

## Social studies learning modules to improve concept understanding and attitude of the environmental care

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### ABSTRACT

This study aimed to produce a suitable module to improve the understanding of environmental care concepts and attitudes of fourth-grade elementary school students and determine the module's effectiveness. The data collection instruments consisted of a teacher interview guide, a student preliminary study questionnaire, a media expert validation questionnaire, material and instrument experts, a teacher response questionnaire, a student response questionnaire, and environmental care attitude assessment questionnaire, and a concept understanding ability test. The feasibility assessment uses assessments from media experts, learning material experts, and learning instruments. The practicality assessment of the module consists of a teacher response questionnaire and a student response questionnaire. The data analysis of the module's effectiveness on the ability to understand the concept and attitude of caring for the environment was analyzed using the t-test and MANOVA test with a significance level of 0.05. The results of the study showed that: i) The module met the eligibility criteria based on the results of assessments from media experts, learning materials experts, and learning instruments that get an assessment in the "very feasible" category to use; ii) The module met the practicality criteria based on the results of the teacher response questionnaire assessment and the student response assessment questionnaire who received an assessment in the "very feasible" category; iii) The module was effective in increasing students' understanding of concepts and environmental care attitudes. The effectiveness is shown from the t-test and MANOVA test results with a significance level of 0.001.

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## 1. INTRODUCTION

The education path is the main pillar for developing human resources in a particular nation [1]. Trianto [2] states that the integrated 2013 curriculum learning has a theme related to daily life following the theme; this is used as a unifying tool in all materials in several subjects [2], [3]. Social studies is a science that provides concepts for theories or materials that exist in social life. The existence of this subject is to give ideas about solving problems, studying, and understanding things that happen in the surrounding community [4]. This subject can provide knowledge for individuals as well as society which aims to educate children so that they can become good Indonesian citizens [5], [6]. When students cannot understand a material, they tend to memorize the material they get. Children who are required to memorize and hoard information by not understand the available information are obtained, are only smart in theory but lacking in application [7], [8].

A school is a place used for formal education and for carrying out activities by students and teachers that take longer than in other environments. This school has a crucial role in shaping the character, attitude, and behavior that exists in students' personalities. The attitude of students' care for the environment is an effort to prevent the damage to the natural environment that occurs, as well as develop efforts to improve the natural damage that has been carried out [9]–[11].

Asmani [12] explained that the age of children at 9 to 10 years had entered the stage of forming a concern. Students' concern for the environment can be a factor that supports improving the quality of the environment in the future. The environment can also be used as a medium and means of learning for students at school, at home, and community [12]. Madona and Nora [13] argued that learning social studies subjects should be presented attractively so students can easily understand all the studies that exist in teaching and inexpensively learn social studies subjects [13]. Santrock [14] explained that in the concrete operational stage, students can explain a logic if the logic is applied in more detail or with examples of real objects [14].

Based on interviews, observations, and self-assessment questionnaires for teachers and students, varied teaching materials are not yet available, especially teaching materials sourced from the student's social environment, and the utilization of the student's social environment has not been carried out optimally. The self-assessment and data on the value of the evaluation results owned by the teacher showed that students' understanding of concepts was only 50%. The value of student learning outcomes showed that more than 75% of students' scores were still below the minimum completeness criteria (KKM) for social studies learning. The average grade of 130 fourth-grade students only achieved a score of 75. They are not yet reaching the minimum school completeness score criteria of 80. Self-assessment data and data on the value of the evaluation results owned by the teacher showed that the students' environmental care attitude was only 40%.

The Central Bureau of Statistics of Semarang Regency in the Environmental Statistics of Semarang Regency in 2019 stated that critical land in Semarang Regency reached 100,895.41 hectares. It could increase the occurrence of floods and landslides during the rainy season, drought in the dry season, reduce soil fertility, and reduce water infiltration into the soil land, thereby disrupting the stability and sustainability of the environment [15]. Based on the 2019 Environmental Quality Index processing results [15] this regency experienced a decrease in water and air quality. It is because all human activities in the industrial sector have increased, causing higher river pollution and the impact of a decrease in the water quality index by 3.89%. Likewise, air conditions in 2019 experienced a decrease in quality from year to year by 1.99% [15]. So there needs to be a synergy from all aspects of society to create a healthy environment. Research conducted by Afriyeni [16] described the environment that has been used as an area for conducting learning and a place for learning that can focus on caring for students in the environment [16]–[18].

