

CHAPTER I

INTRODUCTION

1.1. Background of Study

Education is a learning process in the form of teaching and learning activities that produce interaction between students and teachers. In the field of education, teachers become educators who guide students to develop knowledge and change students' attitudes from ignorance to knowledge. Education is considered one of the main determinants of economic growth by increasing the productivity of an educated workforce, and is also considered to play an important role in ensuring development and livelihoods of society. The quality of education is determined by two things, namely the quality of the process and the quality of the results. The quality of education is said to be high if effective and efficient learning takes place in all aspects of learning, such as learning objectives, teachers and students, learning topics, learning strategies and methods, learning tools and materials, and assessment. The success of providing education is influenced by many factors, one of which is the teacher's willingness to prepare students for learning activities (Sari & Angreni, 2018).

Indonesia has implemented several curriculums that have undergone various changes and improvements since 1947 until now. Kurikulum Merdeka, a newly introduced curriculum, is designed to create a learning environment where students can engage in education calmly, enjoyably, and without stress or pressure. It aims to allow students to express their natural talents. The concept of Merdeka Belajar emphasizes freedom and encourages creative thinking. PjBL is in line with the Kurikulum Merdeka because it emphasizes meaningful learning processes, process-based assessments, and the development of 21st century skills. The flexibility of PjBL is also in accordance with the principles of the Independent Curriculum, which provides space for teachers and students to adapt learning to their needs and interests. (Rahayu, 2022).

In senior high school, some students experience learning difficulties. One of the subjects experienced was biology. Biology is a subject that requires students to understand and master a biological concepts since class X. Biological

concepts means biology is related to how to find out and understand interactions of living things and nature systematically. If students have limited knowledge of biological concepts and principles from the start, it is difficult to expect real results from students in the following years. The author have done an interview with the biology teacher in grade X at SMAN 1 Tanjungbalai. Based on the interview, some problems are found. Some students in grade X get difficulties in studying biodiversity specifically in animal classification subtopic in distinguishing characteristics and taxonomy of living things. There are as many as 60% of students in grade X SMAN 1 Tanjungbalai who have achieved the Minimum Completeness Criteria (KKM) on the daily test scores, while another 40% of students have not achieved the KKM. It happened because there are some students were not focus on class. Students experience learning difficulties and get bad learning outcome not only These factors may stem from internal or from external sources. Internal factors include the student's health, intelligence, interests, and motivation. On the other hand, external factors encompass influences such as family, teachers, and the school environment (Tamba, *et.al.*,2020).

The biology teacher in Grade X SMAN 1 Tanjungbalai also told about the learning media. The teaching media used in learning the animal classification subtopic is not yet available, they only receive information from printed books and teacher's PowerPoint. Insectarium is a learning media that has been used for a long time. Apart from its practical and economical use, the insectarium is considered the right solution because it can be taken anywhere, both in the classroom and in the laboratory. With the result, it would not be possible if in learning, for example, regarding insect topic, students were immediately sent into the field. Because apart from considering the allocation of limited learning time, student safety is also a primary consideration. The use of insectarium learning media is very necessary in the biology learning process (Susilo, 2015).

Helle et al. (2006) reported that the implementation of the Project Based Learning Model (PjBL) in student learning was mainly restricted to aspects like course scope, instructor requirements, and team size. PjBL's effects on student learning were observed in cognitive (e.g., knowledge), affective (e.g., motivation),

and psychomotor (e.g., activities) domains. Similarly, Ralph (2015) analyzed fourteen studies on the use of PjBL in STEM education and discovered that PjBL helped enhance students' knowledge and skills. It also promoted collaboration and negotiation within groups, though some students expressed a lack of motivation for teamwork.

Based on Law Number 20 of 2003, it is clear that the task of a teacher is not only to convey knowledge, but also teachers still have a lot of work, namely raising students to become perfect human beings, so it can be said that the task of teachers in 2003 is more difficult. A teacher is required to have various skills as a professional teacher in his field. A teacher must understand his role in order to achieve the expected learning objectives when delivering the subject and must have 4 basic teaching skills, namely: pedagogical skills, personal skills, professional skills and social competence. a pleasant and enjoyable learning atmosphere for students, so that learning objectives can be achieved well. To solve this reality, teachers must make improvements to their classes and learning practices, one of which is the use of the project-based learning model (PjBL). Project-based learning is learning where students are directly involved in creating a project (Sari & Angreni, 2018).

