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The Development of Sets Worksheets for Junior High School Students Growing Process Skill and Scientific Attitude

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ABSTRACT

The aims of this research are to produce SETS worksheet that can be applied in teaching learning to grow and process skills and scientific attitude for students in Junior High Shcool. The study was a Research and Development (R D &) with students in class VIII SMP N 1 Sewon Bantul as a subject of study. The reseach start form July to November 2015. The study began with a literatature study and field study to obtain information about the problem faced at school, and followed by planning, drafting and validating product by experts. The result shows that SETS worksheet feasible to use in teaching and learning based on the validation result from lecturer, teacher and student response. The SETS Worksheet potential for growing the student's process skills and the scientific attitudeAbstract english version, written using Time New Roman-11, italic. Abstract contain research aim/purpose, method, and reseach results; written in 1 paragraph, single space among rows, using past tense sentences.

INTRODUCTION

The development of science and technology have negative and positive impact in the environment. Positive impacts related to obtains amenity, such as convenience in terms of communication, dissemination of information, and transportation. The negative affect of the amenity when misused or not balanced concern for the environment. For example, the pesticide contain many chemical substances when eaten can accumulate in the body result in disease.

The environment is very important thing to be preserved and guarded because it is the place of human beings activities. Self awareness of the environment is indispensable so that the environment is maintained. The awareness can be grown early stage and can be improved through the process of learning in the classroom, where students are taught not only concepts but also provided the ability to more care about the environment and implement the concepts it brings to solve environmental problems in the community. The learning process that is able to accommodate these goals is through the approach of Sains Tehnologi Masyarakat Lingkungan (STML) or Science Technology, Society and Enviroment (STSE) or SETS or commonly referred to salingtemas.

SETS approach begins with simple concepts contained in the environment around students. Through this approach, students are expected to have a science and technology literacy, skills provision and process of getting an attitude of scientific, as the provision to resolve problems using scientific concepts that have been obtained in school. STML or STSE or SETS approach can be applied with a purpose so that there is no gap between what is being taught in the classroom and what is learned in the social life of students. The problems are in the society brought into the class to look for the solution.

Based on the interviews with Science teacher in SMP N 1Sewon known that focus learning the science carried out today is the cultivation of the concept through lectures. Experimental activities or experiments are rarely done cause the limitations of the time. so the scientific process skills and attitudes of students not yet optimal. Learning activities that raised environmental issues has never been implemented. Teacher hopes science learning implemented through the activities of scientific, creative and innovative so as to develop the skills and attitudes of students. In addition, teachers also

hopes that through learning science, students can better care for their environment.

The learning process requires the presence of a learning device in the form of guidelines which are instrumental to achieve learning objectives. Availability of books has not been enough to support the success of the learning process, because some of the content that is in the book are less familiar with the environmental conditions of the students. In addition, according to the results of interviews with science teachers in SMP N 1 Sewon the worksheet is not yet raised the issue of the community and the environment. Therefore, required a Student Activity Sheets (student worksheet) which raised issues and problems of the environment students so that students can use the concepts of science brings to solve existing problems in the environment. the worksheet that use re-purposed SETS. Through the worksheet, scientific processes and attitude skills students are also expected to increase.

Based on the background of the problem which has been described previously then the formula issue in research are: (1) how eligibility SETS Worksheet developed?; (2) is the worksheet cultivate skills potentially developed processes and scientific attitude of students?

The purpose is to (1) find out the feasibility of SETS worksheet developed; (2) know the potential is SETS worksheet cultivate the student skills process; (3) find out potential SETS worksheet cultivate the students scientific attitude.

METHOD

This research is research development. The development model used in this study refers to the 4-D model. Development procedure consists of 4 major phases (phases define, design, develop, and dessiminate), but in this study was carried out 3 phase that is just to develop at this stage. From the stages develop feasibility is known is worksheet developed. Systematics research development proposed is as follows:

a. Define (D-1)/Research and Information Collection
   Analyze curriculum, learning conditions, environmental learning conditions, environmental society conditions and the character of students.
b. Design (D-2)/Planning
   design the worksheet and designing instruments to measure quality the worksheet
c. Develop (D-3) /DevelopPreliminary the form of product

Develop worksheet, design validation, and revision.

RESULT AND DISCUSSION

The technique validation for data analysis was done with the steps as presented by Arun Azwar (2011: 163) which includes: (1) compare all data obtained from the validator for each component of the assessment of grain available in the assessment instruments, (2) to calculate the average score of each component, and (3) change the average score into a value with criteria. Worksheet stated worth is used if the average score of each worksheet has a good (Baik) category. Score conversion became 5 scale is presented in Table 1. The results presented in Table 2.

Table 1. Conversion Score Validation

Interval Score	Value	Category
3.25< X	A	Very good
2.75< X ≤ 3,25	B	Good
2.75< X ≤ 3,25	C	Enough
2.75< X ≤ 3,25	D	Less
X ≤ 1.75	E	Very Less

Table 2. The results of the validation of Worksheet feasibility "Bahan Kimia di Sekitar Kita"

Feasibility Aspects	Score	Category
The Suitability Of The Material Requirement	3.94	Very Good
The Suitability Of The Material Requirement	3.79	Very Good
The Suitability Of The Construction Terms	3.83	Very Good
The Suitability Of The Construction Terms	3.66	Very Good

Table 3. The student response

No.	Aspects	Average
1	Conformity with the requirements of	3.1
2	Theme/Concept relate to everyday life	3.5
3	Benefit adds insight knowledge	3.7
4	The activities are presented in a worksheet Guide to learn integrated science (biology, physics, chemistry)	3.2
5	Interest in worksheet activity	3.2
6	Readability of the language used	3.6
7	The clarity of the writing language	3.3
8	Ease of understanding the language used	3.1
9	Adequacy of the space provided to write in worksheet	3.1
No.	**Aspects**	**Average**
10	The worksheet layout	3.3
11	The clarity of images, tables, and illustrations used	3.5
12	Intriguing learning	3.3

Based on the results of the validation by a third validator (2 lecturer and 1 teacher), it is known that the worksheet developed in the Very Good category. However, the need for improvements to revision. The revision carried out on the advice and input of the validator. There is an input that is submitted in compliance with the terms of the technical aspects. Comparison of the results of the validation are indeed these aspects have the lowest value compared to other aspects, although still in the very good category. Most entries are associated layout, the use of the font. In addition, in terms of the presentation of the contents of the input or advice given is about the consistency of writing a bibliography. Worksheet in different subjects, different shape. Worksheet in science generally contains a guide to the activities of the investigations or experiments, table data, and issues that need to be discussed, students from the data the results of the experiment.

Worksheet developed can also foster a scientific process skills and attitudes of students. Based on the results of the assessment, all the validator declares that the assignment and student activities contained in SETS Worksheet cultivate the skills students pushing process student include observing, classifying, conclude, and communicate. In the scientific attitude, three validator also suggested that the worksheet is cultivate students attitude encouraging respect and care for the environment data.

b. Student Response

Aside from the validator, before being used in field feasibility thw worksheet well as determined by student response after reading worksheet 10 respondents (students) is worksheet distributed, then asked to fill out the question form provided. The average student response against about worksheet. The results presented at table 3.

Refers to the conversion of the score on table 1, it can be seen that all the components is in good category.

CONCLUSION

Based on the results of the validation and analysis of the response of the students:

1. worthy of use in learning.
2. potentially foster a process of skills of students.
3. potentially develop a scientific attitude of the students.

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