

# CHAPTER I

## INTRODUCTION

### 1.1. Problem Background

Education involves a learning process that results in changes to an individual's personality, characterized by an increase in knowledge, attitudes, skills, habits, understanding, mental capacity and so on (Amaliyah, 2021). The quality and quantity of learning outcomes will improve as a result of educational efforts. Learning outcomes are the abilities that students manifest due to changes in their behavior. These abilities encompass the cognitive, affective, and psychomotor domains (Rukajat, 2018).

Some problems often occur in the learning process, both internal and external problems. External problems can be teachers have not been optimal in using innovative learning models, method or technique, not paying attention to students' characters, and not developing students' creative thinking in the learning process, so the learning situation that takes place is still rigid and monotonous. Students' internal learning problem factors include low initial ability, lack of interest and motivation to learn, and no proper planning in learning, so that the learning objectives have not been properly achieved (Aziz & Mu'nisa, 2021).

Lack of student interest in learning, especially in biology can affect learning outcomes and student achievement. Biology learning is considered difficult, boring, and too monotonous. The difficulty of Latin terminology and the many terms that must be memorized by students result in students being less interested in learning it. Interest is basically an acceptance of a relationship between one self and something outside oneself. Interest in learning is a sense of preference and a sense of interest in a field or activity without compulsion. Students' learning outcomes in a subject depend on students' learning interests. Students' interest can vary depending on many factors, such as personality, environment, and the material being taught. Students who have an interest in a particular subject will pay more attention to that subject. When students have an interest in learning, it

can make it easier for teachers to guide and direct students (Simamora, & Saragih, 2021).

The problem that often arises in biology learning activities is the lack of students' ability to remember something that is delivered orally, so students need media such as notes to help with repetition and memory retention. Students' knowledge will be broader when they learn new material and then their memories are strengthened by the presence of notes (Astuti, 2019). Biology lessons, particularly those covering the excretory system, demand a strong memory and a comprehensive understanding due to the numerous processes and mechanisms involved. Biology lesson heavily relies on theories and verbal communication, which can lead to reduced student engagement and suboptimal learning outcomes (Karmita, 2022).

Preliminary observations at MAN 1 Medan showed that the Minimum Completion Criteria (KKM) for biology subjects was 82. Interviews with biology teachers at the school showed that the average score of students was still below the specified KKM. Biology teaching and learning activities in the classroom still tend to rely on lecture, discussion, and assignment methods. However, these techniques may be less interesting for some students, causing boredom and disinterest in learning. The biology teacher also said that students' interest in learning biology is still low. Students' lack of interest in reading biology subject matter can be caused by ineffective note-taking and learning techniques because students do not know or do not have knowledge of more efficient note-taking techniques. Students' notes are usually full of one-color writings without any pictures or anything that can attract students' interest in reading the notebook and studying the material. In addition, students may not fully understand the content in their notes, leading to a lack of motivation to reread their notes.

Students who have a good interest in learning will find their own way of learning. However, students who have a lack of interest in learning will not find out about ways of learning that can help them in learning. Therefore, it is necessary for the teacher's role as a student motivator in learning and creating effective and interesting learning activities. Effective teaching involves engaging students through fun and interactive learning experiences. Teachers must act as

facilitators to find ways to capture students' attention, such as using diverse teaching methods and techniques. To foster self-confidence, interest, innovative attitudes and behaviors in the teaching and learning process, it is essential to establish a connection between educational components, including teachers, students, curriculum, learning media, and resources, materials, methods, models, techniques and evaluation tools. A good learning process requires the collaboration of these components (Kalyani & Rajasekaran, 2018). Therefore, a renewal of the biology curriculum, particularly regarding the excretory system, is necessary.

The mind mapping learning technique can be applied to these conditions. Mind mapping is a note-taking technique that involves using keywords connected by curved lines. These keywords can include words, images, and colors. It is a creative way to take notes (Polat & Aydın, 2020). Mind mapping is the easiest way to input information into the brain and retrieve information from the brain with animations that are liked and easily understood by its creator. The visual and graphic presentation of mind mapping, comprising a variety of information, shapes, and colors, can captivate the attention of learners as they study it. In the end, this approach can enhance learning interest and assist learners in recording, reinforcing, and recalling the information they have learned (Buzan, 2018).

