

CHAPTER I

PRELIMINARY

1.1 Background of the Problem

Education is one of the main pillars in shaping the quality of human resources. Education is also a means to produce students who are creative, talented, skilled, and qualified so that they are more worthy as human beings. Education in schools really needs educators who can be responsible for guiding and directing students through student-oriented learning (Students Centered). Students are required to be more active and play a role in the classroom so that they can build their ability to recognize, find out, learn, and find solutions. Education remains in line with existing developments if educators are more creative in creating an interesting and fun atmosphere to attract students' attention at school, especially in biology subjects.

Most of biology learning is through real learning. Learning with real experience can affect the processing of information, for example visualization experience will be better than listening experience, as well as the experience of doing will be better than just the experience of seeing. Students who have a high understanding of biology can easily stimulate thinking skills, and be able to solve problems in everyday life.

There are several factors that can affect learning outcomes, namely teacher competence, curriculum system, students, and learning strategies and methods. These components play an important role in achieving learning objectives. Likewise with learning media, learning media is an intermediary that carries messages or information between the source and receiver so that it becomes one of the influential factors in achieving learning effectiveness.

Education in schools to support learning requires media and learning models, especially for learning biology which is very abstract so that media and learning models are needed so that teachers can easily convey biology learning information and also teachers understand it more easily, so that there are no difficulties in the teaching and learning process.

One of the components of learning tools that can help students to better accept the lessons given by the teacher is the Learner Worksheet (LKPD). LKPD is needed in the learning process because it makes it easier for students to understand the material and practice experiments both inside and outside the classroom and at home. LKPD serves as a student learning guide and also makes it easier for students and teachers to carry out teaching and learning activities. Learning using LKPD is effective for improving student learning outcomes, knowledge, attitudes, and skills. Based on this statement, the availability of LKPD can help in the learning process.

The results of interviews conducted by researchers with one of the XI grade biology teachers at SMA Kartika I-2 Medan, namely: (1) the learning process only uses teaching materials in the form of printed books. Information was obtained that the teacher has never developed teaching materials in the learning process so that it only uses printed books and questions listed in printed books, even though there are many teaching materials that can be developed by teachers to support the learning process such as modules, LKPD, handouts, and so on. (2) In the learning process, it is still conventional. Teachers have not used a varied learning model. Teachers only use lecture methods and group discussions at some times, even though there are many learning models that teachers can use according to the material being studied. Interviews conducted by researchers with students of class XI IPA 2 that 86.1% of students have never used LKPD in the biology learning process and 13.9% have used LKPD in the learning process but not intensely used, students said that often the teacher only learns using a textbook. In addition, the delivery of material is only by the lecture method. This is less effective, causing students to easily get bored with the subject matter because students are only given reinforcement to remember, do questions in the student book, or make monotonous notes. If students are not given reinforcement to understand the material and make notes, they will be bored (Raudoh, 2023). In addition, 52.8% of students said that the Movement System material is one of the difficult materials to learn in learning biology. This material is considered difficult to understand because there are several sub-materials that require students to be

able to identify muscle types, describe muscle structure, explain the location, and how muscles work (Mukaromah, 2021).

Based on the above problems, a solution is needed to overcome these difficulties, namely the need for the development of teaching materials that better support the teaching and learning process. The teaching material to be developed is the Learner Worksheet (LKPD). The constructivism approach in the development of LKPD is very important to improve the quality of the student learning process. With this approach, students can build their understanding independently through active involvement in learning activities. One model that is relevant to this approach is the 5E learning cycle, which consists of five stages: Engage (attracting students' attention), Explore (concept exploration), Explain (further explanation), Elaborate (concept development), and Evaluate (understanding assessment). The 5E Learning Cycle can be defined as a learning method that focuses on activities that encourage students to understand scientific concepts, explore and deepen their understanding, and then apply these concepts to new situations. Through this model, the LKPD designed by teachers is intended to help teachers implement a learning model that is easier for students to understand, create new learning media that align with the current curriculum, provide contextual learning experiences, and enable students to actively develop concepts through practical activities, thereby achieving the desired learning outcomes.

One of the materials for class XI SMA even semester in the Merdeka Curriculum is motion system material. This material is suitable when delivered and assisted by using the LKPD based on Learning Cycle 5E. This is because this material will be easier when conveyed through observation, experimentation, discussion, analysis, and so on. The LKPD can help students build material concepts. Based on the explanation above, the purpose of this study is to produce LKPD based on Learning Cycle 5E product that is feasible to assist students in learning motion system material.

