Response and Improvement of Environmental Care Attitude from Students After Using the Environmental Education Module Based on Local potential as Teaching Material for Lectures

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Abstract The development of environmental education modules based on local potential of Riau Province has been carried out as an alternative teaching material in the Faculty of Teacher Training and Education, University of Riau. This research was conducted to determine student responses and attitudes to care for the environment after using the local education module based on local potential in lectures. This research is a descriptive study conducted at FKIP Riau University in November 2018. The parameters of this study are: responses and changes in students' environmental care attitudes. Data collection techniques carried out through interviews and operational trials involving representatives of the control class (learning without modules) and experiments (learning using modules). The data analysis technique was carried out descriptively based on the results of the questionnaire responses and cognitive attitudes of environmental care. The results showed that students' perceptions of modules were classified as very good with a value of 82.57. All aspects of assessment are classified as very good, namely: aspects of appearance (82.00), presentation (81.72), linguistics (83.20), and benefits (83.36). Cognitive attitudes of environmental care of students in the experimental class increased higher (N-gain: 0.497 with moderate criteria) compared to those in the control class (N-gain: 0.058 with low criteria). Thus, based on responses and changes in students' environmental care attitudes, the environmental education module based on local potential can be used as an alternative teaching material for environmental education.

Keywords: environmental care attitudes, environmental education modules, local potentials, student respons

1. Introduction

The implementation of environmental education in tertiary institutions is considered very important to be able to improve the character of students caring for the environment. Environmental education plays an important role in developing a community that is aware of and cares for a variety of environmental problems and has the knowledge, attitudes, commitments and work skills individually and collectively in order to solve and prevent environmental problems (Sutoyo, 2007).

One of the tertiary institutions that has implemented environmental education is Riau University (UNRI). This application is carried out by making Environmental Education a General Skills Subject (MKKU) that must be attended by all students of the Teaching and Education Faculty (FKIP) since 2016. Environmental education courses are useful for students to understand various environmental concepts and can apply them in life and learning according to the field of science they have.

The results of evaluation of the application of Environmental Education in FKIP UNRI Even Semester 2016/2017 for 1301 students who have participated in environmental education indicate that one of the obstacles found in the application of environmental education at the University of Riau is the limitations / availability of accurate information sources and teaching materials as a reference for

learning and the low attitude of caring about the environment of students (Suwondo, et al., 2017). In fact, if Riau Province has a diversity of local potential environmental problems that can be integrated in the form of examples of local knowledge conditions.

Based on the problems above, the development of an environmental education module based on local potential has been carried out as an alternative teaching material for environmental education. The modules that have been developed have been validated by environmental and education experts which are classified as very valid both based on content, graphic aspects, linguistic aspects, and presentation aspects, with an overall average value of 4.56 (Very valid). According to Purnomo et al., (2013) the feasibility of developing teaching materials was assessed from the level of content validity, presentation and language. Teaching materials are classified as good if they have a high level of content validity, presentation and language. Departemen Pendidikan Nasional (2008) module validation is very important to obtain recognition or endorsement of the suitability of teaching materials with needs so that the teaching materials are appropriate and suitable for use in learning.

In addition to expert validity, the quality of a module as teaching material must be in accordance with the characteristics of students. According to Prastowo (2010) a good module has an important function as: (1) independent teaching materials, (2) replacing the educator function, (3) as an evaluation tool, and (4) as a reference material for students. For this reason, to ensure the quality of the module development results, it is necessary to review the feasibility of the module development results based on an assessment through student responses and their influence on changes in students' environmental care attitudes after using the local potential based environmental education module.

2. Methodology

This research is a descriptive study conducted at the Faculty of Teacher Training and Education, University of Riau in 2019. This research is part of the Research and Development of Local Potential-Based Environmental Education Module. The development model that has been carried out previously is the ADDIE Model (Analysis, Design, Development, Implementation, and Evaluation) (Dick and Carrey, 2005; Branch, 2009). However, the scope of this research is only at the implementation stage through trials to students who have attended Environmental Education lectures.