Based on the needs analysis conducted in several elementary schools in the cluster Gatot Subroto, it can be said that there are concepts that must be put in place and attitudes that students must give toward an environment where these are still low. Teachers usually present material using only teacher books, student books, worksheets, and one-way learning. Some students will be more interested and easily understand the material if an interesting open material is presented with pictures of real events in students' lives. So, developing a thematic learning module with many interactive activities is the right choice [19].

The assumption that underlies the development of this thematic learning module is research by Asmahasanah *et al.* [20]. It showed that the learning module developed can increase mastery and understanding of the material in the form of learning modules that develop over time [20]. The development of social environment-based thematic learning modules based on this social environment is supported by the research of Safrina *et al.* [21]. They had succeeded in developing these social studies learning module with the latest media, which is electronic media that contains the beautiful cultural diversity of Indonesia in the fourth-grade elementary school module [21]. This research showed that learning that has used the social studies module is more effective in increasing mastery and understanding of the material and student attitudes towards the material being taught. Therefore, this research would take the title "Social studies learning modules to improve concept understanding and attitude of the environmental care."

## 2. RESEARCH METHOD

This research used research with the type of research and development commonly known as research and development (R&D). The population in this study were all fourth-grade students of Elementary School (SD) Gugus Gatot Subroto, Pringapus sub-district, Semarang Regency, Indonesia in 2021/2022. The technique used in taking this sample is by using a simple random sampling technique where this technique is a group of individuals with qualifications and equal opportunities in making elections by members in the sample [22]. The number of samples used in this study were 130 students of Pringapus 01, Pringapus 02, Pringapus 03, Pringapus 04, and Jatirunggo 01 state elementary schools.

The method used in collecting data is by conducting observations, interviews, student and teacher response questionnaires, expert assessment questionnaires, and gratitude attitude assessment questionnaires. Where the techniques for collecting this data are described in: The researcher used the instrument to collect data by giving observation sheets, interviews, questionnaire sheets, environmental care scales, and test questions. The development procedure in this research passes through 10 stages, namely: i) Preliminary study (research and information collecting); ii) Planning; iii) Develop preliminary form of product; iv) Preliminary field testing; v) Main product revision; vi) Main field testing; vii) Operational product revision; viii) Operational product revision; ix) Field trial; x) Final product revision and dissemination and implementation [23]. Qualitative data analysis in this research was obtained from the results of the data were first tested for normality and homogeneity where this test was used. Then the hypothesis was tested by using the t-test, which was then carried out a paired t-test, independent t-test and MANOVA test to provide knowledge of the differences between the experimental group and the control who had been given treatment.

### 3. RESULTS AND DISCUSSION

#### 3.1. Feasibility test results

Based on the preliminary study questionnaire results, it can be concluded that students like the thematic learning modules containing social studies based on the social environment that will be developed. The results of the learning module trial assessment by media experts showed the transfer of learning media with validation results which gave the total score, or all scores obtained was 100 and got the “very eligible” category. Table 1 describes the validation obtained from the transfer of learning media.

Table 1. Media expert validation results

No	Assessed aspect	Score	Category
1	Aspects of the feasibility of the chart	60	Very eligible
2	Aspects of the feasibility of the thematic learning module content containing social studies based on the social environment	24	Very eligible
3	Aspects of the usefulness of social environment-based thematic learning modules based on the social environment	16	Very eligible
	Total score	100	Very eligible

Based on the table above, the results of the assessment of learning media experts on the thematic learning modules containing social studies based on the social environment show that the total score obtained from the expert validators of learning media is 100 with the “very eligible” grouping. Several important aspects are used by learning media experts as material to assess the feasibility of social studies-based thematic learning modules from the social environment: graphic feasibility, feasibility, and usefulness. The media graphics for the thematic learning modules containing social studies are sourced from the student's social environment related to the size of the module, cover design and content, suitability of letters, illustrations, and the format of the module. The choice of colors must always be considered. Color selection is not only in the color of the image but also involves choosing the color of the letters used, image illustrations, cover designs, and content designs [24], [25].

The content in this module is related to the coherence of the module, the attractiveness of the content the module, the provision of content, the accuracy of the content, and the ease of use of the module. Hamid [26] stated that there is a need for innovative learning media that have been adjusted to the characteristics possessed by students. The characteristics of students used as the basis for compiling learning media can make the media easier to understand and use by the students themselves [26]. The usefulness of the thematic learning module media containing social studies based on students' social environment is related to the usefulness of the media in increasing students' understanding of learning activities, fostering a deeper environmental care attitude, and supporting students to have independent and active characteristics. Kustiawan [27] stated that as sophisticated and as good as any media, if its existence deviates from the content and goals of this media, it cannot be stated to support ongoing learning [27]. The results of the module trial assessment by learning materials experts reveal that the validation of learning materials experts show that the total score or overall score obtained is 90 and gets the “very eligible” category. Table 2 describes the results of the validation of the learning media experts.

