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Practicality of Causalytic Model Learning Integrated to Character Values Assisted by Go-Lab Platform to Improve Students' Problem Solving and Creative Thinking Abilities

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Abstract— This research aims to develop a causalytic model learning integrated of character values assisted by Go-Lab platform to improve students' problem solving and creative thinking abilities. This development research procedure refers to the steps in developing a 4D model which consists of four main stages, namely defining, designing, developing and disseminating. The practicality test is carried out after the definition and design stages are completed. The practicality test instrument consists of an observation sheet on learning implementation as well as a teacher and student response questionnaire. The observers involved in filling out the observation sheet for learning implementation were 1 teacher of science and 20 students in class VIII-C at State Junior High School (SMPN) 3 Labuapi. Meanwhile, the observers involved in filling out the response questionnaire were 3 teachers of science and 20 students in class VIII-C at SMPN 3 Labuapi. Learning tools are said to be practical if the observers' assessments state that the learning tools can be applied. The results of the analysis of observations of learning implementation by teachers and students obtained an average percentage of 97.08% and 96.88% in very practical category. Meanwhile, the results of the analysis of teacher and student responses obtained an average percentage of 90.00% and 98.00% in very practical category. This shows that the learning tools developed are easy to use, easy to interpret, and provide benefits for teachers and students.

Keywords— Practicality; Learning Tool; Causalytic Model Integrated to Character Values, Go-Lab Platform.
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1. Introduction

Learning tools are a collection of learning resources that enable students and teachers to carry out learning activities [1,2,3]. The learning tools that researchers will develop include a syllabus, Lesson Plan (RPP), teaching materials, Student Worksheets (LKPD), go-lab platform media, as well as test instruments for problem solving and creative thinking abilities. The syllabus and lesson plans developed are intended to serve as guidelines for implementing learning. Teaching materials were developed with the aim of assisting teachers in carrying out teaching and learning activities and as providers of materials. Student Worksheet was developed with the aim of being an evaluation instrument in the implementation of learning. The go-lab media platform was developed with the aim of being a tool for research or problem-solving activities. Test instruments for problem solving and creative thinking abilities were developed with the aim of measuring the achievement of planned learning competencies.

The efforts to improve students' problem solving and creative thinking abilities require the use of appropriate learning models. One of them is by applying a causalistic learning model. The causalistic learning model is a model that considers that the main activities in the learning process are oriented towards developing students' potential in causal thinking and analytical thinking. Through causal thinking activities, students are directed to be able to analyze each phenomenon so that they are able to determine the elements of cause and effect. Then, through analytical thinking activities, students are directed to be able to formulate rationalizations in the form of arguments to explain the conditions of each causal element so that they produce the consequences of each phenomenon [4, 5, 6].

The results of the preliminary study at SMPN 3 Labuapi show several things, namely: (1) the learning tools used do not contain steps that involve the active role of students in mastering problem solving and creative thinking skills with the help of the use of technology; (2) the assessment instruments used are not optimal for testing students' problem solving and creative thinking abilities; (3) students' problem solving and creative thinking abilities are still relatively low; and (4) the relevant main material used in this research is Business and Simple Machines with KD 3.3 (Explaining the concept of business, simple machines, and their application in everyday life including muscle work) and 4.3 (Presenting the results of investigations or problem solving regarding the benefits

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use of simple machines in everyday life). The based competency is listed in the revised Curriculum 2013 adjusted with the curriculum that applies at school.

Based on these problems, learning innovation is needed in the form of developing learning tools with the help of technology. The learning tools developed need to be tested for practicality with the aim of finding out the practicality of the learning tools developed to be applied in the learning process. This is done as part of the process to determine the suitability of learning devices for use in learning.

2. Research Methods

This research aims to know the practicality of a causalistic model learning integrated to character values assisted by Go-Lab platform to improve students' problem solving and creative thinking abilities. This development research procedure refers to the steps in developing a 4D model which consists of four main stages, namely defining, designing, developing and disseminating [7,8,9,10,11].

