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Validity and practicality of integrated science teaching materials based on Creative Problem Solving model as an efforts for the establishment of anticorruption characters

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Abstract. The 2013 curriculum was revised with the aim of improving character education and mastery of 21st century skills. One of the skills needed in the 21st century is critical and creative. To generate student creativity, the application of the right model must be carried out. Creative Problem Solving is a model that can increase student creativity, because through this model, students are invited to solve problems through systematic steps. Learning in the classroom should be able to instill character that has an important influence on solving the nation's problems today. One of the problems of the nation today is corruption. Anti-corruption attitudes need to be given to Indonesian children so that Indonesia in the future become a corruption-freecountry. Type of research is research and development. In this paper specifically discusses the quality of teaching materials developed. Quantitative description is data analysis that used. The results of this study are: 1) the teaching material produced has very valid category, 2) the teaching materials produced has a very practical category.

1. Introduction

The 2013 curriculum has changed the paradigm from teacher centered to student centered learning. This paradigm shift is a revolution in learning that brings changes in the implementation system [1]. The teacher must understand how to implement student-centered learning [2]. One of the steps teachers need to prepare in learning is teaching materials that refer to the needs analysis [3][4].

Teaching materials developed are expected to refer to student-centered learning models. One learning model that is considered suitable in developing teaching materials is creative problem solving (CPS) [5][6]. The CPS model can develop students' ability to think critically and creatively so that they can solve problems with many solutions [7]. CPS consists of three words: creative relates to ideas that are varied and unique, problems related to things that provide challenges, and solutions related to planning an answer to challenge [8]. The CPS that is integrated in teaching materials is the CPS published by the Creative Education Foundation [9]. CPS steps that are integrated into teaching materials are:

- Clarify: identify challenges, collect data, create challenge questions
- Ideate: generate ideas to solve challenges.
- Develop: developing ideas into solutions
- Implement: implement a solution

Learning that is carried out in class should apply character education to prepare a generation of people who are intelligent and virtuous.



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At present anti corruption education is important to be given in the learning process [10]. This is due to the nation's current condition with an increase in corruption cases every year [11]. Anti corruption education does not only apply to children, but also to adults. Teachers need to apply character education in teaching materials. On the other hand, teachers need to pay attention to the theme current themes of moral education that add to the enthusiasm of our students' homeland love. Anti-corruption is an important issue today to prepare a better future generation [12]. Anti corruption characters that can be integrated in teaching materials are: honesty, caring, independent, discipline, responsible, hard work, simplicity, bravery, justice [13].

The quality of teaching materials needs to be considered in developing process. The quality of teaching materials is related to validity, practicality, and effectiveness [6]. Validity in KBBI is correct [14]. Validity is the relationship between measurement and actual conditions [15]. The validation component includes: 1) the content eligibility component, 2) the linguistic component, 3) the presentation component [16]. The indicators used in teaching materials are:

Content eligibility

- Compliance with the demands of KI, KD, and indicators formulated.
- Correspondence of facts with the topic.
- Correspondence of facts with theory.
- The concept is not doubly meaningful.
- The suitability of the material with the achievement of KI and KD.
- The examples provided are up to date and contextual.
- The description of the material and examples provided are relevant and interesting to students.
- Suitability of presentation of material with student character
- Examples of questions given can help students understand the material.

Presentation aspects

- Completeness of the introduction
- Systematic preparation of teaching materials
- Completeness of the cover
- The suitability of the teaching material steps to the steps of CPS
- Accuracy in integrating anti-corruption characters
- Consistency in using symbols / symbols.
- Balance between picture illustrations and writing.
- The combination of the written colors contained in teaching materials
- Readability of the font used
- Layout and layout
- Display design
- Image display

Language component

- Language usage
- Clarity of information conveyed
- Use of spelling
- Consistency in terms of use

Practicality related to easy to use [14]. Practicality of an instrument can be seen from the ease of use [17]. This also applies to teaching materials, practical teaching materials are teaching materials that are easy, inexpensive, and do not require a long time in its application. The practicality of teaching materials can be seen through Teacher / practitioner response test to product. The indicators used in measuring the practicality level of product are:

- Teaching materials facilitate teacher in the learning process"
- Teaching materials can facilitate teachers in conveying facts, concepts, principles and procedures of learning materials

- Teaching materials help teachers overcome time constraints in the learning process
- The use of teaching materials can make it easier for teachers to generate student learning motivation
- The use of teaching materials can make it easier for teachers to associate learning material to students' daily lives"
- Pictures and illustrations contained in Teaching materials can help teachers make it easier for students to remember learning material"
- Teaching materials already show the steps of creative problem solving
- Teaching material was integrated Anticorruption

2. Research Method

This research is research and development. Model used in this research is Reeve model. The stages of this research are:



Validity and practicality measurements are carried out at the test phase of the adventure. Validity is measured by requesting expert responses to the teaching material developed. There are 4 experts who contributed to this research. Validity tests are repeated, and revisions are made according to the advice given by the experts. Measuring instrument used in the form of questionnaire validity. Practicality in this study was measured by asking the response of 2 teachers to the teaching material developed. The teacher is asked to measure the level of ease of use of teaching materials in learning. The instrument used was a practicality questionnaire.