Table 2. Material expert validation results

No	Aspect	Score	Criteria
1	Basic competencies, indicators, and learning objectives	10	Practical
2	Material suitability	25	Practical
3	Language	15	Practical
4	Student characteristics	4	Practical
5	Media content	19	Very practical
6	Response	14	Very practical
	Total score	87	Practical
	Category	Very practical	Very practical

Based on the overall score obtained from the validation results, an analysis of the assessments in the learning material was obtained by providing information about the total score obtained was 90, which had an eligible class. Several aspects in the assessment of learning materials, according to National Education Standards Agency (BSNP) [28] are: i) Aspects of graphic feasibility; ii) Content aspects; and iii) Usability aspects. In addition to these three aspects, learning materials used by learning media developers must also pay attention to aspects of student needs and important aspects to encourage student interest in reading the material that has been given and listed in the module [28]–[30].

### 3.2. Practicality test

This practicality test resulted in the teacher and student response tests carried out in field trials, starting with initial field tests, main fields, and operational field trials. This teacher response questionnaire was conducted for fourth-grade teachers at Pringapus 04 State Elementary School. The number of questions in this teacher response questionnaire was 25, using a scale of 1-4. Table 3 presents the results of the validation of the data teacher response questionnaire. Based on the overall score obtained from the validation results, it shows that result it is very practical to use in the learning process in providing levels of ability from understanding the concepts obtained from the attitude of caring for the environment shown by fourth-grade elementary school students. Table 4 reveals the results of the validation of the data student response questionnaire.

Table 3. Teacher response questionnaire results

No	Aspect	Score	Criteria
1	Material completeness aspect	40	Very eligible
2	The language used aspect	8	Very eligible
3	Concept understanding aspect	15	Very eligible
4	The environmental care aspect	15	Very eligible
5	The suitability of practice questions aspect	12	Very eligible
	Score total	90	Very eligible

Table 4. Student response questionnaire results

No	Aspect	Score	Criteria
1	Module display	72	Practical
2	Module ease	48	Practical
3	Module benefits	48	Practical
4	The pleasure of using the module	11	Practical
	Aspect total	179	Very practical

Based on the Table 4, the total score is 179 with a very practical category and can be used at a later stage. The study results obtained from the teacher's responses in this field trial include initial field trials and primary to operational field trials. This field trial aims to provide information about the teacher's response to the thematic learning module containing social studies based on the student's social environment in increasing the understanding of concepts carried out by students and having an attitude that cares about the environment in fourth-grade elementary school students. The activity in this field trial was carried out by giving a teacher and six students from fourth-grade Pringapus 04 State elementary school to get involved. These students and teachers were used for this initial field trial. This questionnaire gave results on the response given by the teacher in the initial field trial showing that the total score obtained is 87 with the "effective" category. The distributed questionnaire contained responses from students in field trials which gave results regarding the total score obtained was 96 with the "very effective" category.

The assessment given by teachers and students was certainly not only in the form of a questionnaire, but there were some comments and suggestions. After the product is feasible and the product revision or improvement process has been carried out, the next step is to conduct the main field trial to get student and teacher assessments, which have more subjects. The main field trial was carried out on one teacher and twelve students of Pringapus 04 State Elementary School. Based on the main field trial, the results obtained from teachers and students stated that the thematic learning modules they used were “effective,” and they were not happy with using the module, nor were they boring. The analysis of the teacher response questionnaire showed the total score obtained was 100 with the “very effective” category. While the student response questionnaire analysis showed that the total score obtained was 204 in the “effective” category.

After the product gets a decent score from teachers and students carried out in the main field trial, the next step was to carry out operational field trials that aimed to provide the knowledge of student and teacher assessments on the media in the thematic learning module containing social studies based on the student’s social environment with more visible subjects. During the operational trial, the subjects used were four teachers and all students in fourth-grade elementary schools in the Gatot Subroto cluster. Those are Pringapus 02 state elementary school, Pringapus 03 state elementary school, Pringapus 01 state elementary school, and Jatirunggo 01 state elementary school. Based on the results of the operational field trials, teachers and students stated that the thematic learning module media products containing social studies from environmental concerns were “effectively” used in the learning process [31].

