

CHAPTER I

INTRODUCING

1.1. Background

Education is one of the important factors to produce competent human resources. Through good education, new things are obtained so that they can be used to create quality human resources. Characteristics of quality education must be able to achieve educational goals. The purpose of Indonesian education is stated in the Law of the Republic of Indonesia Year 2003 concerning the national education system which states that: "National education functions to develop capabilities and shape the character and civilization of the nation which aims to develop the potential of students to become quality human beings with the characteristics of being faithful and pious. To God Almighty, have noble character, are healthy, have faith, are capable, creative, independent, and become citizens of a democratic and responsible state. The 2013 curriculum demands a change from the learning process that emphasizes active students to seek and find their own learning needs and educators act as facilitators to guide the learning process (Alwardah et al, 2021).

Learning is essentially a conscious effort of a teacher to teach his students (directing student interaction with other learning resources) in order to achieve the expected goals (Trianto, 2010). Physics learning requires students to participate in finding concepts through observation or experiment activities, students not only master the concepts of physics in theory, solve problems with mathematical formulas but also prove these physics concepts scientifically through the stages of the scientific method. Physics learning involves students to learn directly by paying attention, observing, investigating, and analyzing events and events in everyday life related to the topic of ongoing learning.

Education in Indonesia still needs to be improved in accordance with the times, because education is one of the most important sectors in national development. The development of education certainly affects the development of science and technology. This can be seen with the rapid development of science and

technology today. The rapid development of science and technology today cannot be separated from the progress of physics which has produced many new findings in the field of science and technology. Physics in this case is placed as one of the important subjects because one of the requirements for mastering science and technology is related to Natural Sciences, which includes physics.

According to Hastuti et al (2016) physics is a branch of science related to products and processes, namely conducting observations, experiments and investigations. Physics as a basic science has characteristics that include the form of science consisting of facts, concepts, principles, laws, postulates, and scientific theories and methodologies. Physics in studying the objects of study in the form of objects and natural events uses standard procedures commonly called scientific methods/processes (Pratama & Istiyono, 2015). However, in reality this subject has very little demand compared to other subjects. The purpose of studying physics is so that we can know the basic parts of objects and understand the interactions between objects, and be able to explain natural phenomena that occur.

Based on observations through interviews with teachers conducted at SMA Parulian 1 Medan it was found that during the learning process, students still received a lot of learning topic from the teacher and were not involved in the process of how the topic was obtained through the surrounding phenomena. Teachers still use conventional learning with the lecture method. The teacher provides physics topic with the lecture method, the learning model used does not motivate students does not involve students in the learning process directly and is still teacher centered. When the science learning process takes place, students do not really care and respond less when the teacher asks questions. Inadequate in classroom facilities and infrastructure, such as media learning. This type of learning reduces students' understanding, which has an impact on the value of student learning outcomes that do not reach the KKM average value, as evidenced by the results of the average value of physics lessons obtained by students who do not meet the KKM average score of 70.

In order to provide an in-depth learning experience for students, teachers must be able to choose a learning model that can stimulate and lead to student

activity during the learning process. Teachers are expected to be able to develop a learning model that can improve the ability to develop, find, investigate and express students' own ideas. In other words, teachers must be able to improve students' thinking skills in solving problems, especially in learning physics.

The way that can be done to overcome the problems above is to use a student centered learning model, one of which is the problem based learning model. According to Arends (2008) the problem based learning model is designed primarily to help students develop thinking skills, problem solving skills, and intellectual skills, learn adult roles by experiencing them through various situations or simulated situations, and become independent learners and autonomous. Problem based learning method also requires cooperation in the learning process. Learning to work together is very important because it includes the process of exchanging information, communicating, and working together in solving problems. Jannah et al (2018) stated that the use of problem based learning models during learning activities makes students think more than memorize, understand lessons better through discussion and can accept learning models, can also improve student learning outcomes in physics, encourage democracy in effectiveness." learn and can develop creativity.

The advantages of the problem based learning model according to Arends (2008), is that able to place students in an active role when they investigate confusing situations and problems for which the answers are not clear. In its application, this learning model often makes problems as learning materials that must be solved in the learning process. In problem based learning, students are emphasized to be active but still with teacher guidance in finding related concepts. The results of previous research conducted by Siregar (2018), Rajanami (2017), Mahulae and Sirait (2017) that there is an effect of using a problem based learning model based on student learning outcomes.

Based on the background of the problem above, the researchers conducted research on **“The Implementation of Problem Based Learning Model to Increase Physics Learning Outcomes of Class XI MIA in SMA Parulian 1 Medan”**.

1.2. Identification of Problems

Based on the background of the problem, the following problems can be identified:

1. Low student physics learning outcomes.
2. Teachers use various learning models.
3. Using teacher centered learning in learning process.
4. Learning resources are incomplete, the facilities and infrastructure in the classroom are inadequate in learning.

1.3. Limitation of Problem

The problem is limited to:

1. The model used is a Problem Based Learning model.
2. Learning outcomes measured on static fluids topic of class XI MIA SMA Parulian 1 Medan.

1.4. Formulation of Problem

Based on the identification and limitation of the problem above, the formulation of the problem in this research is:

1. How are the learning outcomes of students using the problem based learning model in static fluid topic of class XI MIA SMA Parulian 1 Medan?
2. How are the learning outcomes of students using conventional learning models in static fluid topic of class XI MIA SMA Parulian 1 Medan?
3. How are the affect of problem based learning model on learning outcomes in static fluid topic of class XI MIA SMA Parulian 1 Medan?

1.5 Research Objectives

The research objectives are:

1. To knowing the learning outcomes of students using the problem based learning model static fluid topic of class XI MIA SMA Parulian 1 Medan.
2. To knowing the learning outcomes of students using the conventional learning model static fluid topic of class XI MIA SMA Parulian 1 Medan.

3. To knowing the affect of problem based learning model on learning outcomes in static fluid topic of class XI MIA SMA Parulian 1 Medan.

1.6 Research Benefits

Based on the description of the background and the objective of this research, the expected benefits in this research are:

1. For teachers, it can be used as input for effective learning models used in the teaching and learning process.
2. For students, it can improve students understanding of the topic being taught.
3. For researchers, it can add insight, experience, and as a guide for the author himself as well as one of the first steps to prepare to become a good and quality educator.

1.7 Operational Definition

The operational definition of this research is:

1. Problem based learning is a model with the principle that the use of the problem can be used as a starting point for the acquisition and integration of knowledge so as to obtain new knowledge (Sari, 2020).
2. Learning outcomes are something that students get as a consequence of the efforts that have been made so that changes in behavior occur in students both in cognitive, affective, and psychomotor (Sanjaya, 2009).