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PROBLEM BASED LEARNING MODEL VALIDITY TEST IN CLASS X ENVIRONMENTAL CHANGE MATERIALS

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Abstract:
This research is a development research that aims to describe the validity of the problem-based learning model of environmental change in class X SMAN 1 Tilango. The learning tools developed are Learning Implementation Plans (RPP), Student Worksheets (LKPD) and Learning Outcomes Tests. The instrument used in this study was a validation sheet to evaluate the product. The results showed that the quality of the product produced based on the validity of the lesson plans met the very valid criteria with an average value of the validator of 105, the LKPD met the very valid criteria of the validator with an average of 108 and the learning outcome test met the very valid criteria with an average value of 70.3. Based on the results of the study, it can be concluded that problem-based learning tools on environmental change materials meet the valid criteria.

Keywords: Development Research, PBL, Environmental Change

INTRODUCTION

Learning tools are an important part of the learning process of the national education system. Learning tools will assist teachers in designing learning. Through learning tools, teachers can instill competencies that are a guide in the 21st century. Competence for learning and living in the 21st Century, is characterized by four things: (1) High competence of understanding: (2) Competence of critical thinking: (3) Competence of collaborating and communicating and (4) Competence of creative thinking, (Dewi, 2016) .

These competencies can be possessed by students if educators are able to develop learning tools that contain activities that challenge students to think critically in solving problems. Activities that encourage students to work together and communicate must appear in every lesson plan. Skills in the 21st Century are the main focus of education today. Quality learning requires a learning device that can help students understand and master the material well. (Suryani, et al 2016)

Hanafy (2014) suggests that learning can run effectively when teachers can facilitate students to learn well. This can happen if the teacher prepares the various tools needed. Learning tools that must be prepared by the teacher include the syllabus, lesson plans, LKPD, evaluation instruments or THB, media, and student textbooks. In fact, the teacher's role in the development of learning tools is still lacking. Whereas a teacher can produce their own learning tools through designing the desired content, structure and appearance as needed, regardless of the competency standards and basic competencies that have been determined by the government (Fatmawati, 2016). This is what happened to the school that became the object of research.

Based on the interview, it was stated that the teacher had difficulty in making learning tools, for example in making lesson plans, determining models and methods in learning activities, designing their own works or media, plus every year there was a change in the curriculum. So that learning is more meaningful and can be useful in improving the quality of human resources, it is necessary to create learning that allows students to apply their knowledge in dealing with problems in everyday life. In other words, with this learning students become science literate or able to relate and use science concepts in everyday life. Learning will be carried out in accordance with the learning objectives that will be achieved if the learning device uses an appropriate learning model. One of the learning models that match the characteristics of science learning is problem based learning.

Rusman, (2011) states that Problem Based Learning is a learning model that can help students to improve the development of lifelong learning skills in an open, reflective, critical, and active learning mindset, as well as facilitate the success of problem solving, communication, group work, and interpersonal skills. So, according to the author, to support the science learning process, it is necessary to develop learning tools by using appropriate models, one of which is the problem-based learning model.

Based on the description above, this study aims to describe aspects of the validity of problem-based learning tools on environmental change material in class X SMAN 1 Tilango.

METHODOLOGY

This research was conducted at SMA Negeri 1 Tilango, Tilango District, Gorontalo Regency, class X. Overall research time takes approximately 6 months, namely from January to June 2022 from the planning, preparation, research and reporting stages.

The method that will be used is the Research and Development (R & D) development method with the Brog and Gall development model which has been modified by Sugiyono (2017). This research and development is a method to produce certain products or improve existing products.

Data analysis techniques were carried out to obtain good learning tools to be used in the learning process, by meeting the aspects of validity. The steps in analyzing the quality of the learning tools developed are as follows. Validity Analysis Data to determine the validity of the learning tools were obtained from two expert lecturers and one biology teacher.

With the following steps:

1. Tabulation of data on the results of the assessment of learning devices by validators is carried out by providing an assessment of the validation instrument based on the Likert scale in Table 2.1.
2. The results of the validity assessment were obtained from the validation scoring of learning devices given by validators and practitioners using a Likert scale with a score range of 1-5.

Table 2.1. Guidelines for Scoring of RPP and LKPD and THB validation instruments

Score	Criteria
5	Very good
4	Well
3	Enough
2	Not enough
1	Very less

a. Calculating the total score and based on data tabulation

b. The average score is then converted into qualitative data based on the following assessment criteria.

