

CHAPTER I

INTRODUCTION

1.1 Background of the Study

Almost all fields, especially education, have witnessed significant developments in the information technology world lately. Educators must master technology. Nowadays, technology and science are progressing and developing. So, with the evolution of the times, technology significantly influences Education. The development of educational technology today is being used very quickly. This educational technology can be used in learning systems (Salsabila et al., 2021).

Educators must be able to follow the developments of the times for the progress and good of the nation, especially in terms of education. Learning that enhances the knowledge and understanding of students is known as education. Learning cultivates students' respect for their education and integrity. Students have the opportunity to participate in the learning process and have access to the material or tasks assigned to them. Learning media can be used for learning or teaching activities and help students understand abstract topics. So, the purpose of using the media is for students to create something new and use something already existing in various ways that are beneficial in everyday life (Maulana et al., 2022). According to Aspi & Syahrani (2022), technology can be defined as a tool, machine, method, process, activity, or idea designed to facilitate human activities in everyday life. Technology helps people's lives become better and more accessible.

The learning process is at the core of educational activities. As the nature of educational activities, the learning process is an effort to achieve the goals of education itself. That is, the purpose of education will never be achieved if the learning-teaching interaction never takes place in education. The use of media is related to the learning process in the classroom, which can help teachers in the delivery of lesson materials and create an active learning atmosphere that is innovative, creative, and fun (Magdalena et al., 2021).

Learning is a system consisting of a number of factors that are interconnected with each other to achieve educational goals. Objectives, materials/teaching materials, methods, tools/media, and evaluation are some of the factors included in

the learning system. A suitable medium that suits the subject matter is simple and easy for students to understand and is transparent to students. Learning by using media can simplify the problem, especially in conveying things that are new and unfamiliar to students.

Teachers have to face the current generation of students who are already used to the digital world. Learning Media, which can be used in education, including computers, tablets, smartphones, and more, is one of the most developed digital technologies. Therefore, the advancement of digital learning affects students' learning styles and the way they think. Today's technological advances make studying indoors and outdoors easier. Therefore, teachers are required to master more about the use of digital in the learning process. So that learning in the classroom is achieved safely and comfortably.

Of the 36 class XI students at Baitul Aziz Private High School, less than half with a percentage of 30.56% do not own a laptop, smartphone, computer, and 69.43% stated that they own a laptop, smartphone, computer and are able to use it properly. Most students with a percentage of 77.73% stated that they often use the internet to study, while a small percentage with a percentage of 22.23% stated not often because as many as 16.67% stated that devices such as laptops, smartphones, computers owned were not feasible and 19.45% stated that the network in the surrounding environment was not good. If learning media is applied, students who are familiar with the flow of information, communication, and technology will easily understand it. This shows that as educators, they must update their abilities and expertise to be ready to face the Education Era 4.0. According to Fitriah and Mirianda (2019), teachers must have the ability to change their approach to learning. Monotone learning models and techniques are found in this study. Students get bored quickly because the teacher tries to keep the learning model the same. As a result, the study found that educators need to be much more creative and understand technology so that they can adapt education to changes in curriculum adapted to the times.

Rosana (2020) said that a web-based learning platform utilizes current information and communication technologies to simplify teacher tasks. It's a method that allows teachers to use the Internet in the 4.0 era of Education. Learning is in direct access to the web without having to download. With this web-based learning

medium, students are expected to be able to easily access worksheets, modules, or other learning tools that can be accessed via the Internet. Teachers and students can adapt to time and place to conduct learning effectively and efficiently. It encourages researchers to research the development of web-based learning platforms.

As a result of an interview conducted by the researcher on September 5th, 2022, with Mrs. Ermila Hafni Nasution, M.Pd., a biology teacher at Baitul Aziz Private High School in Deli Serdang, researchers found that the process of learning biology goes well because teachers and students participate actively in class. The teacher stated that 50% of the XI graders liked the biology lesson, and 50% didn't like the address in the classroom. Therefore, to attract students' interest in studying biology, teachers must communicate and interact more actively while teaching.

The results of research and observations show that teachers use lectures, questions and answers, and discussions as a method of learning in school. For online learning, SW and Google Classroom are used as teaching media. Obstacles in the learning process, including the time the learning takes place, include uncomfortable classroom conditions, which only allow some students to focus and understand what is being delivered. The school only uses printed books as the only learning resource and does not use E-SW, so there isn't enough learning time in the classroom, and students need more time to learn the material. This study will be done by creating an interactive learning web that allows readers to interact with the web and provide feedback to it.

Quoted by Astuti et al. (2020), this research will produce an interactive learning web using two ways of communication between the reader and the website by providing feedback. Students still considered the use of learning media ineffective, according to their responses from questionnaire interviews. 86.12% of students said that teachers always use learning media. As many as 52.73% of students stated that they felt bored because the media that the teacher used was google clasroom. In addition to the use of media in the form of google clasroom, they also said that learning at Baitul Aziz High School was carried out through the lecture method. The monotonous and unchanging learning model bores students. 91.67% of students stated that the learning media used by their teachers was fun and 61.12% stated that there were no difficulties when carrying out learning using Google

Classroom. Because teachers use their own learning videos, 27.78% of students also stated that the videos displayed by teachers are videos obtained from YouTube. Media commonly used by teachers when carrying out online learning are blogs, videos from Youtube, and Google classroom. In addition, students often have difficulty understanding material, especially those related to the human coordination system as much as 47.23% of student responses, The nervous system is a sub-material of the human coordination system. Digestive system as much as 27.78% student responses, reproductive system as much as 36.12% student responses, movement system as much as 38.89% student responses, and about cells as much as 41.67% student responses. Hearing that researchers will design a web as an additional learning medium that can be accessed inside and outside the classroom, more than half of class XI students with a percentage of 69.43%, students at Baitul Aziz Private High School are interested in participating in online learning with web-based media that will be called *Sitemaraf Web*.

