CHAPTER I
INTRODUCTION

1.1. Background of the Problem

A learning process is necessary for education because it produces outcomes that are consistent with the process that has been completed. In the process of growing human resources, education is crucial. So that expectations for high-quality and pertinent education can be met, an ongoing effort is made to improve educational quality. Because it is a means of enhancing and developing the quality of human resources, education plays a significant role. Education will enable human resources to keep up with advances in science and technology. Education institutions must be better prepared to adapt to the advancement of science given the quick expansion of the educational field.

In order to increase the quality of education, the government has made adjustments by establishing the 2013 curriculum, which includes learning activities as a requirement to further encourage students to be involved in the learning process or put students at the center of learning. Learning is fundamentally an interaction between pupils and their environment that leads to a positive shift in behavior. The learning process is wholly focused on the holistic/holistic development of the cognitive, emotional, and psychomotor domains. The entirety of the learning process results in characteristics that demonstrate total mastery of attitudes, knowledge, and abilities (Depdiknas, 2013). Reforming the educational system is another strategy for raising the standard of education. Curriculum renewal, improving the quality of learning, and the efficacy of learning models are three aspects of educational renewal that must be highlighted. Improving the quality of learning is carried out to improve the quality of educational outcomes, namely through the application of effective learning strategies or models in the classroom and further empowering the potential of students. The application of such a strategy or model is very much needed in science lessons as well as in physics lessons.

In general, physics education still prioritizes the teacher. According to Novita and Supriyono (2015), students have a tendency to memorize concepts and formula

and accept what the teacher teaches. The goal of the learning process in the classroom is for children to be able to memorize information without being helped to understand how the knowledge they retain relates to their daily lives (Dewi et al., 2016). Incompatible with the nature of physics learning, physics learning processes do not give students the chance to participate actively in scientific processes (Pratama and Istiyono, 2015). The level of student learning outcomes is significantly influenced by how learning models are used.

There are a number of reasons why student learning results are low, including the fact that teachers frequently use traditional methods of instruction that are still teacher-centered. It is believed that students can fully transfer knowledge from the teacher's mind to their own. Students tend to be more passive in learning activities because teachers frequently employ the lecture approach rather than giving them the most opportunity to discover the concepts learnt on their own. Conventional learning just permits the teacher to transmit knowledge; student activities are not taken into account. The goal of the learning process in the classroom is for students to be able to memorize information without being guided to understand how the knowledge relates to daily life.

The teacher still does not use a variety of learning techniques, according to a questionnaire on the learning model they use while teaching. Teachers frequently place a strong emphasis on teacher-centered learning, which forces students to do nothing but listen and places the teacher in the role of facilitator or explainer. Only the teacher can impart knowledge to students while they are studying. Students become less involved in the learning process as a result, and they also don't comprehend the content being taught, which has an impact on their learning results. This is also consistent with the findings of the researcher's interview with one of the physics teachers, who stated that because the practicum was only conducted sometimes, it had an impact on the psychomotor and affective components of the students' learning. Of course, this also has an impact on the cognitive elements shown in how comprehensive student learning outcomes are. She added that at least 50% of students failed to meet the Minimum Completeness Criteria (KKM) which was 68 for each test, necessitating remedial work. At least 50% of students fail the

KKM in one of the mapping-based materials, in this case sound waves. This is due to the complexity of the subject matter of sound waves. After all, grasping the equation involves a lot of conceptual mistakes. This study will also cover this material. This subject matter was picked because it includes ideas that are almost constant parts of our daily experience.

Teachers are supposed to employ a range of learning techniques to grab students' attention,. To enhance students' physics learning outcomes, the instructor must select a learning model that is suitable for the circumstances of the students and the learning environment. Based on the issues mentioned above, picking the appropriate learning model will help encourage student motivation to participate more actively in the learning process, making learning more relevant and improving learning results. Teachers can utilize an efficient learning model to impart knowledge in the right way, and it can also aid students in their process of analysis when learning physics-related material. The problem-based learning (pbl) model was the one employed in this study. Because the phenomena studied are connected to the occurrences students encounter every day, it is anticipated that students will be able to develop their understanding of physics material using the pbl model. Instead of just memorizing formulas, students are increasingly taught how to solve issues using a variety of scientific techniques, including making observations, carrying out experiments, evaluating data, communicating, and drawing conclusions. Students will need to actively participate in learning activities that are not just teacher-centered in order to increase student learning outcomes as part of the problem-based learning process.