Table 2.2 Qualitative Score Conversion Guidelines

Score interval	Criteria	Category
$X > Mi + 1{,}8\ Sbi$	Very Valid	A
$Mi + 0{,}6\ Sbi < X \leq Mi + 1{,}8\ Sbi$	Valid	B
$Mi - 0{,}6\ Sbi < X \leq Mi + 0{,}6\ Sbi$	Quite Valid	C
$Mi - 1{,}8\ Sbi < X < Mi - 0{,}6\ Sbi$	Less Valid	D
$X > Mi - 1{,}8\ Sbi$	Invalid	E

(Eko Putro Widoyoko, 2009)

Information :

X = Total Score

The highest ideal score = criteria item x highest score

The lowest ideal score = criteria items x lowest score

Mi = Ideal Mean = x (ideal highest score + ideal lowest score)

SBi = Ideal Standard Deviation = 1/6 x (ideal highest score - ideal lowest score)

RESULTS AND DISCUSSION

Validity is a measure that shows the level of

The validity or validity of a test. It is said to be valid if the learning device is declared suitable for use with revision or without revision by the validator. The learning tools that were validated in this study were lesson plans, LKPD and THB. Assessment of the validity of the RPP and LKPD and THB using a validity assessment instrument. This validity instrument is also validated by expert lecturers so that they can measure what they want to measure.

Validation of the Learning Implementation Plan

The lesson plans in this study were developed in content standards described in the syllabus to direct student learning activities in an effort to achieve a defined basic competency and or learning objectives, (Nirwan, 2019). The learning steps in the lesson plan are adapted to the problem based learning model chosen by the researcher as the learning model used in this study. The validity of learning tools is based on the assessment of expert validators and user validators. The results of the assessment are listed in the following graph.

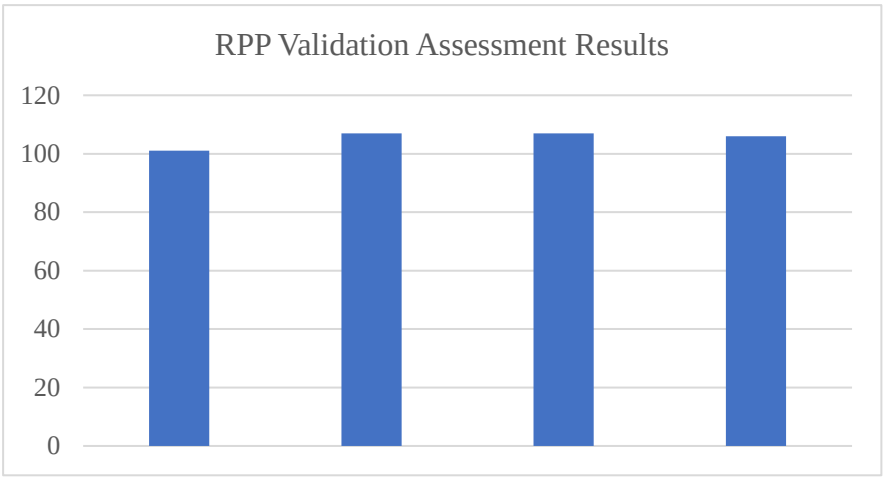

Figure 3.1. RPP Validation Assessment Results by Expert Lecturers and Biology Teachers

Based on the calculation of the overall RPP quality by expert validators and user validators, the total score (X) for validator 1 scores X = 101, Validator 2 total score X = 107, validator 3 achieves a total score of X = 107 and for user validators a total score of X is 106. This value determines the validation assessment category, with the number of assessment aspects 22, the highest ideal score 110, the lowest ideal score 22, Mi 66, SBi 14.6, so that the validation score interval falls in the range X > 92.46 in the very valid category.

The results obtained cannot be separated from the suggestions and input of the validator, obtained several suggestions regarding the developed device. This is in order to fix RPP errors. In the assessment of the developed lesson plans, there are several suggestions that need to be revised so that the developed lesson plans are suitable for use in biology learning. One of the validator's suggestions, for example, is to adjust the learning steps with the syntax of the problem based learning model. Based on input from the validator, the researcher tried to adjust the learning steps in the lesson plan with the problem based learning learning steps. This is in line with Amir's (2013) research, which says that the learning steps in the lesson plan are adjusted to the learning model/strategy used.

Student Worksheet Validation Results

According to Prastowo (2014), the technical steps for the preparation of LKPD in general are: (1) analyzing the curriculum (2) compiling a map of LKPD needs, (3) determining the title of the LKPD, (4) determining KD and indicators, (5) determining the central theme and subject matter, (6) determine the assessment tool, (7) compose the material. The preparation of LKPD in this study uses a problem based learning model including orientation, organizing students, investigating, presenting and developing the results of the work as well as concluding and evaluating. LKPD is structured systematically, in detail, and clearly so that it can assist students in implementing problem-based learning, (Ellyna, 2021)

The following is a graph of the LKPD validation assessment by expert lecturers and biology teachers.

