

# 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). 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).

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, 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 teachers to teach and learners passive in learning (Prayoga, 2013). 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 strategi 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, 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. Problem in school tend to have one correct answer and questions that no response is rare. Therefore, if we want to know how to learn is 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 ask questions of quality more important than the truth of the answers they could provide. 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 researchers on students of SMAN 2 Lintong Nihuta, 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, 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 assumptions 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 a 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 stimulate 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 their selves ( 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. Because 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 initiatives 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, 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 the explanation above, the researcher want to do a research with the title “ **The Effect of Problem Based Learning Model on Student’s Achievement on Static Fluid topic at year XI of SMA Negeri 2 Lintong Nihuta Academic Year 2015/2016.**

### **1.2.Problem Identification**

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

1. Teaching and learning process is still teacher-centered.
2. Students assume the physics is a difficult subject and less attractive
3. Students only received the knowledge of the teacher without the initiative to find her own
4. Lack of practice over theory learned and laboratory use are less effective in schools

5. Low student learning outcomes.

### **1.3 Problem Limitation**

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

1. The subjects studied are students of SMA Negeri 2 Lintong Nihuta grade XI Academic Year 2015/2016.
2. The 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 of students after teaching use conventional learning in static fluid topic class XI in SMAN 2 Lintong Nihuta Academic Year 2015/2016?
2. How does the student's learning outcomes of students after teaching use the teaching model of problem based learning in static fluid topic in class XI SMAN 2 Lintong Nihuta Academic Year 2015/2016?
3. Is the student's learning outcomes as a result of the influence of problem based learning model better than conventional learning in static fluid topic in Class XI SMAN 2 Lintong Nihuta Academic Year 2015/2016?

### **1.5. Research Objectives**

Based on the formulation of the problem, the objectives to be obtained in this study are:

1. To know the learning outcomes of students after teaching use problem based learning in static fluid topic in class XI SMAN 2 Lintong Nihuta Academic Year 2015/2016.
2. To know the learning outcomes of students after teaching use conventional learning in static fluid in class XI SMAN 2 Lintong Nihuta the Academic Year 2015/2016.
3. To know the influence learning model of problem-based learning is better than conventional learning in static fluid in semester class XI SMAN 2 Lintong Nihuta Academic Year 2015/2016.

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

This research is expected to be useful as follows:

1. For researcher, adding the in the future to improve student learning outcomes using problem based learning.
2. For teacher, as an alternative material to use use learning model in the classroom for improving student learning outcomes, and to developing teaching and learning model on using problem based learning.