CHAPTER I
INTRODUCTION

1.1. Background

Education is a process of changing attitudes and behavior of a person or group of people after going through a certain teaching and training system so that they can change their way of thinking and behavior in accordance with the current educational model (Suardi et al., 2017).

Improving the quality of education is inseparable from a quality learning process because with this learning process learning outcomes will be obtained in accordance with the goals and expectations of national education that have been formulated. Improving the quality of learning can be done by updating the curriculum, developing learning models, learning methods, learning media, procuring laboratory equipment to the maximum and also improving the quality of teachers.

The development of learning models and approaches is very important. The model becomes important because it is likened to a wrapper or frame from the application of an approach, method, strategy, and learning technique. While the learning approach is the starting point or point of view of the learning process. Approach can also be interpreted as the foundation of thinking or fiolosofi in determining learning.

Based on PISA (Program for International Student Assesment) Indonesia is ranked 74th in the math, reading and science categories. Of course a good learning model and approach must be used to increase education in Indonesia (Widowati et al., 2017)

Based on an interview with one of the VIII grade science teachers at SMP Negeri 35 Medan, the science teacher has not used the learning model but only uses the lecture method. Meanwhile, according to research by Hartley and Davis, in the first 10 minutes of delivering material with lectures, students are only able to absorb 70% of the material

presented. Furthermore, the level of student attention has decreased. In the last 10 minutes they only absorbed 20% of the material presented (Helmiati, 2019). In addition, teachers still use the teacher centered learning approach in teaching, where all aspects such as organization, material and time are controlled by the teacher

The results of interviews by the VIII grade science teacher at SMP Negeri 35 Medan showed that student learning activities were still low which included visual activities, oral activities, listening activities, metric activities, mental activities, and emotional activities. Students do activities not on their own initiative, but must be ordered by the teacher. This is contrary to the 2013 Curriculum which emphasizes the affective aspect, namely changes in student behavior or activities. And the competencies to be achieved are competencies that are balanced between attitudes, skills, and knowledge, as well as a holistic and fun way of learning (Bantul & Dahlan, 2013)

Science learning is learning that studies the interaction between individuals and their environment, both the natural environment and society, and also its application in technology. In essence, science has four main elements, namely (1) attitude: curiosity about objects, natural phenomena, living things and causal relationships that lead to problem solving, (2) process: problem solving procedures through scientific methods, (3) products: in the form of facts, principles, theories and laws, (4) application: application of science concepts and scientific methods in everyday life (Ekapti, 2016). However, in the reality of learning in class VIII of SMP Negeri 35 Medan, students find it difficult to learn science material, especially material related to physics. Students tend to study science as memorization of concepts, theories and laws.

Below is the data on student learning outcomes of class VIII SMP Negeri 35 Medan

Table 1. 1. Mid-Semester Natural Science Test Grade VIII SMP Negeri 35 Medan

No.	KKM	Class	Score	Criteria	The Number of Student
1.	70	VIII-1	82,5	Complete	32
2.		VIII-2	83,3	Complete	32
3.		VIII-3	81,2	Complete	32
4.		VIII-4	76,4	Complete	31
5.		VIII-5	61,8	Not Complete	30
6.		VIII-6	61,5	Not Complete	30
7.		VIII-7	53	Not Complete	32
8.		VIII-8	66,7	Not Complete	32
9.		VIII-9	62,7	Not Complete	32
10.		VIII-10	80,5	Complete	32
11.		VIII-11	74,3	Complete	32

Source: List of Mid Test Grades for Class VIII SMP Negeri 35 Medan Academic Year 2021/2022

Based on Table 1, it is known that from the results of the mid-semester test of science subjects for class VIII SMP Negeri 35 Medan that has been carried out, there are 5 out of 11 classes whose scores have not reached the Minimum Completeness Criteria (KKM). The KKM criteria set for science subjects are 70.

In Junior High School IPA learning is an integrated learning without tinkering with the lesson into Biology, Physics, or Chemistry. One example of integrated IPA learning is the liquid pressure material where the basic competence is; 3.8 It requires learners to understand the concept of liquid pressure and its application in everyday life to explain blood pressure, osmosis pressure, and diffusion in the event of respiration. All of these materials produce a relationship between physical matter, and Biology that is incorporated in IPA learning (Wirangga et al., 2018)

Based on interviews with several students at SMP 35 Medan, they consider IPA material, especially physics-related materials such as liquid pressure as difficult material. Liquid pressure material is considered difficult because it is always associated with formulas. From the interview data and the test results, it can be concluded that the low learning

outcomes and student learning activities are one of the problems in learning. If this is not immediately followed up then the quality of learning in SMP Negeri 35 will decrease. For this reason, efforts or improvements are made to the low learning results and learning activities. Efforts that can be made to improve student learning outcomes and activities are to use the Problem Based Learning model with the SETS approach. Students will be able to solve problems and view learning materials broadly and integrated with Science (Science), Environment (Environment), Technology (Technology), and Society (Society).