Educators must find new learning models or methods and appropriate learning resources accessible to students. The researchers are convinced that the website will be a suitable learning resource media for the learning process because the web-based learning media makes it easy for students to access the material. Students don't have to search and download e-books on Google because the material is readily available online. Researchers use the web because it relates to the phenomenon of students who are Z Generation. Z Generation is more interested in activities that use technology as well as learning virtually; Z Generation prefers to spend more time doing everything digitally. For example, Z Generation is more interested in reading novels by accessing the web or novel platforms like Fizzo novels for free on smartphones, tablets, or laptops. They are less interested in reading stories in print. The following example is the lesson or teaching that teachers do outside of school hours, which can no longer be carried out in person but can be virtually like using the platform of the Teacher Room. It becomes a picture for researchers that if the learning media is based on the web, it will affect student learning, attracting student learning interests, especially in biology subjects.

According to Khikmiyah (2021), Student Worksheets (SW) is a group of sheets that contain activities that enable students to perform actual activities related

to the material and problems studied. In addition, according to Widiyanti and Nisa (2021), Student Work Sheets is a printed teaching material that contains instructions that students can use to improve their abilities.

The researchers converted the Student Worksheets (SW) to Electronic Student Worksheets (E-SW). In addition to the material, images, videos, and training tasks, the Electronics Student Worksheets (E-SW) will also be a feature of the web-based learning media. So, teachers should use technology to create lesson materials that fit the independent curriculum that involves students actively during learning. Student Worksheets (SW) is a learning guideline that helps teachers and students carry out learning activities. Students who can concentrate and focus on following teacher instructions will ensure that the learning process goes well (Khairinal et al., 2021).

Based on the problem, the researchers conducted a “Development of Web-based Learning Media on Nervous System Materials for High School Students” study to develop web-based learning media. The research aims to make the Internet an innovation or a new learning resource that enables Baitul Aziz Private High School students in Deli Serdang to study whenever and wherever they want. Web-based learning media will be a solution for educators to create material that suits their students. It also helps researchers to determine whether the use of web-based learning media is worthy as an alternative to new learning resources for high school students. In this study, the researchers focused on the features offered by web-based learning media. Besides, the website used for this study was built using WordPress is an open source content management system (CSM) that is a popular tool for someone who wants to build websites and blogs, even without the need to have basic programming.

1.2 Problem Identification

The identification of problems in this study is as follows:

1. The limitation of student learning resources causes the teaching models and methods to be monotonous. Educators must use new learning models or processes, while students need new learning resources to attract interest in learning.

2. Students need help understanding some of the biology lessons of the eleventh grade, especially those of the nervous system.

1.3 Scope of the Problem

Based on the problems identified above, the scope of this research is Web-based Learning Media Development on Nervous System Materials. The researchers will concentrate on the features offered by web-based learning media. The reason is that web-based media development aims to attract back the interest of students in learning.

1.4 Research Questions

Based on the scope of the problem, the problem is formulated, namely:

1. How is the feasibility of the learning media based on the web-based on material aspects on the material of the nervous system?
2. How is the feasibility of the learning media based on the web-based on media aspects on the material of the nervous system?
3. How are the student's of class XI in Baitul aziz Private high school responses to the learning media based on the web based upon the elevation of the materials on the nervous system?
4. How teachers respond to the feasibility of learning media applied students of class XI in Baitul Aziz Private High School?

1.5 Problem Limitation

Based on the background and identification of the problem, the limitations of this research problem are:

1. Learning using media, but only in printed books and Student Worksheets (SW). Not available web-based learning media equipped with Electronics Student Worksheets (E-SW).
2. Educators need to develop teaching materials that meet the demands of independent curriculum development and enable students to play an active role in the learning process.

1.6 Research Objectives

The objectives of this research based on the problem formula are:

1. Generate a web-based learning media to determine the validity of a web-based learning media using a questionnaire-based material/content aspects on the material of the nervous system.
2. Producing web-based learning media to determine the feasibility of web-based learning media using a questionnaire based on media aspects designed on nervous system material.
3. Create web-based learning resources for students to carry out lessons and gain insight into their answers by offering a marketplace.
4. Finding the results of teacher responses to web-based learning media based on questionnaires on nervous system material as an evaluation of learning media.

1.7 Research Benefits

Based on the research objectives above, the research that can be concluded are:

1. For Researchers

This research develops web-based learning media by producing a product worthy of being presented to students to encourage their learning activities to the maximum and re-improve students' learning interests.

2. For Students

This research enables students to obtain new learning resources with its implementation practically and flexibly to be accessed anytime and anywhere.

3. For Teachers

The research provides a challenge and opportunity for teachers to create creative and innovative learning using technology for learning activities.