NEED ANALYSIS OF E-SW (ELECTRONIC STUDENT WORKSHEETS) BASED ON CASE STUDY NEEDS IN ANIMAL PHYSIOLOGY COURSES

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Abstract: The aim of this research is to determine students' needs for electronic media Student Worksheets (E-SW) Based on Case Studies in the Animal Physiology Course. This research method uses descriptive qualitative. Data collection techniques in this study were interview and questionnaire techniques. Data analysis using data reduction, data presentation, and conclusion. The research subjects were lecturers in the Animal Physiology course, and 5th-semester students taking the Animal Physiology course. Based on survey data in the form of questionnaire results, 53.7% of students do not have reference books related to the Animal Physiology course. Most lecturers use PPT to deliver material. Assignments are given in the form of projects and in the form of case studies. Based on the contents of the questionnaire, 80.5% of students liked learning with case studies. They argue that case study learning makes them challenged to solve cases and improve critical thinking skills. 95.1% of students responded in agreement if the Animal Physiology course had worksheet electronic learning media. Therefore, it is deemed necessary to develop electronic student worksheets (E-SW) based on case studies to help and make it easier for students to understand the concepts of the material and carry out assignments given by the lecturer.

Keywords: Electronic Student Worksheets; Case Study; Animal Physiology Courses.

1. Introduction

Animal Physiology is one of the mandatory courses for Biology teacher candidates in the Biology Education Study Program at Jambi University with a weight of 3 credits. The competency that prospective biology teacher students will gain after taking this course is being able to apply, study, utilize, and apply the principles of animal physiology in solving problems related to the position of animal physiology in human life.

In implementing the Animal Physiology course, the team of lecturers who teach the course have tried to organize the lectures well so that students are actively involved in the lectures. Efforts are made such as holding group discussions and in groups of students discussing the material, they have studied with each other. Students are also assigned to analyze articles both national and international for updates and to increase student knowledge. However, due to limited time allocation, students often do not have enough time to complete the lesson material. Therefore, we need a learning media that can make the learning process more effective and help students understand the material being studied.

Student Worksheets (SW) are learning media designed to help students follow the learning process (Patricia et al., 2020). SW can help students carry out problem-solving activities from the material being studied (Febriani, 2016; Lestari, 2018). Prastowo (2015) said that SW can be equipped with a summary of material, assignments, and instructions for implementing learning activities. Therefore, learning with SW is expected to help students build concepts of the material being studied, and be active in the learning process.

Technological advances that are developing quite rapidly, especially in the field of education, are very beneficial in helping the effectiveness of the learning process. One of the uses of technology is developing SW in an electronic form known as E-SW. E-SW has become a learning innovation for lecturers because it is practical, easy to access, and does not require large costs. E-SW can activate students in the lecture process. Research related to the development of E-SW has been carried out by many researchers. Handika, M. (2019) from his research produced a Moodle-based

E-SW which was considered very feasible by material experts with a percentage score of 89%, and assessments from media experts with a percentage score of 89% "proper" criteria. This is the case with research conducted by Susiaty and Oktaviana (2021) where it was found that the developed Quizizz-assisted constructivism-based E-SW can improve students' critical thinking skills and mathematical representation.

Efforts to activate students definitely use an appropriate strategy in preparing E-SW, one of which is by using the case study method. Case study-based learning (case-based learning) is learning designed to help students think about social and ethical issues, and about public policy issues which are usually loaded with value conflicts (Werdiningsih, 2021). The case-based learning perspective according to Werdiningsih (2021) lecturers provide students with experiences that make it possible for them to think, learn to ask questions, solve problems, and restructure their own knowledge. According to Lincoln and Guba cited by Mulyana (2013) case studies are an effective means of establishing a relationship between researchers and subjects or informants. This means that learning with case studies allows students to experience more in-depth learning of the cases being discussed and this indirectly helps students construct students' understanding of the material being studied through solving cases that are carried out. It is hoped that case study-based E-SW can be an alternative learning media that can activate students in lectures.

2. Research Methods

This type of research is quantitative descriptive research that describes the need for case study-based E-SW learning media which can help students understand the material and improve students' skills in compiling evaluation instruments. The subjects of this study were 40-course lecturers and students taking the Animal Physiology course. The instrument used in collecting data in this research was a questionnaire given to biology education students taking Animal Physiology courses.

In conducting a needs analysis there are four stages carried out, namely planning, data collection, data analysis, and preparing reports (Morrison, 2001).

a. Planning: At this stage the data sources and methods of data collection are determined. Sources of data are lecturers in charge of the course and students who contract the Animal Physiology course.
b. Data collection: Data collection was carried out by direct observation during learning, interviews with lecturers, and giving questionnaires to students.
c. Data analysis: After the data has been collected, an analysis is carried out based on ranking data and the frequency of the number of answers on the questionnaire.
d. Make a final report: that contains analysis data in tabular form and a brief explanation and recommendations related to the needs data obtained

Data analysis carried out in this study were:

a. Data reduction. Data is collected and obtained from survey results
b. Presentation of data, Data is presented in a descriptive form from the results of data reduction regarding the analysis of the needs of E-SW based on case studies in students of the Biology Education Study Program Jambi University.
c. Drawing conclusions. Conclusions were drawn after re-examining the survey data.

