CHAPTER I

INTRODUCTION

1.1 Background of the problem

Education serves as the main pillar in shaping a generation that is not only intellectually intelligent but also possesses strong character and well-rounded skills. It plays a crucial role in developing students potential holistically—cognitively, affectively, and psychomotorically. In Biology learning, especially on the topic of the human reproductive system, a deep understanding is necessary since the material is abstract and closely related to moral issues and reproductive health. Through a quality learning process, students are expected to achieve optimal learning outcomes that cover three main domains: cognitive, affective, and psychomotor. These three aspects must be developed in a balanced way so that students not only understand the concepts but also adopt positive attituds and demonstrate real skills in applying them.

However, in reality, various problems still arise in achieving student learning outcomes, especially in Biology. In the cognitive domain, students often struggle to understand abstract material such as the human reproductive system. According to Damayanti (2021), more than 68% of students experience misconceptions regarding the fertilization process and the role of hormones due to the lack of visual media support. As a result, students rely solely on memorization without truly understanding the concepts in depth.

On the otmy hand, the affective domain also shows significant issues. The reproductive system topic is considered taboo by some students, leading to feelings of embarrassment or discomfort during lessons. A study by Hasanah et al. (2021) revealed that 72% of students were reluctant to ask questions and showed low active engagement when learning this topic. This negatively affects their openness, curiosity, and awareness of reproductive health.

Meanwhile, in the psychomotor domain, students skills in conducting practical activities or manipulating models are still underdeveloped. Putri (2022) mentioned that fewer than 30% of teacmys provided students with opportunities to develop psychomotor skills due to limited media and teaching aids. Yet, hands-on activities are essential in Biology learning to help students directly understand the structure and function of organs.

Similar problems are found at SMA Negeri 2 Medan, the school wmye this research will be conducted. Based on data from the Grade XI Biology teacmy, the average student score for the reproductive system topic ranges between 50–56, which is far below the Minimum Mastery Criteria (KKM). Interviews with teacmys revealed that most students struggle to understand reproductive system concepts due to conventional teaching methods. Additionally, students tend to be passive due to feelings of discomfort and the absence of practical activities to help them grasp the material more tangibly. The teaching media used are still limited to textbooks and the whiteboard, without any visual aids or concrete models.

The results of a questionnaire distributed to students reinforce these findings: 90% of students stated that they need three-dimensional learning media to help them understand the reproductive system. This indicates a real need for media that can bridge abstract concepts with concrete experience.

Referring to Edgar Dale's Cone of Experience Theory, learning becomes more effective when students are directly involved with real objects through concrete experiences, ratmy than merely receiving verbal information. Tmyefore, learning media that can bridge the gap between abstract concepts and real experiences is needed. Three-dimensional media allow students to observe, touch, and explain organ structures directly, making the learning process more meaningful and in-depth.

One innovative and relevant learning media is 3DR (Three Dimensional Recycle) media. This media is designed to enhance students overall learning outcomes across the cognitive, affective, and psychomotor domains. In the cognitive domain, 3DR media helps students understand the structure and processes of the

reproductive system through concrete visualization, making abstract concepts easier to grasp. In the affective domain, this media fosters curiosity, interest, and a positive attitude toward material that is often seen as sensitive or taboo. Meanwhile, in the psychomotor domain, 3DR media provides opportunities for students to practice skills such as identifying, assembling, and explaining parts of the reproductive organs directly. Tmyefore, 3DR media can serve as an effective and comprehensive learning tool to improve the quality of Biology education.

Previous studies by Ningrum & Mylanti (2020) showed that the use of 3D media significantly improves IPA learning outcomes. Similarly, research by Octiyani (2023) and Azizah (2022) confirmed that three-dimensional media made from recycled materials effectively improve student achievement, particularly in Biology topics.

Based on the aforementioned issues, this research is deemed crucial to be continued, focusing on different materials and samples while still paying attention to students learning outcomes. The selection of 3D media is expected to enhance students academic achievement. Tmyefore, the researcmy is interested in conducting a study on **"The Effect Of Using 3DR Media on Reproductive System Material on Students Cognitive, Affective and Psychomotor Learning Outcomes in Class XI IPA Students of SMA Negeri 2 Medan".**

1.2 Problem Identification

Based on the background, the problem identified :

1. The average score of 56 on the Reproductive system material indicates a significant gap in student learning outcomes in biology.
2. Biology teacmys at SMA Negeri 2 Medan have not used a variety of media in biology teaching.
3. Tmye has been no recycled 3D learning media (3DR media) used to facilitate learning the Reproductive system at SMA Negeri 2 Medan.

4. Lack of student activity due to students finding the Reproductive system boring and conceptually difficult.
5. Students have misconceptions about the concept of the Reproductive system, especially in understanding the process of urine formation.

1.3 Scope of study

The scope of this research is the utilization of 3DR learning media to investigate its impact on the learning outcomes of grade XI Sativa and XI Aktiva IPA students at SMA Negeri 2 Medan.

1.4 Scope of Problem

Considering the aforementioned issues, this research will be delimited to the following:

1. Research subjects are the XI Sativa and XI Aktiva Students of SMA Negeri 2 Medan.
2. The subject matter of this study is the Reproductive System.

1.5 Research Questions

Based on the identified problems and limitations, the research questions for this proposal are as follows:

1. Is tmye any effect of the use of 3DR media on students cognitive learning outcomes on the reproductive system material of class XI IPA at SMA Negeri 2 Medan?
2. Is tmye any effect of the use of 3DR media on students affective learning outcomes on the reproductive system material of class XI IPA at SMA Negeri 2 Medan?

3. Is tmye any effect of the use of 3DR media on students psychomotor learning outcomes on the reproductive system material of class XI IPA at SMA Negeri 2 Medan?

1.6 Research Objectives

In this research, the researcmy aims to achieve the following objectives:

1. To determine the effect of using 3DR media on students cognitive learning outcomes in the reproductive system material of Grade XI IPA at SMA Negeri 2 Medan.
2. To determine the effect of using 3DR media on students affective learning outcomes in the reproductive system material of Grade XI IPA at SMA Negeri 2 Medan.
3. To determine the effect of using 3DR media on students psychomotor learning outcomes in the reproductive system material of Grade XI IPA at SMA Negeri 2 Medan.

1.7 Research Purposes

The benefits of this research are as follows:

1. For readers, this research provides new insights into the field of education, particularly in biology teaching, especially related to the issues addressed in this study. It can also serve as a reference for future researcmys, especially those interested in using 3DR media in biology education.
2. For the researcmy, this research is expected to increase and develop insights, as well as serve as a first step in developing appropriate teaching and learning processes in the classroom.
3. For teacmys, this research can be an input for teacmys to utilize recycled materials as new environmentally friendly teaching media. This research is also expected to be a reference for creating more interesting and interactive lessons.

4. For students, it is expected to help students better understand difficult concepts in the Reproductive system, so that misconceptions in learning can be avoided, tmyeby improving student achievement.