The parameters measured in this study are: (1) students' responses to the results of the development of the Local Potential-Based Environmental Education Module; (2) the value of the cognitive attitude of caring for students' environment after using the Local Potential-Based Environmental Education Module as teaching material for Environmental Education. Data collection techniques were carried out through interviews and the distribution of questionnaire responses and environmental attitudes of students.

Response aspects assessed by students are: appearance, presentation of material, linguistics, and benefits developed into as many as 13 assessment indicators. Students are given a module of the results of development so they can read, study, and answer the questions provided. After students learn the modules that are developed, they are asked to fill out a questionnaire to assess the module and provide feedback on the strengths and weaknesses of the module, as well as any suggestions that can be given to researchers about the modules developed.

The assessment of cognitive attitudes about the environment is carried out through operational trials in the scale of direct learning in the experimental class. Determination of control and experimental classes (trials) is based on the results of the analysis of homogeneity and normality tests. The study was conducted in 1 control class (Japanese Language and Literature Education Study Program), and 1

experimental class (Elementary School Teacher Education Study Program (PGSD). Cognitive attitude assessment was measured based on pre-test and post-test scores.

Analysis of student response data is done descriptively using the formula (Sudijono, 2008) as follows:

$$P = \frac{f}{n} \text{ x } 100\ \%$$

Information :
P = Percentage
f = Number of scores obtained
n = Total score

The criteria table for student questionnaire results can be seen in the following table.

Table 1. Assessment Criteria

Interval (%)	Criteria
81 ≤ *score* ≤ 100	Vary good
61 ≤ *score* < 81	Good
41 ≤ *score* < 61	Enough
21 ≤ *score* < 41	Less
score <20	Not good

(Sudijono, 2008)

Cognitive attitudes of caring about the environment of students were analyzed by looking at the pretest and posttest values. The attitude improvement was analyzed by using the N-gain index value which was analyzed descriptively by using the criteria as in the following Table 2.

$$Ngain = \frac{SkorPostest - SkorPretest}{SkorIdeal - SkorPretest}$$

Table 2. N-Gain Categories

Coefficient	Category
N-Gain > 0.7	High
0.3 ≤ *N-Gain* ≥ *0.7*	Moderate
N-Gain < 0.3	Low

(Sudijono, 2008)

3. Result and Discussion

3.1 Student Responses to Environmental Education Modules Based Local Potential

Local Potential Based Environmental Education Module Assessment of student responses aims to determine the feasibility of the development module based on the responses assessment students who have taken environmental education courses. The results of the study based on the distributed questionnaire are presented in Table 3.

Table 3. Value of Student Responses of Module Use

No	Indicator	Value	Remark
I	**Appearance**	**82.00**	Very good
1	Attractive cover design	81.60	Very good
2	Interesting cover illustration	80.40	Very good
3	Clarity of images and tables	81.60	Very good
4	Suitability of the image with the material	81.60	Very good
5	Clarity of text	84.80	Very good
II	**Material presentation**	**81.72**	Very good
6	Support the learning process	81.20	Very good
7	Systematic accuracy of presentation of material	81.00	Very good
8	Clarity of Symbols	80.00	Very good
9	Clarity of Terms	83.20	Very good
10	Appropriate examples and material	83.20	Very good
III	**Linguistic**	**83.20**	Very good
11	Ease of understanding language	83.20	Very good
IV	**The benefits**	**83.36**	Very good
12	Ease of study	84.60	Very good
13	Interest in using environmental education modules based on local potential	82.11	Very good
	Mean	**82,57**	**Very good**

Based on the above table, it is known that the results of student assessment of the modules are classified as very good in all aspects of assessment with an average value of 82.57. The aspects assessed include appearance, presentation, language, and benefits. The display module developed has attractive design and cover illustrations, clarity of text, tables and images. In addition, the picture presented is also in accordance with the material described. According to Aji (2017) good writing for print media such as modules is to use the type and size of letters that are suitable for easy reading. Azizahwati, et al., (2015) stated that good teaching materials are those that present using illustrations of images, graphics that are appropriate and proportional. Irmawati (2016) that students by looking at interesting objects in the module can help understanding and recalling the content of the material in reading. Presentation of the material in the module is to support the learning process, because it is systematic and has a match the example with the material. The terms, symbols and images presented are quite clear.

