

## CHAPTER I

### INTRODUCTION

#### 1.1. Background

Education is the process of facilitating learning, or the acquisition of knowledge, skills, values, beliefs, and habits. Education holds the important role to produce Indonesian human resources, like as individu or as society because education can improve and develop the quality of human resources. Improving the quality of education deserve serious attention and careful. Therefore, various attempts have been made to improve the quality of education. One is the development of research in the field of education, especially in the teaching-learning process (Sanjaya, 2006:1-2). Learning exposes one to a range of possibilities and choices that life has to offer. The learning process is both a mirror of one's life in relation to others and to the wider environment, as well as a compass to help us to map our way in our life's journey (Ramphela, 2015). Education is expected to produce human resources highly skilled, including critical thinking, logical, creative, and willingness to work together effectively that can be developed through education of physics.

National education according to Law No. 20, 2003, serves to develop the ability and character development and civilization of the nation's dignity in the minds of the people. To that end, education aims to develop students' potentials to become a man of faith, and fear of God Almighty, the noble character, healthy, knowledgeable, skilled, creative, independent, and become citizens of a democratic and responsible (Mulyasa, 2013:20).

Physics as a science is one of the subjects related to nature so demanding in learning the necessary investigations in the form of an experiment on such knowledge. Physics as a subject is not an exception here. Physics is hard to learn because of the need to understand the laws and know numerical facts, manipulating them with the knowledge of mathematics and analytical thinking. It

cannot be understood just by knowing factual data (Fauziah et al, 2016). The science and its applications are part of daily life to make our life better and therefore the development of an individual's understanding of science and its applications is one of the objectives of science instruction. Learning physics in schools is still dominated by the activities of teachers. In the sense of active teacher to teach and learners passive in learning (Hamid, 2011). Therefore, to develop a field of physics necessary supporting infrastructures such as laboratory equipment and instruments sufficient material physics experiments, the library is sufficient to develop the basic thinking of students, and other learning support at school. According Brown et al., 1983; Entwistle and Ramsden, 1983 in (Selcuk, 2014) Students use basic strategies (e.g., rehearsal and memorization) to remember facts and formulas, whereas higher level strategies are used to understand main ideas and concepts. Therefore, not all types of Learning strategies necessarily improve the acquisition of conceptual understanding. Research also suggests that higher level strategies are expected to promote conceptual understanding. Various studies exist in the physics education literature investigating the effectiveness of Learning strategies on student learning. Until now most schools will have to clean that purpose. However, the learning outcomes of students in studying physics has not shown success and satisfaction.

Learning outcomes are also associated with student life perspective (Ronfeldt et al, 2015). A fact that when the children were young, their world is full of questions. In various facets of life, they get the idea that being an adult means left the world questioning to enter the world know the answer. Schools tend to encourage the movement of question to answer because success by simply placing the correct answer blank or mark the correct response. Questions in school tend to have one correct answer and questions that no response is rare. Therefore, if we want to know how to learn more important than knowing all the answers, then we must realize that a good question is more important than the right answer. Teaching students to question and ask questions of quality is more important than the truth of the

answers they could provide. According to Nasution (2000: 94) in Wahyuni and Siswanto (2010), The lesson will be interesting and successful, when linked with experiences in which they can see, feel, give, do, try, think, and so forth. In this case the learning approach used in schools are less precise.

Observations has been conducted by research on students of SMAN 2 Lintongnihuta, there are some problems that are found in physics learning. Perspective physics students will be unfavorable. Learning physics is often a frightening specter for them, filled with formulas, interesting but difficult to understand the study, there are even some opinion reveals that physics is only for scientists. Furthermore, the way of teaching physics teacher in the classroom tends to take notes and work on the problems. In addition, about 60% of students in each class XI science still has a value below KKM standards.