Data analysis uses a Likert scale that is converted according to the following equation:

$$P = \frac{X}{Y} \cdot 100\% \tag{1}$$

P = level of validity or practicality

X = score

Y = maximum score

The validity / practicality values obtained can be converted into the following categories:

Interval	Category
0 - 20	Unvalid / unpractice
21 - 40	Less valid / practice
41 - 60	Enough valid / practice
61 - 80	Valid / practice
81 - 100	Very valid /practice

Table 1. Category of Validity and Practicality

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3. Results

3.1. Validity

The results of learning materials validity are:

No	Component for Validation		Avorago			
		JD	HD	DM	SW	Average
1	Content	94.4	86.11	80.56	83.33	83.33
2	Construction	90.9	84.09	72.72	93.18	85.22
3	Language	82.14	75	75	85.71	79.46
Final Average						

Based on Table 2, we can see that learning materials developed are in the very valid category with average 82.67. During the validation process, there are also some suggestions from experts for improvement of teaching materials. These suggestions include:

- There are still punctuation errors
- Information on the cover is still lacking
- CPS components are not very clear
- The anti-corruption character needs to be clarified again

Based on the suggestions, then a revision was made to increase the quality of the teaching materials developed.

3.2. Practicality

The results of learning material practicality are shown in Table 3. Table 3 presents the results of the response of teacher to the teaching material developed. According to the teacher, the teaching material developed was in the very valid category.

Table 3. Result of practicality

			•			
No	Statement	Teac	cher's	Score	Value	Category
		Response		_		
		EK	NN	=		
1	Facilitate the teacher in	4	3	3.5	87.5	Very Practice
	the learning process					
2	Facilitate teachers in	3	4	3.5	87.5	Very Practice
	conveying facts, concepts,					
	principles and procedures					
	of learning materials					
3	Help teachers overcome	3	3	3	75	Practice
	time constraints in the					
	learning process					
4	Make it easier for teachers	4	3	3.5	87.5	Practice
	to generate student					
	learning motivation					
5	Make it easier for teachers	3	4	3.5	87.5	Very Practice
	to associate learning					
	material to students' daily					
	lives					
6	Pictures and illustrations	3	3	3	75	Practice
	contained in Teaching					
	materials can help					

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	teachers make it easier for students to remember learning material					
7	Teaching materials	3	3	3	75	Practice
	already show the steps of					
	creative problem solving					
8	Teaching material was	3	3	3	75	Practice
	already integrated					
	Anticorruption					
	Average			3.71	81.25	Very Practice

4. Discussion

Teaching materials developed already meet the very valid and very practical categories. Validity testing is divided into three categories: content eligibility, appearance, and language. Test of content validity is very valid. This shows that teaching materials have met the competencies, materials, learning steps, and character education supported by the curriculum.

This is in accordance with the statement found in the guide to the development of teaching materials issued by the Indonesian Ministry of Education, that a teaching material that meets the feasibility of content is in accordance with competence, according to needs, increased knowledge, has moral values [16]. The feasibility test display of teaching materials is also in the category of very valid, this shows the teaching materials meet the display standards (components, colors, font types, images) [16].

This is in line with the eligibility criteria presented by Elvi Yulianti, that appropriate teaching materials meet the criteria: good layout, complete components, and attractive colors [19]. Language validation of teaching materials already fulfills valid criteria. This shows that teaching materials are already using effective and efficient language. According to Elvi and the explanation in the guidebook for the development of teaching materials from the minister of education that teaching materials with valid language if using language that is in accordance with the standard [16], [19].

Practicality test results show that teaching materials are in a very practical category. This shows that teaching materials are easy to use, and can help students understand facts, concepts, and principles easily. This is in line conveyed by Ngalim Purwanto that the practical criteria are easy to use, easy to understand, and easy to use [15].

5. Conclusion

The validity and practicality test shows that integrated science teaching materials based on the integrated CPS model of anti-corruption character can be in the category of very valid and very practical. this teaching material is ready to be used in the learning process

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