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DEVELOPMENT OF AN ECLIPSE-BASED E-MODULE WITH A GUIDED INQUIRY MODEL TO INCREASE STUDENT INTEREST AND LEARNING OUTCOMES IN CLASS XI HIGH SCHOOL DIGESTIVE SYSTEM MATERIAL

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ABSTRACT

This research aims to determine the quality of the Eclipse-based e-module with a guided inquiry model on the digestive system material, as well as to analyze the influence of the Eclipse-based e-module with the guided inquiry model on students' interest and learning outcomes on the digestive system material in class XI SMA. Based on observations, many students find it difficult to understand biological concepts due to the lack of videos and images, e-modules can help students in the learning process. This research consists of two stages, namely the development and implementation stage of an Eclipse-based e-module with a guided inquiry model to increase student interest and learning outcomes in the process of learning digestive system material using Research & Development through the ADDIE (Analysis, Design, Development, Implementation) approach. , and Evaluation). The analysis stage was carried out by observation using a questionnaire and the design stage was carried out using various computer software with the help of Eclipse software. Based on the results of the development and implementation test of the Eclipse-based e-module product with a guided inquiry model, it was found that the quality of the Eclipse-based e-module product with a guided inquiry model was very good, and the increase in interest and learning outcomes in the experimental class increased significantly compared to the control class.

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Introduction

Learning is a process of effort carried out by a person to obtain a new change in behavior as a whole, as a result of his own observations in interaction with his environment. Changes as a result of learning can occur in various forms, such as changes in knowledge, experience, attitudes and behavior, skills and abilities and as a result of learning, changes that occur within a person take place continuously, not statically. A change What happens will cause subsequent changes and be useful for life or the next learning process. Learning during the Covid-19 pandemic has had an influence on the educational aspect of teaching and learning activities. Educational institutions throughout the world were forced to stop face-to-face learning and replace it with online (Slameto, 2016).

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Information technology in the world of education is used to support the learning process and facilitate activities carried out during the online learning process. The use of technology in developing teaching materials can be applied in the learning process to help students learn biological concepts. Technology has an important role in learning, with the presence of this technology the teacher's potential will be further strengthened. Students are also not familiar with the use of technology for learning, and still consider it taboo to use technology in learning, almost all students bring smartphones to school, and the number is greater than those who bring laptops.

Based on this description, one of the benefits that can be taken during the Covid-19 pandemic is that the presence of technology is felt in the online learning process, teachers have the challenge of creating creative, intelligent and fun learning. A teacher must pay attention to the context of students, supporting facilities and infrastructure, and the learning model used, as well as curriculum demands so that learning can be created that is effective and enjoyable.

To solve the problem above, a teacher should not just convey material information from books to students, but students are invited to be able to solve problems regarding the digestive system material by using a guided inquiry model in which students are given problems to solve together through experiments so that students can describe digestive system processes in the human body. Guided inquiry is a learning model that can improve student learning outcomes by designing and discovering digestive system concepts themselves. Guided inquiry regarding the student's role is more dominant and students are more active, while the teacher directs and guides students in the right direction (Sukma, 2016).

Based on the results of observations at SMAN 1 Tembilahan, the learning model applied by several teachers is still conventional and there are still those who have not implemented a guided inquiry learning model that is in accordance with the implementation of the 2013 curriculum. In addition, the choice of online learning strategies and

Good offline learning needs to make efforts such as being careful in choosing learning models such as guided inquiry which can be an alternative in involving students to understand the material so that it can increase student interest and learning outcomes.

Learning at SMAN 1 Tembilahan school is carried out online and offline. Based on the results of interviews with biology teachers at SMAN 1 Tembilahan, it is known that students are less interested in learning. This can be seen from students' behavior in learning during the Covid-19 pandemic, that students tend to tell stories, do not focus on learning, tend to make noise, and students quickly get bored of paying attention to the teacher's explanations. Students' interest in learning is still low because learning still uses the lecture method. Student interest in learning is included in one of the internal factors that can influence student learning outcomes, lack of student interest causes low student learning outcomes (Rizqi, 2017).

The results of observations at SMAN 1 Tembilahan in 2021/2022 show that students' interest in learning biology is still low. Based on the results of filling out a student interest in learning questionnaire consisting of 20 statements distributed via Google Form consisting of 30 respondents with an average score of 53% which shows that students' interest in learning is still low.

Low interest and learning outcomes can be caused by a less interesting learning process. This is related to the teaching materials or media used in learning. Using teaching materials in the learning process will make it easier for students to understand the material and create meaningful lessons. Various teaching materials are not only in the form of print media, developments in science and technology can also be used as a means of supporting the delivery of material to make it easier for students to receive lesson material.

Digestive system material is one of the materials in class digestive system with a distribution of assessment forms in the form of 10 multiple choice questions with a total of 35 students as respondents with a score of 64, indicating that student learning outcomes are still low and do not meet the school's KKM score.

One of the teaching materials that students can use independently is a module. Modules equipped in digital form are called with e-modules, it is a learning resource that supports the implementation of the 2013 curriculum, where one form of management and implementation of education aims to build the potential of students to become independent humans (Hendarto, 2019).

E-module teaching materials are created using Eclipse software. According to Supegina (2018), Eclipse is an integrated development environment (IDE) that is free and open source or that can be developed to build a computer program and can be run on all platforms. Eclipse is very suitable for developing digital learning multimedia. The advantage of Eclipse that makes it popular is its ability to be developed by users with components called plug-ins. The benefit of Eclipse-based e-modules is that it is easier for students to access the media and makes it easier for students to revisit the material presented outside of class hours. The more students repeat the material presented, the more students will understand the material that has been presented.