The results of previous research conducted by (Agustin et al., 2019) show that student learning outcomes using the PBL model can improve learning outcomes, where the average value of learning outcomes in the experimental class is 80.00 while the average value of learning outcomes in the control class is 69.3. PBL makes the learning atmosphere more active and students think more critically so as to foster the spirit of learning in the material Of National Commitment Class VIII Islamic Junior High School Karang Ploso. Penelitian oleh Fridani et al, (2020) mengatakan bahwa pembelajaran menggunakan model Problem Based Learning dapat meningkatkan hasil belajar siswa SD Prumnas Mandala Medan dimana kelas eksperimen memiliki hasil rata-rata belajar 83,85, sedangkan kelas konvensional sekitar 73,81. In addition, research conducted by (Susanti, 2020) shows the influence of the Science, Environment, Technology, and Society (SETS) approach on student learning outcomes. It can be seen that there is an increase in four of the six indicators that increase in the experimental class compared to the control class. Students can associate Hydrostatic Pressure material with SETS, the rest are judged to have creative and innovative thinking power. In research conducted by (Rasyid, 2018) regarding the development of SETS-based learning media can increase student learning activities. Of the three experimental classes used, it shows that the learning activities of students from the three experimental classes 78% reach the active and very active categories. More than 80% of students respond positively to the

edutaiment learning media with sets vision. Students become happy to learn so that learning activities are higher and when given problems in the form of problem solving students get better results. The results of research from (Wasiso, 2013) show that the problem-based learning model with the SETS vision is much more effective in helping to improve science solving abilities than conventional methods. In addition, the development of problem-based learning models can improve student learning activities. Students associate disaster material with SETS. The discussion is more optimal and students understand more about disaster materials. Judging from the value of the analysis with the gain test <g> eksperimental class = 0,556 and gain test <g> controll class= 0,386.

Thus, as the problem has been described, researchers will make improvements in learning, namely by conducting quasi-experimental research which is expected to be able to help students to solve problems and view learning materials from various aspects so as to improve learning outcomes and learning activities of science students in class VIII SMP Negeri 35 Medan.

1.2. Identification of problems

Based on the background of the problem above, the identification of the problem in this study is as follows:

1) The low student learning outcomes, seen from the 6 classes that have Mid Test Science Result scores below the KKM
2) Students have difficulty understanding science material, especially those related to physics, where students only see the material as rote, theory and law.
3) Teachers do not use innovative learning approaches
4) Teachers still use the lecture method and control all aspects such as learning organization, materials and time.
5) Low student learning activities

1.3. Scope of the Problem

The Scope of problem in this research are :

1) The learning model that will be used is the Problem Based Learning Model
2) The learning approach that will be used is Science, Environment, Technology, and Society (SETS)
3) The learning material that will be used is Liquid Pressure material
4) Students who will be the object of research are students of Class VIII SMP Negeri 35 Medan.

1.4. Formulation of the problem

Based on the background of the problem above, the formulation of the problem in this study is formulated as follows:

1) How is the application of SETS PBL to increase student learning outcomes in the material on Liquid Substance Pressure for class VIII SMP Negeri 35 Medan?
2) How is the application of SETS PBL to increase student learning activities on the material of Liquid Substance Pressure class VIII SMP Negeri 35 Medan?

1.5. Limitation of problem

In accordance with the problems that have been identified, to avoid the possibility of expanding the problem to be studied, the researchers hereby limit the problem, namely the low learning outcomes and student learning activities in science learning.

1.6. Research Purpose

Based on the background of the problem that has been described, the objectives of this study are as follows:

1) To find out how the Influence of SETS PBL to improve student learning outcomes on the material of Liquid Pressure.

2) To find out how the Influence of SETS PBL to improving student learning activities on the material of Liquid Pressure.

1.7. Benefits of research

The benefits of this research are as follows:

1. **Theoretical**

   The results of this study are expected to be able to provide knowledge about the Problem Based Learning model and the SETS approach so that it can improve learning outcomes and student learning activities.

2. **Practical**

   a. **For Researchers**

   Can provide experience and knowledge of various problems in the teaching and learning process as well as solutions made.

   b. **For Teachers**

   1) As input for teachers to carry out teaching and learning activities using innovative models so that they are able to make students solve problems

   2) Helping teachers to improve thinking skills and also student learning activities

   c. **For student**

   Students will more easily understand the teacher's explanation, be able to solve problems and have much better learning outcomes and activities.

1.8. Operational definition

a. Problem Based Learning Model

The Problem Based Learning model is a learning model that introduces students to a problem or case that is relevant to the teaching material to be discussed and students are required to carry out all activities that lead to problem solving (Sartika et al., 2018)

b. Student Learning Activities

According to Wijaya in Student Learning Activities is an individual activity that can bring change for the better in individuals because of the interaction between individuals and individuals or individuals with their environment (Nuraini et al., 2018)

c. SETS Approach

The SETS approach is an approach that links science learning with other elements such as the environment, technology, and society. The SETS approach is a combination of concept approaches, process skills, CBSA, inquiry, discovery and environmental approaches (Sartika et al. , 2018)

d. Learning outcomes

Learning outcomes are a final assessment of the process and recognition that has been done repeatedly. And will be stored for a long time or will not even be lost because learning outcomes participate in shaping a person's personality who strives to achieve good results so as to change the way of thinking and behavior (Sulastri et al., 2014).