Based on the description above, the researcher feels the need to develop LKPD teaching materials that can guide students in finding the concept of the material being studied and have a meaningful learning experience. Based on the

background of the above problems, the researcher is interested in conducting research with the title **“Development of Learning Cycle 5E Based LKPD on Motion System Material in Class XI SMA Kartika I-2 Medan”**.

1.2 Problem Identification

Based on the above background, the researcher identified several problems, including:

1. Teachers only use teaching materials in the form of package books provided by the government in the learning process.
2. Never used the learning cycle 5e learning model in the biology learning process.
3. There is no teaching material in the form of LKPD based on learning cycle 5e on the material of the motion system.
4. Motion system is one of the materials in biology learning that is quite difficult to understand.
5. The learning model used by the teacher is not varied, while there are still many learning models that can be adapted to the material being studied.
6. Students are easily bored because the delivery of material by the teacher only by the lecture method.
7. Students tend to be passive if not not given reinforcement to understand the material and find ideas critically.

1.3 Scope of the Research

The scope of this research is the development of teaching materials in the form of LKPD based on learning cycle 5e on the material of the motion system in class XI SMA Kartika I-2 Medan.

1.4 Problem Limitation

So that the problem under study is clearer and more directed according to the scope of the research. The limitations of this problem are as follows:

1. LKPD product development was developed using the 4-D model (Define, Design, Development, and Disseminate).
2. Biology learning LKPD developed based on Learning Cycle 5E.

3. LKPD based on Learning Cycle 5E was only tested on grade XI students at SMA Kartika I-2 Medan.
4. The learning materials taught include the Skeletal System, Muscular System, and Disorders that occur in the Movement System.
5. The quality assessment of LKPD is limited to the assessment by Material Experts, Learning Experts, Design Experts, students responses and teacher responses.

1.5 Problem Formulation

The problem formulation in this research is as follows :

1. How is the feasibility of Biology LKPD based on learning cycle 5e on the material of the motion system in class XI SMA Kartika I-2 Medan based on material expert validation?
2. How is the feasibility of Biology LKPD based on learning cycle 5e on the material of the motion system in class XI SMA Kartika I-2 Medan based on learning expert validation?
3. What is the feasibility of Biology LKPD based on learning cycle 5e on the material of motion system in class XI SMA Kartika I-2 Medan based on design expert validation?
4. What is the teacher's response to the Biology LKPD based on learning cycle 5e on the material of motion system in class XI SMA Kartika I-2 Medan?
5. What is the students response to the Biology LKPD based on learning cycle 5e on the material of motion system in class XI SMA Kartika I-2 Medan ?
6. How is the effectiveness of Biology LKPD based on learning cycle 5e to improve student learning outcomes on the material of the motion system in class XI SMA Kartika I-2 Medan?

1.6 Research Objectives

The research objectives are as follow :

1. Producing Biology LKPD based on learning cycle 5e on the material of the motion system in class XI SMA Kartika I-2 Medan which is feasible to use based on the results of material expert validation.

2. Produce Biology LKPD based on learning cycle 5e on the material of the motion system in class XI SMA Kartika I-2 Medan which is feasible to use based on the results of learning expert validation.
3. Produce Biology LKPD based on learning cycle 5e on the material of the motion system in class XI SMA Kartika I-2 Medan which is feasible to use based on the results of design expert validation.
4. Produce Biology LKPD based on learning cycle 5e on the material of the motion system in class XI SMA Kartika I-2 Medan which is feasible to use based on the results of responses from teachers.
5. Produce Biology LKPD based on learning cycle 5e on the material of the motion system in class XI SMA Kartika I-2 Medan which is feasible to use based on the results of responses from students.
6. Produce a Biology LKPD based on learning cycle 5e on the material of the motion system in class XI SMA Kartika I-2 Medan which is effective for improving student learning outcomes in the learning process.

1.7 Research Benefits

1. For researchers: As an experience in implementing learning using LKPD based on learning cycle 5e and as a reference to become a professional teacher in the field of education later.
2. For Students: Can increase students to be more active and motivated in learning and easier to understand learning materials.
3. For Teachers: Can add learning media that will be used in the learning process
4. For Schools: Can be an additional media in learning and improvement in the learning process.