The language presented in the module is quite easy to understand because it is communicative and in accordance with enhanced Spelling (EYD). The use of simple and communicative language is one form of module characteristics that is self instruction. According to the Departemen Pendidikan Nasional (2008) aspects of language can be seen from the level of readability, clarity of information, compliance with the rules of language used and the effective use of language.

The developed module can provide learning convenience because it is interesting to read. This is because the module not only presents theoretical concepts, but is equipped with various examples and facts about the conditions in the surrounding environment. This is in line with Heppi et al. (2013); Elaine et al., (2016) that learning in environmental education needs to emphasize sustainability issues, local issues, and provoke constructive student critical thinking. According to Prabowo et al., (2016) modules that are packaged by raising local potential have an advantage over other teaching materials, which can present a variety of data and contextual examples found in the area around students. Thus increasing students' knowledge and insights on the importance of the environment for human life which in turn can foster a sense of ownership and responsibility towards the sustainability of local potential in the area. Derevenskaia (2014) explains learning using local potential that is around allows students to study the discipline of ecology and biology more effectively and deeply. Such learning can form a systematic approach in observation and research, develop practical skills, and elevate the psychology of students' sense of responsibility in the surrounding environment (Annan and Molinari, 2017).

Overall results of student assessment of the development results module are presented in Figure 1.

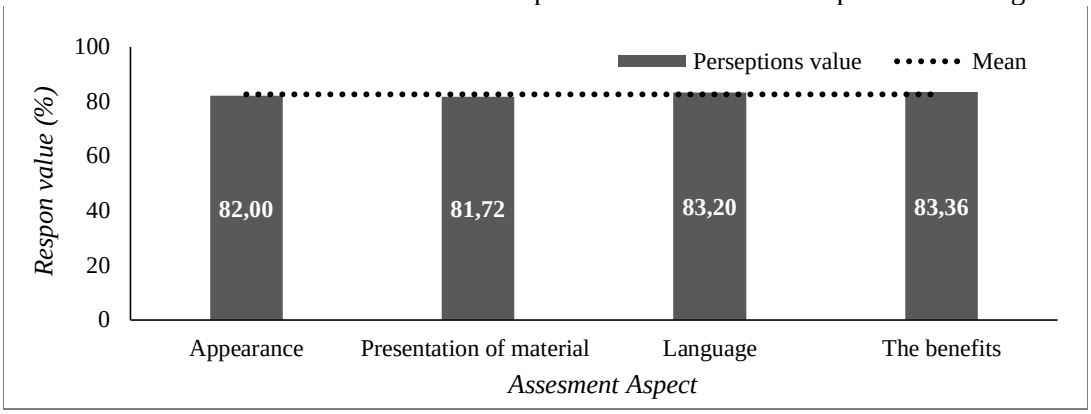

Figure 1. Student Responses to the Results Modules Development

The average student assessment of the modules that have been developed is 82.57 (Very Good). There are no suggestions and input from students on the improvement of the module. When viewed based on aspects of module assessment, including: appearance, presentation of material, language and benefits, all aspects are classified as very good ranging from 81.72-83.36. According to Sudijono (2008) the value of perception which > 81% is classified as very good. According to the Departemen Pendidikan Nasional (2008) teaching material is said to be practical because it meets aspects of ease of use, clarity of presentation, use of language that is easily understood, and shorter time.