Eclipse-based e-modules in schools where research is intended to be conducted have not yet been developed. Learning still does not use a variety of teaching materials so that students think the learning is still not interesting. By developing attractive and innovative Eclipse-based e-modules, it can be an effort to increase student interest and learning outcomes. According to Fitryani and Hunaepi (2016), e-modules are a learning tool that contains material, methods, limitations, and ways of evaluating them which are designed in an electronic system to achieve the expected learning objectives. The aim of this research is to produce e-modules and analyze the influence of e-modules on interest and learning outcomes.

Method

This research is descriptive research, consisting of two stages. The first stage is the analysis stage which is carried out using observation questionnaires at school and interviews with several teachers. Then the second stage is the Eclipse-based e-module design stage. The method used in this research uses the ADDIE model through the following stages, first the analysis stage (curriculum analysis, student needs, teaching materials, KI and KD), second the design stage (designing learning tools, e-modules and questions), the third stage of development (validity testing and limited trials), the fourth stage of implementation (field testing in the form of implementation in control and experimental classes), the last stage of evaluation (overall assessment for products that have been developed). This research explains how to quality and design an Eclipse-based e-module with a guided inquiry model, so that there is an increase in student interest and learning outcomes in the digestive system material.

Results and Discussion

Data collection was carried out by observation and interviews at school to find out information related to several aspects of analysis. According to Arikunto (2013), the analysis stage is an important stage in determining what should be developed and taught to students. Observations were carried out to determine the percentage of material that students considered

difficult. Based on the analysis of digestive system material in class , and finally on cell 80 material. Some concepts in biology learning are difficult for students to understand. According to Sapuroh (2010), several concepts in biology learning are quite difficult for students to understand. One of them is an abstract concept such as the human digestive system.

The Eclipse-based e-module development format with a guided inquiry model can be seen in Figure 2

- 1. Cover and Title
- 2. Foreword
- 3. Table of contents
- 4. Instructions for using the e-module
- 5. Introduction
- 6. Competence
- 7. Concept map
- 8. Learning activity I (food substances and the digestive system)
- -learning objectives
- - steps of the guided inquiry model
- - practice questions using the link to Google form
- -summary
- 9. Learning activity II (disorders of the digestive system and digestive system of ruminant animals)
- -learning objectives

Figure 1. Modified e-module format from Daryanto (2013)

The e-module cover is designed in accordance with the learning material, namely class XI digestive system material and is designed to be as attractive as possible to attract students' attention in studying the e-module that will be developed. According to Widjajanti (2008), the display aspect is a very important aspect so that students are interested and increase students' interest in completing the tasks in the LKPD which will be given at the end of the lesson. The initial display or cover of the e-module contains a picture of the digestive system, an identity column, the name of the supervisor, level of education, namely for high school class XI, and the university symbol.

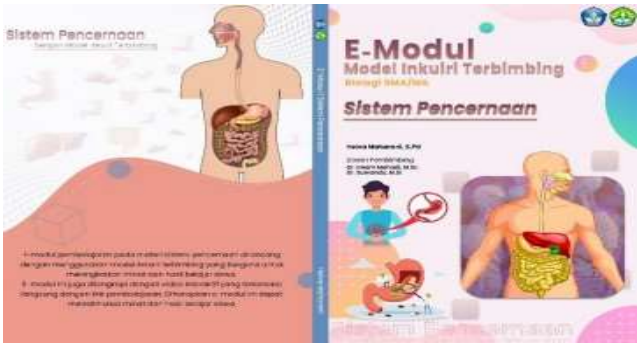

Figure 2. E-Module Cover

In each learning activity there are guided inquiry steps which have 5 stages, namely: (1) identification and formulation of problems, meaning that the teacher will give students problems that are appropriate to the learning material. (2) make a hypothesis, meaning that students are asked to submit temporary answers to the problem given by the teacher. (3) collect

data, meaning that students are asked to collect data through direct observation. (4) analyzing data, meaning that students are asked to be able to analyze data, and (5) making conclusions, meaning that students are asked to make conclusions based on what they have learned and what has been discussed by their group friends.

Figure 3. Display of the content of learning activities and the competency test menu when clicked. Students can immediately work on the questions in the e-module

Figure 4. In the e-module there are commands such as, let's go and let's think about it which contains a question, useful for stimulating students' understanding

According to Prastowo (2014), instructions in developing teaching materials aim to facilitate the use of teaching materials. The design of the e-module content in the learning material contains biological information, as you know, which is useful for increasing students' insight into learning. Then there are instructions for students to work on questions such as let's find out and let's go, which is useful so that students read a lot of other sources such as the internet and it is hoped that students will be able to increase their understanding and interest and increase learning outcomes. According to Harianti (2008), using contrasting colors for important information in a media can be better remembered by the brain

Figure 5. In the e-module there is biological information that is useful for increasing students' knowledge of the learning material

According to Daryanto (2013), learning materials prepared with good teaching material design will produce a high level of readability in accordance with the level of students' abilities. It is hoped that the systematic e-module that has been developed will allow students to understand the learning material so that learning objectives can be achieved and can increase students' interest and learning outcomes.

Making e-modules does not require a lot of money because the software used, namely Eclipse, is free to access and is equipped with plugins that are available in Eclipse to design e-modules as attractive as possible. According to Evira (2021), he believes that Eclipse-based e-modules can help in the teaching and learning process and can be used anytime and anywhere.

Conclusion

Based on the results of research on the development of Eclipse-based e-modules with a guided inquiry model, the increase in learning outcomes could be caused by increased interest in learning. Therefore, the development of an Eclipse-based e-module which has been developed and has gone through several stages of testing can be used as an alternative teaching material in schools, especially at SMAN 1 Tembilahan school. It is hoped that this research can be developed further to create teaching materials that are more attractive to students.

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