3. Results and Discussion

Needs analysis as the basis for the development of case study-based E-SW Learning media in animal Physiology courses. Based on the results of a survey conducted on 40 students, the following data were obtained:

1. During lectures students do not have other learning media besides PPT (Power Point Presentation) media Provided by the Lecturer at the end of the lecture
2. Students need examples of questions and discussion at the SW because student still experiences difficulties in working on evaluation questions.
3. The developed media is not yet interactive.

Table 1. Student response questionnaire

No.	Questions	Student Answer
1	Do you have learning media that can help understand the material	There is (46,3%) There isn't any (53,7%)
2	Has the lecturer ever provided teaching materials in the form of worksheets (SW) during lectures?	ever (34,1) never (65,9%)
3	Do you agree if E-SW teaching materials are developed to help you fulfill the material and do the assignments given by the lecturer?	agree (95,1%) don't agree (5,9%)
4	Do you like studying case studies	like (80,5) do not like (19,5%)
5	Do you agree if the assignment given by the lecturer is in the form of a case study?	ever (87,8%) never (12,2%)

The initial stage in developing a learning tool is carrying out a needs analysis. According to Morrison (2001) needs analysis is a tool used to identify problems in order to determine appropriate action. The purpose of carrying out a needs analysis is to manage the results of the requirements elicitation to produce a specification document whose overall contents are in accordance with what the user wants (Liu and Yen, 1996).

Based on direct observations and interviews with lecturers, the majority of students tend to use teaching materials in electronic form during learning to evaluate student learning processes and outcomes. This can also be seen from student answers to the questionnaire given that 53.7% of students said that they have other learning media that can help their understanding of the material. From the survey results it is known that the media they use the most is in the form of e-books or electronic books. After asking several students whether the electronic books available to them supported them in carrying out the assignments or exercises given, they answered that only a small number did. Furthermore, they were also asked how often they used the electronic books they had in learning, some students answered that their electronic books were opened if there were assignments or exercises, and what they most often used to understand material was PPT in the form of a summary of the material provided by the lecturer.

Judging from observations of learning activities, most students are not active in the learning process. This is indicated by very few students responding to questions given by the lecturer. The lecturers have tried to get students to actively learn by using a variety of learning models and a variety of learning methods, but this has no effect on student learning activities. Students tend to accept what the lecturer or friends say during discussions without clarifying and proving the truth of what the lecturer or friends say. It can be seen that in the learning process students are not building enough knowledge within themselves regarding the material being studied. Students think that what the lecturer conveys is sufficient to increase their knowledge. Therefore, a learning media is needed that is combined with a learning approach or model that can increase student learning activities. When students learn actively, it means that students dominate learning activities, by this they actively use their brains, either to find the main idea of the material, solve problems, or apply what they learn to problems that exist in real life. This active learning will indirectly build students' critical thinking skills.

One media that can activate student learning is providing SW. SW contains steps arranged in a coherent manner that can guide students to carry out activities in solving problems related to the material being studied. According to Falah and Naufal (2020), through SW students can be taught to think critically and creatively in solving problems. Apart from that, doing assignments with SW allows students to work together to construct their understanding of the material, and find ideas and solutions to problems contained in the SW so that it will shape and improve student character. In accordance with Jailani's (2014) opinion, the best way to develop character values in a person is through direct learning. Working on questions in the SW and finding ideas and solutions to problems contained in the SW is one of the direct experiences of students, especially if the SW is designed and equipped with case studies that are close to their environment in accordance with the material being studied.

Judging from the results of the questionnaire analysis, it was found that 69.5% of students answered that they rarely used SW in learning. Students strongly agree that there is a learning medium for Animal Physiology courses in the form of SW, this can be seen from the student answers of 95.1%. Based on the problems obtained during this needs analysis, namely the lack of activity of students in learning results in a lack of students' critical thinking skills so that the solution offered to meet student needs in learning Animal Physiology is the development of case study-based E-SW media. From the results of the questionnaire, 80.5% of students agreed that case study-based learning and 87.8% of students agreed and liked doing assignments in the form of case studies. According to them, with case studies, they can easily understand the material, are more critical, and get a lot of information in finding solutions to solving cases. In accordance with Natalia's opinion (2021), case study learning can make students active in learning such as actively finding out, and expressing opinions or ideas related to solving the cases being studied. In addition, Nopitasari (2012) states that learning activities with case studies can increase the learning activity and independence of students both individually and in groups.

4. Conclusion

Based on the results of the study it can be concluded that students need E-SW media based on case studies to help train students' thinking skills and skills in evaluating learning processes and outcomes. So it is suggested for further research to develop a case study-based e-SW to help students understand the material, be more critical, and be more active in learning activities.

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