Teachers use mind mapping to present subject matter in the form of concepts, which can enhance student interest and improve learning outcomes. The effective use of mind mapping techniques is particularly beneficial for learning materials that involve numerous concepts or the workings of a system, such as in the material about the excretory system. Because mind mapping consists of keywords, symbols, images, and interconnected curved lines, it can describe and present the material in an organized manner, making it easier to understand (Thahir & Hambali, 2020). This technique was chosen because it is an effective way to record learning material and facilitate student understanding of biology lessons, particularly the excretory system at MAN 1 Medan. Therefore, researchers aim to apply it in delivering material in the classroom to enhance students' interest and improve learning outcomes.

Research has shown that the mind mapping technique has a positive impact on students's interest and learning outcomes by Harfika (2020) that there is a significant effect of mind mapping techniques on students' interest in learning. In the learning process, students are enthusiastic about learning because students are free to be creative and imaginative in expressing their own ideas based on concepts, theories and their relationship to everyday life related to the excretory system material that is made mind mapping.

Nazliah & Harahap (2019) stated that mind mapping is a enjoyable note-taking technique because it involves colors, images, and words. Mind mapping is an effective, efficient, creative, engaging, and useful learning method as it involves mapping out our thoughts, that can enhancing students' learning outcomes. Bawaneh, (2019) found that implementing the mind mapping technique significantly improved students' immediate achievement in science. This technique can enhance concept mastery, student learning activities, and teacher activities during the learning process. Mind mapping can be a useful tool in instructional design, curriculum development, and textbook creation to enhance science learning.

The excretory system was selected for this study due to students' lack of interest in the learning process (Karmita, 2022). The author aims to facilitate students' understanding of the human excretory system. Mastery of strong basic concepts is required to comprehend the material on the excretory system in the 11th-grade biology class. This material discusses the structure of the organs involved in the excretory system and the metabolic processes in the body that are excreted through these organs. The use of Latin names may make the material appear difficult, but it is important for accurate identification and understanding of the organs. Students' lack of interest in reading and memory can make it challenging for them to learn about the excretory system. This technique encourages students to summarize and create their own notes in a more creative manner, leading to better understanding and memory recall. To address this, the mind mapping technique can be used to enhance comprehension and retention.

To increase students' interest and learning outcomes in biology, the author conducted research on the effect of the mind mapping learning technique on students' biology interest and learning outcomes on excretory system topic in class XI MAN 1 Medan.

### **1.2. Problem Identification**

Based on the stated background, the following problems can be identified:

1. Students have a low interest in learning biology.
2. Students have low learning outcomes.
3. Students' note-taking technique are not effective, therefore they do not provide maximum understanding and comprehension of the subject matter.

### **1.3. Problem Scope**

Based on the problem identification above, the scope of this research is the effect of using mind mapping learning techniques on students' abilities. This study focused on the interest and learning outcomes of students in class XI IPA MAN 1 Medan in biology subjects, especially on the material of the excretory system.

### **1.4. Problem Limitation**

Based on the scope described, the authors limit the problems in this study. The problem limitations in this study are:

1. An analysis was conducted on the students' interest in learning biology using an interest questionnaire that measured indicators such as feelings of pleasure, student interest, student attention, and student involvement.
2. The ability of students is the learning outcomes of biology in the form of cognitive students.
3. The learning technique used in this study is the mind mapping learning technique.
4. The material given to the students during the study was limited to the human excretory system.

5. This research was conducted in class XI MIPA 1 and XI MIPA 3 MAN 1 Medan.

### **1.5. Problem Formulation**

Based on the problem limitations described above, it can be formulated that the problems in this study are:

1. What is the effect of mind mapping learning technique on the students' learning interest on excretory system topic in class XI MIPA at MAN 1 Medan?
2. What is the effect of mind mapping learning technique on the students' learning outcomes on excretory system topic in class XI MIPA at MAN 1 Medan?

### **1.6. Research Objectives**

Based on the problem formulation above, this research aims to:

1. Knowing the effect of using mind mapping learning technique on students' learning interest on excretory system topic in class XI MIPA at MAN 1 Medan.
2. Knowing the effect of using mind mapping learning technique on students' learning outcomes on excretory system topic in class XI MIPA at MAN 1 Medan.

### **1.7. Research Benefits**

This research aim to provide benefits in the following ways:

1. The application of mind mapping learning technique on excretory system topic is expected to provide alternatives and information for teachers in conducting interesting and fun biology learning.
2. The application of mind mapping learning technique on excretory system topic can help students become more active and skilled in summarizing their notes, leading to increase student interest and learning outcomes.