In a problem-based learning (pbl) environment, students gain knowledge by solving real-world situations. Pbl may teach students how to use their investigative skills to find solutions to real-world situations, making it the highest level model (Mugla, 2011). The teacher's job is to present issues, ask questions, foster discussion, offer resources for research, and carry out research. Many students actively participate in the learning process with this teaching method. Students are allowed to engage in creative thinking, participate actively in the development of their logical thinking about the content being taught, and apply their logical thinking to solve

problems they experience in daily life.

The primary goal of the pbl model activity is to give students the chance to fully investigate, gather, and analyze data in order to address the issues they are facing. Because students are encouraged to think critically, be more active, creative, and problem-solve, the pbl approach has a significant impact on enhancing learning outcomes. According to Lidnillah (2013), the benefits of pbl include: 1) students are expected to be able to solve problems under real-world circumstances; 2) students can observe their talents; and 3) students are acclimated to technology adaptation. For these reasons, the pbl model is extremely suited to employ in the learning process.

Students are asked to identify learning ideas in the challenge that is presented by the pbl model. Students' learning outcomes in physics will improve as a result of solving this problem because they will acquire new knowledge that is helpful in the process of solving physics questions. In line with study results by Ramdan et al (2015) on the use of the pbl model to enhance physics learning outcomes. The findings indicated that after integrating pbl, students' learning outcomes in physics improved in cycles I and II. Other research has been conducted by Putra, et al (2016) regarding the role of the pbl model in improving student physics learning outcomes. The results of his research show that there are significant differences between students who are taught using the pbl model and students who are taught conventional learning. The pbl model is concluded to be able to make student involvement in the learning process more active and meaningful to improve student learning outcomes.

Based on the description above, the researcher is interested in conducting research with the title "The Influence of Problem-Based Learning Models to Improve Physics Learning Outcomes of Class XI Students on Sound Wave Material." To find out whether or not there is an effect of applying problem-based learning models in improving student learning outcomes in learning physics.

1.2. Identification of the Problem

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

1. Lack of student involvement in the learning process.
2. Lack of practical implementation in the learning process.
3. Lack of use of various learning models in physics learning.
4. Low student learning outcomes in learning physics.

1.3. Scope of the Problem

The scope of the problem discussed in this research is the influence of the problem-based learning model to improve the physics learning outcomes of class XI students on sound waves.

1.4. Limitation of the Problem

Limiting a problem is used so that this research can be more directed. As for the limitations of the problem in this study, namely:

1. The learning model used is the problem-based learning model for the experimental class and conventional learning for the control class on sound wave material.
2. The observed learning outcomes are in the cognitive aspect.

1.5. Formulation of the Problem

Based on the background and identification of previous problems, the formulation of the problem in this study can be formulated as follows:

1. What are the results of students' physics learning using the problem-based learning model on sound waves in class XI?
2. What are the results of students' physics learning by using conventional learning on sound wave material in class XI?
3. Is there any effect of applying the problem-based learning model to improve students' physics learning outcomes?

1.6. Research Objectives

The aims of this research are:

1. To find out the results of students' physics learning by using the problem-based learning model on Sound Wave material in class XI.

2. To find out the results of students' physics learning using conventional models on Sound Wave material in class XI.
3. To determine the effect of the problem-based learning model to improve student physics learning outcomes.

1.7. Research Benefits

The research results are expected to be useful, for:

1. For students, it makes it easier to understand physics lessons, especially in Sound Wave material.
2. For teachers, it is hoped that the results of this research will be useful in providing alternatives to teach physics through a problem-based learning model to improve physics learning outcomes.
3. For researchers, this research can provide knowledge and experience regarding problem based learning models.