CHAPTER I
INTRODUCTION

1.1. Background of the Problem

Education is at the forefront of a nation's progress. The quality of education determines the quality of human resources. Quality education produces people who can compete nationally and internationally. Quality education provides people with the attitudes, knowledge and skills needed by themselves, their communities, the nation and the state (Ramadani & Nana, 2020).

Improving the quality of education is very necessary, especially in schools. Currently, various efforts have been made by the Indonesian government to improve the quality of education, one of which is changing the curriculum. The learning process in Indonesia currently uses an independent learning curriculum (Khaidir et al., 2023). In the independent curriculum, students are focused on developing their character and competence through essential material. The updated curriculum is expected to allow teachers to innovate so that the learning process is not monotonous and can accommodate all student characteristics (Idhartono, 2022). In the independent curriculum, students are focused on developing their character and competence through essential material. Based on this curriculum update, teachers are expected to innovate so that the learning process is not monotonous and can accommodate all student characteristics. One is that many teachers use conventional learning strategies, such as lectures, questions and answers, and assignments, where the teacher explains the material while students only listen and take notes. As a result, students often become more passive and wait for the teacher to give instructions. Conventional learning methods keep students from being actively involved in the lesson, which makes them feel the lesson is boring (Hakiki & Fadli, 2020).

Teachers are the main parameter in improving the quality of education because they deal directly with students. To achieve learning objectives, teachers are expected to be able to determine the right learning strategy. The right learning strategy not only increases student motivation, interest, and achievement but will also improve learning outcomes and student understanding of the material taught

by the teacher (Syahrul et al., 2022). One learning strategy is using a learning model. Learning models can help teachers activate the teaching and learning process in class (Djonomiarjo, 2020)

One of the learning models used as a guide in organizing the learning system is the Problem-Based Learning model. The Problem-Based Learning model is a learning model that can help students develop critical thinking skills and problem-solving abilities (Puspita et al., 2019). The Problem-Based Learning model emphasizes problem-solving activities in learning. Students can learn through problem-solving activities that can hone their thinking skills (Rahmadani, 2019). Good learning outcomes will be achieved if students can meet the Minimum Completeness Criteria that have been determined. Educators, as facilitators, have the fundamental task of transferring knowledge to students. Students' learning outcomes will undoubtedly be influenced by how they undergo the learning process with educators (Wulandari et al., 2023).

Research conducted by (Damayanti & Mediatati, 2023) concluded that applying the problem-based learning model can improve learning outcomes. Research conducted by (Chasanah et al., 2021) also shows that applying the Problem-Based Learning model positively impacts increasing classroom learning activities and can be an appropriate tool for improving students' critical thinking skills.

Global warming material is one of the materials contained in the physics subject of class XI SMA. Based on research (Tamara et al., 2019) stated that the Indonesian government considers global warming material essential to learn because of the many natural phenomena that occur due to the impact of global warming. In addition, based on research (Nikmatin Mabsutsah & Yushardi, 2022) the effect of global warming is increasingly being felt, so education is needed for students, which aims to increase students' knowledge and understanding of the concept and impact of global warming.

Based on the results of preliminary studies carried out at SMA Negeri 8 Medan through interviews with one of the Physics teachers, information was obtained that the teacher in the learning process has been using conventional learning models with lecture and discussion methods. Furthermore, the teacher

stated that in the learning process, students still experience some difficulties; most students have not been able to solve a problem in the learning process independently. In addition, from the results of preliminary studies with teachers, it was also found that students' physics learning outcomes were still unsatisfactory; this can be seen from the level of completeness achieved by students in each exam that has not reached the specified Minimum Completeness Criteria.

The preliminary study was also carried out through giving questionnaires to students. The questionnaire aims to identify the learning needs of students. Based on the questionnaire provided, information was obtained that students still have difficulty learning physics because, in physics learning, students feel bored and uninterested. Students also said that teachers rarely use learning media during the learning process. Based on student responses from the questionnaire that has been given, it can be concluded that students tend to be more interested in learning by discussing in groups with the problem-solving method, and students are happier if the learning process uses teaching media such as PowerPoint and learning videos.

Based on the description above, the researcher is interested in conducting research on **"The Effect of Problem Based Learning Model on Learning Outcomes of Class X Students on Global Warming Material at SMA Negeri 8 Medan"**.

1.2. Identification of Problem

Based on the description of the background of the problem that has been described previously, several issues can be identified, namely:

1. The low value of student learning outcomes at SMA Negeri 8 Medan.
2. The low ability of students to follow the learning process
3. Teachers still use conventional learning models, which are teacher-centered.
4. Physics teachers have never combined learning media with learning models in the teaching and learning process.
5. There is still a lack of use of learning media in the learning process.

1.3. Scope of the Problem

The scope of this research is the effect of problem-based learning on student learning outcomes on global warming material in class X phase E SMA Negeri 8 Medan in the 2023/2024 learning year.

1.4. Limitation of the Problem

By the background and several problems that have been identified, taking into account the ability of researchers and the breadth of the problem, the authors limit the problem to:

1. The object of research is students of class X phase E, even the semester of SMA Negeri 8 Medan Academic Year 2023/2024.
2. The learning model used is problem-based learning.
3. The material used in this study only deals with the subject of global warming.
4. Conducting pre-tests and post-tests on control and experimental class samples limits student learning outcomes to cognitive test results.

1.5. Formulation of the Problem

Based on the background that has been mentioned, the problems that will be studied in this study are:

1. How are the learning outcomes of students who use the Problem-based learning model?
2. How are students' learning outcomes using the direct instruction (Conventional) learning model?
3. How does a problem-based learning model affect student learning outcomes based on global warming material?

1.6. Research Objectives

Based on the formulation of the problem that has been made, the objectives of this study are:

1. To determine the learning outcomes of students who use the Problem-Based Learning Model
2. To determine the learning outcomes of students using the Direct Instruction model (Conventional)
3. To determine the effect of the problem-based learning model on student learning outcomes on global warming material.

1.7. Research Benefit

1.7.1. For student

1. Students can improve their understanding of global warming material and student activities through learning activities using a problem-based learning model.
2. Encourage students to develop abilities and skills actively in the learning process.

1.7.2. For Teacher

1. Provide information on alternative learning models that teachers can choose to improve the quality of learning in global warming material.
2. As a reference for innovative learning media that teachers can utilize to improve learning outcomes and student activity.

1.7.3. For Researcher

1. New knowledge and experience are to be used as a reference for application at school.
2. Become a reference or comparison material for similar research in applying learning models.