The practicality of learning tools is that if practitioners or experts state that the learning tools developed can be applied in the class or society, then a learning tool is said to be practical [12,13,14]. Data on the practicality of learning devices was obtained through observation sheets on learning implementation as well as teacher and student response questionnaires. Observer assessments are carried out when applying the device to the learning process, which is then analyzed using the following equation.

$$\text{Values} = \frac{\text{Amount of achievement score}}{\text{Amount of Maximum Score}} \times 100\%$$

After the analysis is carried out, the data is then interpreted based on the practicality criteria of the learning tools. The level of practicality of learning devices is as shown in Table 3.5 below [15,16]

Tabel 1. Practicality Criteria for Learning Tools

Range of Values Percentage	Level of Practicality
0 – 20	Not practical
21 – 41	Less practical
41 – 60	Quite practical
61 – 80	Practical
81 – 100	Very practical

3. Results and Discussion

The practicality analysis of learning tools aims to know the practicality of the learning tools being developed. Data collection is carried out by filling out a practicality questionnaire by observers (students and teachers) which consists of an observation sheet on learning implementation and a response sheet to the learning tools being developed. Data collection was carried out during learning, by providing observation sheets for learning implementation and Google response forms for the learning tools developed.

3.1. Learning Implementation Observation Sheet Data

Learning implementation analysis aims to know the practicality of learning tools through direct observation by observers. This observation is assessed from the teacher's ability to manage learning and student activities during learning in accordance with the Lesson Plan that has been prepared. The observers involved were 1 teacher of science and 20 students in class VIII-C at SMPN 3 Labuapi. The teacher's learning implementation observation sheet consists of 15 statements at each meeting. Meanwhile, The students' learning implementation observation sheet consists of 12 statements at each meeting. The implementation of learning can be said to be practical if it is at least in the quite good category. The results of the analysis of learning implementation by observers can be seen in Table 2 and Table 3 below.

Tabel 2. Results of Observation Analysis of Learning Implementation by Teachers

Meeting to-	Average Value	Category
1	96.67%	Very Practical
2	98.33%	Very Practical
3	95.00%	Very Practical
4	98.33%	Very Practical

Tabel 3. Results of Observation Analysis of Learning Implementation by Students

Meeting to-	Average Value	Category
1	95.83%	Very Practical
2	95.83%	Very Practical
3	97.92%	Very Practical
4	97.92%	Very Practical

The results of the practical analysis based on the observation sheet on the implementation of learning by teachers and students can be seen more clearly in picture 1 below.

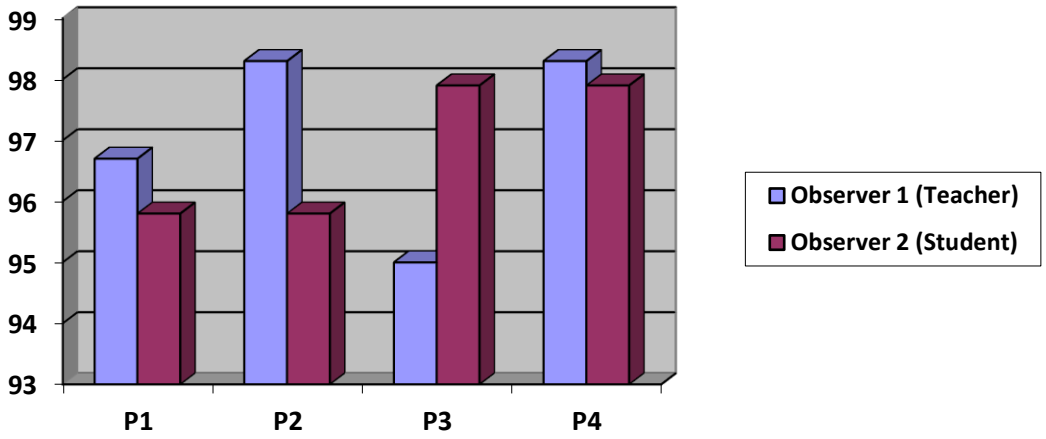


Fig. 1. Results of Practical Analysis Based on Observation Sheets on Learning Implementation by Teachers and Students