Helle et al. (2006) found that the implementation of the PjBL to achieve good learning outcomes, media plays a crucial role as a supporting factor in reaching educational goals. Utilizing suitable and diverse media in the learning process can enhance students' motivation and reduce their passivity (Hardianto, 2005). Furthermore, the use of learning media is not only needed in classroom learning, but also in experiments to sharpen skills. In carrying out experiments, teachers must have learning media that are expected to help students understand learning topic and obtain learning results. One of the learning media needed in experiments is insectarium to help studying animal classification.

However, the goal of skill is not easy to achieve because traditional learning still applies a role where the teacher is the "transmitter of knowledge" while the student plays the role of "receiver of information". As a result, students may find it challenging to fully immerse themselves in educational activities, potentially leading to a superficial understanding of the subject. To change this

situation, it is recommended that students be given opportunities to participate in problem solving. In the Kurikulum Merdeka, students are asked to gather information with a scientific approach, develop skills and character, and have a flexible learning. One effective approach to achieving this goal is through project-based learning (PjBL). In this research, PjBL involves students in hands-on project work, and the results indicate that PjBL has a more positive impact on students' academic performance compared to traditional direct instruction methods (Guo, 2020).

On this basis, it is necessary to innovate the Project-Based Learning (PjBL) model so that these requirements can be met fulfilled, namely by integrating a process skills approach in the Project-Based Learning (PjBL) learning model to teach scientific skills and integrating models, approaches, methods or strategies in the Project-Based Learning (PjBL) learning model which can lead students to master the subject before entering process of scientific inquiry.

1.2. Problem Identification

Based on the background described above, the following problems have been identified:

1. Some students report that they were lack of motivation for teamwork in group assignment. Therefore, PjBL can be used to encourage the way they collaborate and negotiate in groups.
2. The students have not implemented PjBL to develop cognitive, soft skills and character in Kurikulum Merdeka.
3. The teaching media used in learning the animal classification subtopic at SMAN 1 Tanjungbalai in grade X is not yet available, they only receive information from printed books and teacher's PowerPoint.
4. Some students in grade X at SMAN 1 Tanjungbalai get difficulties in studying animal subtopic in distinguishing characteristics and taxonomy of living things.

1.3. Scope of Study

Based on the background, the scope of this research is related to the effect of the Project-Based Learning (PjBL) model on student learning outcomes and activities in class X at SMAN 1 Tanjungbalai in biology learning living things classification subtopic to find out the extent of the implementation of the Project-Based Learning (PjBL) model in the Kurikulum Merdeka at that school.

1.4. Scope of Problem

Scope of problem of this research involve students in grade X at SMAN 1 Tanjungbalai as a research object using a Project-Based Learning (PjBL) model in biology subjects, with insectarium learning media, the assessment of student learning outcomes and activities focused on understanding the classification of animals, and the concept used is limited to the invertebrate of the phylum Arthropoda, class Insects.

1.5. Research Questions

Based on the identification and scope of research described above, the research questions to be studied are as follows:

1. What are the effects of Project-Based Learning (PjBL) model to students learning outcomes on living things classification subtopic in class X at SMAN 1 Tanjungbalai 2024/2025 school year?
2. What are the effects of Project-Based Learning (PjBL) model to students learning activities on living things classification subtopic in class X at SMAN 1 Tanjungbalai 2024/2025 school year?
3. Is a project increase students' learning outcomes with a Project-Based Learning (PjBL) model in Biology class X at SMAN 1 Tanjungbalai 2024/2025 school year?

1.6. Research Purposes

Related to the formulation of the problem that has been formulated, the research objectives are:

1. Find out the effects of Project-Based Learning (PjBL) model to students learning outcomes on an living things classification subtopic in class X at SMAN 1 Tanjungbalai 2024/2025 school year.

2. Find out the effects of Project-Based Learning (PjBL) model to students learning activities on an living things classification subtopic in class X at SMAN 1 Tanjungbalai 2024/2025 school year.
3. Increase students' learning outcomes with a Project-Based Learning (PjBL) Model in Biology class X at SMAN 1 Tanjungbalai 2024/2025 school year.

1.7. Research Benefits

This research has some benefits as follows:

1. As a reference and input in order to choose alternatives to be able to develop learning models creatively and optimally in improving student learning outcomes and activities.
2. Increasing an experience and understanding regarding the use of learning models as a guide in carrying out learning in the future.
3. As a learning platform, it facilitates students' comprehension of learning and experiences.