

The Practicality of Physics Teaching Materials Based on the Wetland Environment

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Abstract - Banjarmasin city environment is one of the environments with potential wetlands that can be used as a source of learning in the subject of fluid physics so that the development of teaching materials based on the wetland environment is deemed necessary to be developed. This study aims to describe the practicality of fluid physics teaching materials based on wetland environments. This research is a research and development, in which the researcher has developed a teaching materials with a valid category and will then see the practicality of the tool after field testing. The research instruments used is in the form of the lesson plan implementation sheet and student response questionnaire. The developed teaching materials are assessed for practicality through observation of the implementation of the lesson plan and through filling out the student response questionnaire. The results of the analysis showed that 1) the implementation of the lesson plan received a score of 3.13 in the practical category and the results of the student questionnaire received a score of 3.19 in the practical category. It can be concluded that the fluid physics teaching materials based on the wetland environment is categorized as practical, so it could be used for the next development stage.

Keywords: *teaching material, local wisdom, wetland*

I. INTRODUCTION

The Faculty of Teacher Training and Education University of Lambung Mangkurat has a vision, and one of them is to become the Faculty of organizing and producing educators and educational staff who are characterized and competitive in the field of the wetland environment. The wetland environment is a characteristic of Lambung Mangkurat [1]. University compared to other universities in Indonesia Therefore, the teaching process within the FKIP must also be based on the concept of wetlands.

Wetlands according to the Ramsar can be defined as lands that are artificially or naturally always inundated, either seasonally or permanently, with running or stagnant water. Water that floods wetlands can be brackish, salty, or fresh [2]. wetland environment, one of which is the river environment, can be associated with physical matter such as fluids. This is supported by opinions that state that the environment can be used as a source of learning [3].

Physics as one of Natural Sciences branch is a subject that require more understanding [4]. Therefore, building learning patterns that can arouse students' interest and enthusiasm is not easy. Initial motivation is needed in the learning process where as much as possible the relationship

of the problem or phenomenon discussed can be linked in lectures. Utilizing the environment as a source of learning is enough to link learning materials with the environment that is close to students, which in this case can be done through the process of optimizing the surrounding environment to be a source of learning that is meaningful for the interests of student learning [3].

The absence of wetland-based teaching materials in fluid physics courses, the development of wetland-based physics teaching materials is needed. The device developed is expected to motivate students in learning physics, so that it is easy to understand physics materials, and have an impact on their academic abilities as well. This is supported by several previous studies stating that wetland-based learning environment can increase student motivation in learning, improve student learning outcomes, so that it is effectively used in the learning process [2-7]. Development of learning tools that utilize the life around can make it easier for students to learn the material given. The purpose of this study is to describe the practicality of fluid physics teaching materials based on wetland environments.

II. METHOD

The type of research conducted based on the formulation of the problem is research and development. In this research, validation tests has been carried out and it has obtained valid categories. This research develops teaching materials based on a practical wetland environment. The instrument in the form of lesson plan implementation sheet and response questionnaire will be distributed to students at the end of the lecture. The development model used is the ADDIE model. ADDIE stands for Analysis, Design, Development, Implementation and Evaluation [8].

Practicality is related to the use of 1 teaching materials by users which are lecturers and students [9]. The practicality of the teaching materials that have been developed in this study are reviewed based on the implementation of the lesson plan and student responses to the product of trial [10]. The results obtained through the observation process carried out by 2 observers [11]. The data obtained from the results of the assessment of the teaching materials is then analyzed descriptively quantitative to determine the practicality category of teaching materials developed. The practicality of this learning tools is determined by comparing the scores of assessment results that obtained with the criteria of the validity of the learning device [12].

III. RESULTS AND DISCUSSION

A. Lesson Plan Implementation

The lesson plan made has been validated and obtained valid category. The learning tools made were categorized as practical in terms of the lesson plan implementation assessment score that was observed by 2 observers. The results of the lesson plan implementation can be seen in Table 1.

TABLE I. OBSERVATION RESULTS OF LESSON PLAN IMPLEMENTATION

Activity	Meeting			
	1	2	3	4
Exploration	3,00	3,25	3,17	3,25
Focusing	3,00	3,13	3,00	3,00
Challenge	3,00	3,00	3,17	3,50
Application	3,33	3,17	3,33	3,00
Closing	2,88	3,00	3,25	3,25
Practicality Mean	3,04	3,11	3,18	3,20
Practicality Category	Practical	Practical	Practical	Practical
Reliability	0,80	0,85	0,80	0,80
Degree of Realiability	High	Very High	High	High

Practical value of the implementation of lesson plan shows that the learning steps and scenarios for the use of other tools such as student worksheet and teaching materials in the lesson plan are very possible to be done thoroughly. This is in line with research which states that the implementation of a learning plan can be used to determine the practicality of a learning device [13]. learning tools are said to be practical if they have high practicality and easy administration [12].

The observations from four meetings showed that the practicality of the tool was categorized as practical. The validity result of the device as a whole is also valid which affect the results of the practicality of teaching materials. The use of valid tools, for example lesson plan and student worksheet that have been developed in detail can make it easier for lecturers to conduct more structured learning. This is in line with the results of research which states that a valid tool is able to facilitate teaching to conduct guidance during the learning process [3].

These well implemented steps of learning illustrate that the tools developed are practically used for the learning process. This is in line with research which states that the learning steps that are carried out well indicate the tools developed are practical to be applied in learning, so that the teaching materials that have been developed can be used for the next development stage [6].

B. Student Response Questionnaire

The practicality of the learning tools that has been reviewed previously based on the implementation of lesson plan obtained practical categories. In line with that, the practicality of learning tools can be assessed through student questionnaire responses [14,15] The student response questionnaire was distributed to students after the learning process ended. Students are asked to fill out questionnaires according to their opinions based on what they have experienced during learning activities using fluid physics learning tools. The result of the practicality of the device that was developed based on student response questionnaire obtained is in practical categories on average. The results of the questionnaire calculation of student responses to learning

tools that have been carried out during the lecture process can be seen in Table 2.

TABLE II. CALCULATION RESULTS OF STUDENT RESPONSE QUESTIONNAIRE

No.	Student's Response	Score	Mean	Category
1.	Strongly Agree	90	3,19	Practical
2.	Agree	263		
3.	Not Agree	11		
4.	Disagree	0		

Based on the data in Table 2 it can be seen that students tend to respond well to the learning tools used. Statements given to students are filled out after the entire fluid physics lecture meetings have ended. According to Masril [10] the activity of requesting student responses to learning devices is carried out with the aim of knowing students' responses to learning tools developed during field trials, namely during lectures on fluid physics.

Nieveen [16] explained that practicality is compiled by considering convenience. Convenience in the sense of being easy to understand, implement or use. The teaching materials get a good response from students can be caused by several things, one of them is because of the integration of the concept of wetlands so that it can increase student insight. This is in accordance with the theory stated by the Ministry of National Education that the benefits of developing learning tools include: increasing knowledge and scientific insights as well as the experience of lecturers in compiling learning tools, building effective learning communication between students and lecturers and teaching materials become wider because they are developed with various references [17]. Based on the results obtained it can be concluded that the teaching materials can be used for the next development stage.

IV. CONSLUSIONS

Based on the results of calculations that have been carried out on the learning tools based on the wetland environment, the results obtained from the lesson plan implementation is 3.13 and based on the student response questionnaire is 3.19. Based on the results of observations and evaluations, the teaching materials are categorized as practical, so it can be said that fluid physics teaching materials can be used for the next development stage.

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