### 3.3. Effectiveness test

The data from the operational field test results are divided into two research instruments; namely, the test results provide an understanding of the concept and the results of a questionnaire regarding the attitude of caring for the environment carried out by students. In addition, the test is carried out in two ways, namely, before the learning (pretest) and after the learning process (posttest). This activity is carried out by giving the experimental class a thematic learning module containing social studies based on the social environment, while what happens in the control class is that the teacher will carry out a learning process. Furthermore, an independent sample t-test and paired sample t-test were conducted to determine the module’s effectiveness. Before carrying out the t-test, this test was first carried out with a prerequisite test in the form of a normality test and a homogeneity test. The purpose of this prerequisite test is to be able to provide information about whether the data obtained in the field is from a homogeneous population or not. Table 5 shows the results of an independent t-test.

Table 5. Independent t-test of concept understanding and environmental care attitude test

Variable	Equal variances assumed Sig. Asymp (2-tailed)	Detail
Concept understanding	0.001 Sig. <0,05	<i>H</i> <sub>0</sub> rejected (there is a difference)
Environmental care attitude	0.000 Sig. <0,05	<i>H</i> <sub>0</sub> rejected (there is a difference)

Table 5 shows the value that exists in the significance of conceptual understanding is 0.001, and the significance value for the attitude toward environmental care is 0.000. It can be concluded that the significance value of understanding the concept and attitude of environmental care is lower than 0.05 (0.000 <0.05), so *H*<sub>0</sub> is rejected. With *H*<sub>0</sub> rejected and *H*<sub>a</sub> will be more acceptable, it can be stated that there is a significant difference in the results of the understanding values that exist in the concept and value of caring attitudes that occur in control and experimental classes. After conducting an independent t-test, the next step is to conduct a t-test in pairs. Table 6 describes the results of the paired t-test that has been carried out.

Table 6. Paired t-test of concept understanding and environmental care attitude test

Variabel	Group	Equal variances assumed Sig. Asymp (2-tailed)	Detail
Concept understanding	Experiment class 1	0.000 Sig. <0.05	<i>H</i> <sub>0</sub> rejected (there is a difference)
	Experiment class 2	0.000 Sig. <0.05	<i>H</i> <sub>0</sub> rejected (there is a difference)
Environmental care attitude	Experiment class 1	0.000 Sig. <0.05	<i>H</i> <sub>0</sub> rejected (there is a difference)
	Experiment class 2	0.000 Sig. <0.05	<i>H</i> <sub>0</sub> rejected (there is a difference)

Table 6 provides information about the significant value of conceptual understanding is 0.000, and the significance value for environmental care attitude is 0.000. It can be concluded that the significance value of understanding the concept and attitude of the environmental care is lower than 0.05 (0.000 <0.05), which means that *H*<sub>0</sub> is rejected. Table 7 displays the results of the MANOVA test that has been carried out.

Table 7. MANOVA test

Effect		Value	F	Hypo thesis df	Error df	Sig.	Parti al Eta Squared
Class	Pillai's Trace	.50	64.14	2.000	128.000	.000	.501
	Wilks' Lambda	.49	64.14	2.000	128.000	.000	.501
	Hotelling's Trace	1.0	64.14	2.000	128.000	.000	.501
	Roy's Largest Root	1.0	64.14	2.000	128.000	.000	.501

The Table 7 of results of the MANOVA hypothesis test consists of Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root, each with a significance value of 0.000. Where it defines that the significance value is 0.000, the significance value of the MANOVA hypothesis test results  $<0.05$  is *Ha* accepted, and *Ho* is rejected. With *Ha* accepted, it can be concluded that there is a significant difference in understanding the concepts and attitudes of caring for the environment for fourth-grade elementary school students who do not use the module with those who used it.

### 3.3.1. Improving the concept understanding ability

What can be seen is the increase obtained from the results of the pretest and posttest, where there is an increase in the experimental class compared to the control class. In this study, the primary schools used as the experimental class were Pringapus 02 and Pringapus 03 State Elementary schools, while the control classes were Pringapus 01 and Jatirunggo 01 State Elementary Schools. The analysis results of each aspect will later be used as guidelines in determining the effectiveness of the thematic learning module products containing social studies based on students' social environment. The average value of the students' ability in concept understanding in the experimental class in the pretest was 50 and increased to 80 in the posttest. Analysis of the value of this t-test is divided into two parts: paired t-test analysis and independent t-test analysis. The results of the paired t-test analysis showed that the results of the sign value  $<0.05$ , namely 0.00. These results provided information about the difference that can be made in understanding concepts before and after being treated with thematic learning modules containing social studies based on the social environment. The results of the independent t-test analysis gave a value with a sign  $<0.05$ , i.e., 0.00. These results showed a difference in the ability to understand concepts between students who used the thematic learning modules containing social studies from the social environment and those who did not. The results of the analysis provided conclusions about the thematic learning modules containing social studies based on this social environment which are effective in increasing students' ability to understand concepts.

