy Commission Division of Science and Research (2009). According to this study, in the sciences, inquiry based learning has been widely promoted to increase literacy and skill development, but there has been little comparison to more traditional curricula. In this study, they demonstrated greater improvements in students’ science literacy and research skills using inquiry lab instruction. They also found that inquiry students gained self-confidence in scientific abilities, but traditional students’ gain was greater –likely indicating that the traditional curriculum promoted over-confidence. Inquiry lab students valued more authentic science exposure but acknowledged that experiencing the complexity and frustrations faced by practicing scientists was challenging, and may explain the widespread reported student resistance to inquiry curricula.

Abdelraheem, A., & Asan, A (2006) also done the study entitled “The Effectiveness of Inquiry-based Technology Enhanced Collaborative Learning Environment”. The purpose of this study is to examine the effect of inquiry-based learning model enhanced collaborative learning environment on students' learning experiences. Success has been reported in the development of course units using technology as cognitive tools, benefiting both graduate and undergraduate students. This study showed that well designed an inquiry-based technology enhanced collaborative learning environment can enhance students learning experiences. In the well designed inquiry-based learning students asks questions. These questions lead to the desire for answers to the question and result in the beginning of exploration and hypotheses creation. These hypotheses lead to an investigation to test the hypothesis or find answers and solutions to the question and/or problem. The investigation leads to the creation or construction of new knowledge based on investigation findings. Students discusses and reflects on this newly-acquired knowledge, which, in turn leadsto more questions and investigations that lead to conclusion. Also found evidence that an Inquiry-based

technology enhanced collaborative learning can help students acquire and flexibly use complex knowledge.

In Indonesia, some researchers previously have also been researching on application of inquiry-based learning model as an effort to improve student learning outcomes and successfully proved that inquiry-based learning model was able to increase the understanding of the concepts and student learning outcomes. One of the researchers, Primadani and Alimuf Rohmah Arief (2012) who conducted a study entitled “Pengaruh Model pembelajaran Guided Inquiry dengan Self Assesment terhadap Hasil Belajar Siswa Kelas X pada Materi Listrik Dinamis di SMA Negeri 1 Krian. Researchers try to apply the guided inquiry-based learning model with self assessment. This research aims to determine the effect of guided inquiry learning model with self assessment to students learning outcomes class X in the material dynamic electricity at SMA Negeri 1 Krian. From the analysis obtained the conclusion that the application of guided inquiry-based learning model with self assessment has a positive effect to students learning outcomes class X in the material dynamic electricity at SMA Negeri 1 Krian.

From study entitled “Pengaruh Model Pembelajaran Inquiry Terhadap Hasil Belajar siswa pada Materi Pokok Suhu dan Kalor di Kelas X Semester II SMA N I Percut Sei Tuan T.P. 2010/2011” done by Rubianum (2011) obtained that the results of student learning in the classroom of experiment, which uses the inquiri-based learning model have an average value 70.25 with standard deviation 18.15. Whereas in the class of control that uses the conventional learning model obtained average value 62,50 with standard deviation 18.15. In this study there were obstacles experienced when doing research, namely in terms of allocating material at each stage of learning and set up the division of groups of students hard because students do not get used to learning in groups.

Based on these problems, researchers interested do research influence inquiry-based learning model on dynamic electricity topic, by title **“The Difference of Student’s Learning Outcomes Using Inquiry Based Learning and Direct Instruction Model on Dynamic Electricity at Grade X SMANegeri 11 Medan A.Y 2015/2016”**

1.2 Problems Identification

Based on the background above can be identified some of issues, namely:

1. The student’s paradigm who assumes that physics is difficult
2. Teacher still use conventional learning (teacher centered)
3. Student’s learning outcomes in physics subject is low
4. Students are not directly involved in the learning activity

1.3The Scope of Study

As for the scope of study in this research are:

1. Research subject is student of X grade on SMAN 11 Medan academic year 2015/2016.
2. The topic will be learned is Dynamic Electricity by using Inquiry Based Learning Model in experiment class.
3. Learning outcomes will researched in science process skills aspect.

1.4 Problems Formulation

Based on the background that has been explained above so it can be compiled research problems as follows:

“Do implementation of inquiry-based learning model can further enhance the student’s learning outcome at grade X of SMA Negeri 11 Medan on Dynamic Electric topic?”

Problem Formulation above can be divided into several research questions:

1. How the average mark of student learning outcomes of using Inquiry Based Learning Model and Direct Instruction Model?
2. Is there significant differences of students' learning outcomes using inquiry-based learning model and direct instructional model?

1.5 Research Objectives

Based on the problem formulation above so the objectives that will be achieved in this research which doing at grade X of SMA Negeri 11 Medan on dynamic electricity are:

1. To know the average mark of student learning outcomes of using inquiry based learning model and direct instruction model?
2. To know the significant differences of students' learning outcomes using inquiry-based learning model and direct instructional model?

1.6. Benefits of Research

This study provides information on the development process of learning physics by using inquiry-based learning model. This research can be expected a correction or a preliminary study to the development of inquiry-based model in learning physics. For students, this research is expected to facilitate the development of a knowledge base through the experience of the students directly in learning to be able to explore, explain and analyze the physics concept logically and conceptually.