Monotonous teaching methods is the reason why the study of physics be learning less interesting for students. Moreover, when given a problem most students do not get to read about and determine what formula is used. Teachers do not always adopt new instructional strategies seamlessly. According Ravitz (2003) in (Tamim and Grant, 2013) posited that, even when teachers show enthusiasm about the constructivist teaching approach after participating in professional development workshops, they might not find it easy to implement it in their classrooms. Hence develop assumption on students that physics is suitable only be learned by those who want to be a scientist or a physicist more details. At the time of teaching and learning activities take place, the activity of students in working on the problems of physics given by the teacher is still lacking, although still capitalized, see the notes and only some students were active. Another case when the teacher asked the students if the material presented is understandable, students only silence in other words no student is given a definite answer. Additionally, when at the time the teacher gave a demonstration, students were also less active in its implementation. It shows students just received the knowledge of the teacher without the initiative to find their own. Furthermore, from the results of tests conducted by teachers of physics, it is known that the results of student learning about

the material of static Fluid has not reached the expected target. Information about the physics student learning outcomes obtained from interviews, the average value for 3 years in a row has not reached the minimum completeness criteria. From this it appears that student learning outcomes are still low in physics.

Problem-based learning model is an instructional model that presents a contextual problem that stimulates learners to learn. In classes that implement problem-based learning, students work in teams to solve real-world problems. So, student able to solve the problem and get the knowledge and important concept by themselves (Etherington, 2014).

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 (Eldy, 2013). PBL will happen with meaningful learning. Learners who learn to solve a problem then they will apply the knowledge possessed or sought to know the necessary knowledge. Learning can be more meaningful and can be expanded when students are dealing with a situation in which the concept is applied. PBL can improve critical thinking skills, foster initiative learners in work, internal motivation to learn, and can develop interpersonal relationships in the working group. One advantage of PBL is that discussion in a small group will empower students to be more independent in their study. Which means they will stimulate themselves to be more responsible and directly lead them to spend more time on their studies (Dolmans et al., 2016). In the fact shows students are less able to relate the information that has been obtained from the teacher with information that will be studied and related to everyday life. This relates to the lack of practice over theory learned and laboratory use are not effective in schools.

Based on description above, will be conducted research with title **“The Ability of Student in Solving Contextual Problem with Problem Based Learning Model**

**in Dynamic Electricity Concept at Grade X SMA Negeri 2 Lintongnihuta Academic Year 2015/2016”.**

### **1.2. Problems Identification**

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

1. Low ability of student in solving contextual problem in physics
2. Student learning outcomes for physics lesson is still not optimal (not reached KKM)
3. Lack of motivation of students to physics so that students can't solving contextual problem
4. Teaching and learning process in school is still teacher-centered
5. Learning model still not varied that used by teacher
6. Students are not actively in learning process

### **1.3. Problems Limitation**

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

1. Application of Problem Based Learning
2. Student ability in solving contextual problem in physics

### **1.4. Problem Formulation**

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

1. Is the students learning ability solving contextual problem by using Problem Based Learning model better than Conventional learning?

### **1.5. Research Objectives**

The goals of this research is:

1. To know if there are differences in student learning achievement solving contextual problem using Problem Base Learning model with Conventional Learning model.

#### **1.6. Research Benefits**

The expected benefits of this research are:

1. Adding the experience of researchs in improving students learning outcomes based Problem Base Learning model that can be used in the future.
2. Opening teacher thinking conception in developing teaching and learning model on using Problem Base Learning.

#### **1.7. Operational Definition**

1. The learning model of problem-based learning is the use of various intelligence necessary to confront the challenges of the real world, the ability to confront everything new and existing complexity.
2. *Contextual Teaching and Learning* (CTL) is a learning strategy that emphasizes the process of involvement of students to find the material, which means that the learning process is oriented to the process of direct experience.
3. The learning outcomes is the ability of the students after receiving the learning process is completed is a value that includes cognitive, affective and psychomotor.