Based on the results of the analysis above, the average value of learning implementation at the first meeting was 96.67% and 95.83% in the very practical category, the second meeting was 98.33% and 95.83% in the very practical category, the third meeting was 95.00% and 97.92% in the very practical category, and the fourth meeting was 98.33% and 97.92% in the very practical category. This value interprets that the implementation of learning is very practical at each meeting. These results indicate that learning has taken place according to the plan stated in the Lesson Plan.

3.2. Results of Learning Tools Response Data

Response analysis aims to know the observer's response to the learning tools developed. The observers involved were 3 teachers of science and 20 students in class VIII-C at SMPN 3 Labuapi. The teacher and student response sheet consists of 5 statements. The results of the response analysis to the learning tools can be seen in Table 4 and Table 5 below.

Tabel 4. Results of Teacher Response Analysis

No	Aspects Assessed	Average Value	Category
1	Use of an integrated causal model of character values with the help of the go-lab media platform arranged systematically	91.67%	Very Practical
2	By using an integrated causalistic learning model of character values with the help of the Go-Lab media platform, students can understand the material easily	91.67%	Very Practical
3	By using an integrated causalistic learning model of character values with the help of the Go-Lab media platform, students find it easier to solve problems	91.67%	Very Practical
4	By using an integrated causalistic learning model of character values with the help of the Go-Lab media platform, students are able to provide an explanation regarding a phenomenon in their own language	83.33%	Very Practical
5	Go-lab platform as a medium that helps learn the integrated causal model of character values, very interesting and easy to understand by students	91.67%	Very Practical

Tabel 5. Results of Student Response Analysis

No	Aspects Assessed	Average Value	Category
1	Science learning using an integrated causal model of character values is interesting and not boring	98.75%	Very Practical
2	Students can easily understand the material presented using an integrated causal model with character values	98.75%	Very Practical
3	The use of an integrated causal model of character values in students worksheet makes it easier for students to solve problems	97.50%	Very Practical
4	Application of the integrated causal model of character values in learning, makes students able to provide explanations related to a phenomenon in their own language	97.50%	Very Practical
5	Go-lab platform as a medium that helps learning integrated causal models of character values very interesting and easy to understand	97.50%	Very Practical

Based on the results of the analysis of teacher and student responses to the learning tools developed, an average percentage of 90.00% and 98.00% was obtained in the very practical category. If the percentage of practicality is closer to 100%, the observer's response will be more positive towards learning [17,18,19]. So it can be said that the integrated causalistic model learning tool for character values assisted by the Go-Lab platform is very practical to use. This is because the learning tools used really help students in the learning process. Furthermore, the teacher also gave a good response because he saw an increase in students' problem-solving and creative thinking abilities regarding business and simple machine materials which could be seen from the students' well-completed tasks.

One of the advantages of this learning tool is that it applies a causal model of learning integrated with character values so that the learning process is no longer teacher-centered, but student-centered and it is hoped that the quality of learning will be better. The quality of learning can be improved by changing the pattern of learning activities/steps [20,21,22].

4. Conclusion

The integrated causal model learning tool for character values assisted by the Go-Lab platform which was developed as a whole is stated to be very practical with details:

1. The results of the analysis of observations of the implementation of learning by teachers obtained an average percentage of 97.08% in the very practical category.
2. The results of the analysis of observations on the implementation of learning by students obtained an average percentage of 96.88% in the very practical category.
3. The results of the analysis of teacher responses obtained an average percentage of 90.00% in the very practical category.
4. The results of the analysis of student responses obtained an average percentage of 98.00% in the very practical category.

This shows that the learning tools developed are easy to use, easy to interpret, and provide benefits for teachers and students.

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