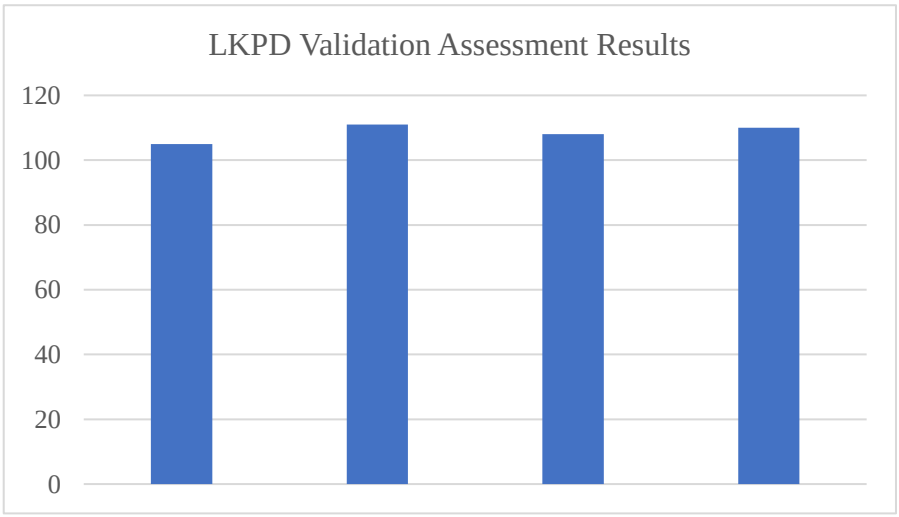

Figure 3.2. LKPD Validation Assessment Results by Expert Lecturers and Biology Teachers

Based on the calculation of the overall LKPD quality by expert validators and user validators, the total score (X) for validator 1 scores X = 105, Validator 2 total score X = 111, validator 3 achieves a total score of X = 108 and for user validators a total score of X is 110. , this value determines the validation assessment category, with the number

of assessment aspects 23, the highest ideal score 115, the lowest ideal score 23, Mi 69, SBi 15.5, so that the validation score interval falls in the range X > 96.54 in the very valid category.

The LKPD developed was then validated by three expert validators in the field of development and user validators. The assessment of the validation results has been listed in table 3.4 after being analyzed and categorized based on the validation assessment criteria, obtaining various values for each validator so that through the calculation of the LKPD it is considered a very valid criterion, but referring to the results of the validation that has been done, there are several components in the LKPD that need to be revised according to the validator's suggestion. Fraenkel, (2012) learning tools developed and said to be valid, if the results of the validator are included in the valid category.

Learning Outcome Test Validation Results

Assessment of THB by validators is very important to see the validity of THB, so that it can be used as a benchmark for student learning outcomes.

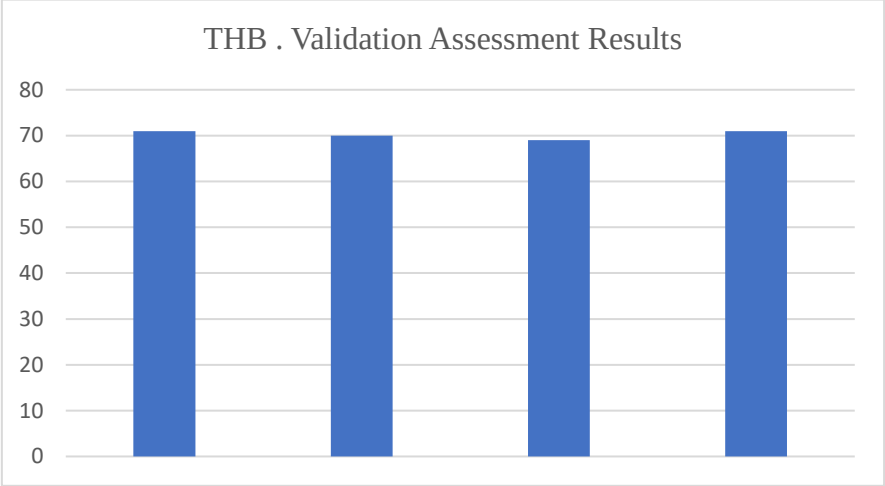

Figure 3.2. THB Validation Assessment Results by Expert Lecturers and Biology Teachers

Based on the calculation of the overall RPP quality by expert validators and user validators, the total score (X) for validator 1 scores X = 71, Validator 2 total score X = 70, validator 3 achieves a total score of X = 69 and for user validators a total score of X is 71. This value determines the validation assessment category, with the number of assessment aspects 15, the highest ideal score of 75, the ideal lowest score of 15, Mi 45, SBi 10, so that the validation score interval falls in the range X > 63 in the very valid category.

Questions can be applied if the questions are worth testing. Whether or not the question is appropriate is based on the assessment of a validator who is an expert in his field. The assessment of the validity of the learning outcomes test to measure Science Literacy ability is determined by expert validation conducted by three expert lecturers and a biology teacher as user validators. Validity is carried out to determine the feasibility of the questions to be used in the study.

According to Zainul et al (2007), a valid instrument can measure exactly what will be measured. Therefore, validity is carried out by lecturers who really true expert in the field of environmental materials. Validity testing is carried out on each item with the aim of finding out whether the test instrument is really suitable to be used to measure what will be measured. Items assessed in detail can make it easier to identify problems that need improvement.

CONCLUSION

The results showed that the quality of the products produced based on the aspects of the validity of the RPP, LKPD and THB met the very valid criteria, so that they were feasible to be applied in learning material on environmental change X SMAN 1 Tilango.

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