Performance of Physics Educators in Develop Teaching Aids of Physics Based on Discovery Learning in SMA Negeri 4 Takalar

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Abstract. The research aims to know how discovery learning-based learning devices are fit, know how educators perform in creating and developing learning devices tailored to the provisions, know what difficulties educators experience in making teaching aids of physics. This type of research is done using a qualitative approach to the type of research that is case study research. The sequence of research activities includes: (1) planning, (2) implementation, (3) data collection (4) data analysis, and (5) data reporting. In data collection using observation techniques, interviews are online. Data analysis techniques use qualitative descriptive analysis techniques. To test the validity of the author's data using triangulation techniques. The subject of his research was a Physics educator at SMA Negeri 4 Takalar. The results showed that (1) physics educator learning devices have not complied with the provisions, (2) the performance of Physics educators in creating and develop of teaching aids of physics in SMA Negeri 4 Takalar in general is in accordance with the provisions, (3) the difficulty experienced by educators in making learning devices regarding the lack of knowledge and difficulty of some existing devices.

Keywords: learning tools, discovery learning, performance

1. Introduction

The demand for progress and well-being in life makes almost everyone always try to find science. Educators must have the skills to choose and use teaching methods to be applied in an effective learning system. In teaching, it is rare to find educators using one method, but a combination of two or several different methods. The use of combined methods is intended to get students excited about receiving lessons. In this way students will not find it difficult to achieve teaching goals.

Educators need to have the right tools to achieve these learning goals. The problem, however, is that educators are able to develop a learning tool based on discovery learning. Because in reality most educators still have problems developing learning devices.

Discovery learning, learning to find and formulate your own. In this teaching learning system, educators do not present subject matter in the final form, but students are given the opportunity to find and find themselves by using approach and problem solving techniques, broadly, the procedure is (1) Simulation, educators ask questions or have students read or
listen to descriptions containing problems.; (2) Problem Statement, students are given the opportunity to identify the problem solved. This selected issue must then be formulated in the form of a question or hypothesis, i.e. a temporary answer to the question asked; (3) Data collection, students are given the opportunity to collect various relevant information, read literature, observe objects, conduct interviews with speakers, conduct their own trials, and so on; (4) Data processing, all reading information, interviews, observations, classified, tabulated, even if necessary calculated in a certain way and interpreted at a certain level of trust; (5) Verification, the results of processing and interpretation or existing information, questions or hypotheses that have been formulated earlier are then checked whether answered or not, proven or not; and (6) Generalization, the result of verification, students learn to draw certain conclusions or generalizations.

Based on the author's direct experience in conducting research related to discovery learning, it is quite reasonable if the author conducts research especially for physics subject educators related to the performance of discovery learning-based learning tools. It aims to obtain the suitability of learning devices with the discovery learning model.

2. Method
This research uses descriptive methods that aim to expose and describe and map facts based on a particular point of view or frame of view. The subjects in this study were physics subject educators who were determined based on the observations of the research team that in the pandemic period students could not be used as research subjects, so 4 Physics educators were chosen. The data collection techniques in this study use qualitative data collection techniques. In this study the data source in question is the result of interviews with subjects about phenomena related to their performance in creating learning devices which are then continued with documentation online to strengthen the data that has been obtained. The format of assessment of learning devices includes: (1) Learning Implementation Plan (RPP); (2) Learner Worksheet (LKPD); and (3) Teaching Materials.

3. Result and Discussion
Based on the findings of research that has been done shows that the knowledge of Physics educators at SMA Negeri 4 Takalar related teaching aids of physics can be said to be quite good. In compiling what is a discovery learning based learning tool physics educators can explain the aids teaching of physics that are structured before they start learning activities in the classroom.

Based on the results of interviews on what learning devices are known by physics educators at SMA Negeri 4 Takalar mentions that learning devices that are usually made are RPP, LKPD, and teaching materials, but for materials usually only download material that is already on the internet. It can be said that they already know the kinds of learning tools that exist in general that must be had. Regarding how teaching aids of physics are structured, educators said teaching aids are usually created at the beginning of the school year and created by the MGMP team in compose teaching aids of physics what has been taught or socialized on them. This shows that the teaching aids at SMA Negeri 4 Takalar are not created by educators themselves but in a group.

Teaching aids of physics in SMA Negeri 4 Takalar are compose in reference to the format that exists within their own sphere, then they follow what has been taught about how to make teaching aids before and what is already the same as that of other educators. The preparation of RPP by Physics educators at SMA Negeri 4 Takalar shows that the format of identity written is correct. This is because of the unit of education, subjects, classes/semesters, allocation of time and competency standards that become a requirement in the identity format in RPP while for the form format is also appropriate because of the
basic competencies and learning objectives. However, in learning activities have not shown the learning stages that correspond to the model written on RPP. Suppose in RPP with fluid material class XI, where RPP is arranged using discovery model, but the learning activities do not follow the stage of this model.

In The Learner Worksheet (LKPD) has not shown the sync of what is written in RPP. This is shown from the LKPD which has been compiled by physics educators. In the identity and competency written on LKPD is in accordance with the standard of content in Permendikbud number 37 in 2018. Furthermore, the teaching materials do not contain all aspects of knowledge that should exist in compiling the teaching materials. Teaching materials are composed only in the form of materials related to factual and conceptual aspects. It has not yet come to the procedural and metacognitive aspects.

From the lack of performance of teachers in making learning devices described above, according to Dharma (2003) which suggests that the way of measuring performance takes into account three aspects, namely quantity, quality, and timeliness. It can be concluded that the performance of Physics educators in general has been good. This is based on the quantity that must be completed in compiling and developing existing learning tools, they only make one mistake that is in learning activities that do not match the model listed on RPP, so it can be concluded that their performance in general is good because it already meets the 3 aspects.

The difficulties that educators face are in RPP and teaching materials that still do not meet the suitability of what is expected. usually in terms of determining and adapting learning materials to these learning resources due to the msuitable material between RPP and LKPD. n additio additional in customizing existing components so that it functions systematically. The last difficulty is terms of RPP, according to physics educators who found in compose RPP is in choosing models and learning methods suitable for physics subjects.

In overcoming these difficulties, researchers will continue to provide knowledge related to compiling learning tools, especially in the discovery learning model. Furthermore, socialize related to the selection of learning models that correspond to the topic of Physics that will be taught to students.

4. Conclusion

Based on the results of data analysis and discussion on the performance of Physics educators in compiling and developing discovery learning tools based on Discovery Learning at SMA Negeri 4 Takalar, it was obtained in conclusion: (1) Teaching aids of physics at SMA Negeri 4 Takalar are well organized and some have no conformity between formats in Permendikbud number 37 in 2018; (2) The performance of Physics educators in compose and developing learning devices in general is in accordance with the provisions despite some discrepancies encountered on teaching aids of physics; (3) The difficulty encountered in developing learning devices is to adapt learning materials to the models and stages of the learning model.

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