In other words, this learning module has an important influence on increasing students' understanding of concepts. As stated in the Regulation of the Minister of National Education Number 11 of 2005 regarding textbooks, textbooks are books used as references by schools [32]. It provides learning materials to increase piety and faith, personality and character, and technology. It also provided the ability to master science and aesthetics that occur in sensitivity, health, and physical potential based on national education standards. From the regulation of the Minister of Education above, it can be said that this module is an important teaching material in increasing the conceptual understanding, which is the ability to master science and an attitude of caring for the environment that is included in character and personality. The content component is the material used or included in the contents of this learning module. Using the interest and easy-to-understand things around students will make students easy to understand the contents of this learning module. It can make social studies-based thematic learning modules sourced from the social environment as an alternative media for teaching materials in learning [32].

### 3.3.2. Improving the attitude of the environmental care

The field trial results have an attitude that cares about the environment. The questionnaire results also proved that the Likert scale disseminated to students both before and after using the social studies thematic learning module is sourced from the social environment. The analysis results of the environmental care attitude showed that there was an increase in the results of observations between the experimental class and the control class. Both the analysis of the conceptual understanding ability and the assessment of the environmental care used the t-test on the SPSS. The experimental classes are Pringapus 02 and Pringapus 03 state elementary school, and the control classes are Pringapus 01 and Jatirunggo 01 State Elementary school. Two important aspects that must be considered when wanting to know the effectiveness of the thematic learning module products containing social studies based on the social environment in providing an increase in understanding attitudes and concepts that are cared for by the student environment are by using the

average value of the questionnaire results that have been given to the experimental class and control class before and after using the module. The analysis results of each aspect will later become guidelines for determining the effectiveness of the thematic learning module products containing social studies based on the social environment.

The next analysis used was paired t-test and independent t-test. The paired t-test showed that the sign value was  $<0.05$ , i.e., 0.00. These results indicate differences in the attitude toward caring for the environment that students show both before and after being given treatment in the form of thematic learning modules containing social studies based on the social environment during the teaching and learning process. The results of the independent t-test analysis showed the results of the sign  $<0.05$ , namely 0.00. These results indicate a difference in the results of environmental care attitudes between the experimental class and the control class that does not use the thematic learning module containing social studies based on the social environment. From this analysis, it was concluded that the paired t-test and independent t-test results could be concluded that the thematic learning module containing social studies based on students' social environment effectively improves students' environmental awareness skills. Supported by Sariyani's *et al.* [33] research, learning modules can improve students' environmental care attitudes [33]. The students' attitude toward environmental care can be improved only by familiarizing students from an early age to care about this environment. It can be started from the environment around students or students' social environment at home and school. Moreover, the school and parents must cooperate so that the teachings for environmental care align with each party.

### 3.3.3. The Ability to understand concepts and attitude of the environmental care

This test was carried out to provide information about whether the thematic learning modules containing social studies from the social environment could increase students' understanding of environmental care attitudes and concepts. The MANOVA test analysis showed that the sign's results were  $<0.05$ , i.e., 0.000. It indicates a significant difference in understanding concepts and attitudes towards environmental care for the fourth-grade elementary school students in the cluster Gatot Subroto that uses the thematic learning module with social studies content sourced from the social environment. This module can be used as teaching material that helps students while studying. It also can assist students in building knowledge and contributing to the development of students for the better and being able to be a solution to the problems faced by students and teachers in the learning process.

## 4. CONCLUSION

The results of the study showed that: i) The thematic learning modules met the eligibility criteria based on the results of assessments from media experts and learning materials experts, each of which received the "very eligible" category; ii) It also met the practicality criteria based on the results of the assessment of student response questionnaires and teacher response questionnaires, each of which gets the "very practical" category; and iii) This module was effective in increasing the conceptual understand and environmental care attitudes of fourth-grade elementary school students. The effectiveness is shown from the results of the t-test, and the MANOVA test, with the significance level, obtained, being 0.000. Where it defines that the significance value is 0.000, the significance value of the MANOVA hypothesis test results  $<0.05$  is  $H_a$  accepted, and  $H_o$  is rejected. With  $H_a$  accepted, it can be concluded that there is a significant difference in understanding the concepts and attitudes of caring for the environment for fourth-grade elementary school students who do not use the module with those who used it.

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