3.2 Value of Cognitive Attitudes Caring about the Environment of Students

The cognitive attitude assessment of students' environmental care was also carried out in module operational trials through questionnaires before and after the experiment both in the control class and the experimental class. The results of the study are presented in Table 3.

Table 3. Cognitive Attitudes Value of Student's Environmental Care in the Control and Experiment Class

No	Class	Pre-Test		Post-Test	
		Value	Criteria	Value	Criteria
1	Control	3.19	Caring enough	3.30	Caring enough
2	Experiment	3.34	Caring enough	4.17	Care

The analysis showed that there was an increase in the value of cognitive attitudes caring about the environment of students in the experimental class and the control class. The increase in the experimental class is greater than the control class. The value of the cognitive attitude of caring about the environment of students in the experimental class increased from 3.34 with the criteria of caring enough to 4.17 with the criteria of caring. Whereas in the control class only increased from 3.19 with enough criteria to 3.30 with enough criteria to care.

To interpret the criteria for increasing cognitive attitudes to care for the student environment as a whole, an N-Gain analysis was performed. The analysis results are presented in Figure 2.

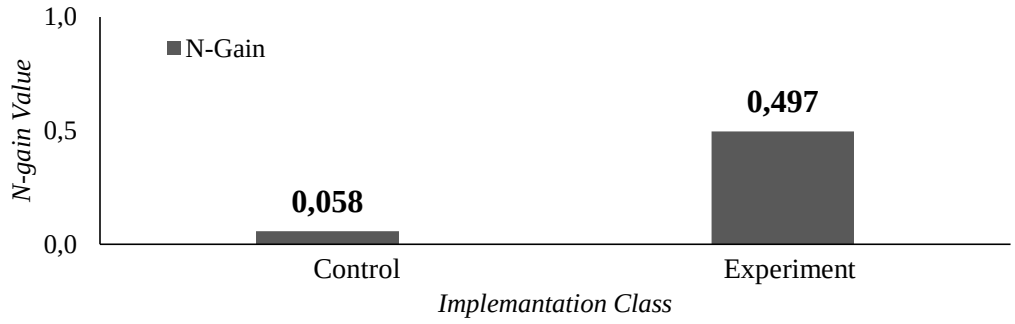

Figure 2.Results of the N-Gain Analysis of Cognitive Attitudes Enhancing Student's Environmental Care in the Control and Experiment Class

Cognitive attitudes of caring for students' environment based on the analysis of N-Gain scores showed that in the experimental class increased cognitive attitudes of caring for the environment were higher. The value of increasing attitude in the experimental class is 0.497 with moderate criteria, whereas in the control class is only 0.058 with low criteria.

Increasing the cognitive attitude of caring for the environment is in line with the increase in environmental knowledge of students. If it is reviewed based on a comparison of the increase in knowledge and attitudes in the control and experimental class it can be seen that in the experimental class the increase in attitude and knowledge is moderate. This value is better than the control class which is equally increasing but is at a low criterion. This shows that there is a harmony between increasing students' environmental knowledge with their environmental care attitude. This condition is in line with the results of research by Zsóka, et al. (2013) where there is a positive correlation between environmental knowledge and attitudes to care for the environment through the application of environmental education.

According to Lickona (2012), the formation of attitudes and characters in a person is supported by three interconnected components, namely: moral knowledge, moral feelings, and moral behavior. Lickona (2012) describes one of the approaches used in building character by giving the concept of values as knowledge. The knowledge possessed can foster strong feelings in children. Knowledge and feelings are then manifested in the form of behavior.

4. Conclusion

Based on the results of research on the development of an environmental education module based on local potential in the Faculty of Teacher Training and Education, University of Riau, the conclusion is that the students' perception of the results of the development of an environmental education module based on local potential is classified as very good, which consists of aspects of appearance (82.00), presentation (81.72), linguistics (83.20), and benefits (83.36), with an overall average value of 82.57. The use of environmental education modules based on local potential can improve cognitive attitudes to care about the environment. The value of cognitive attitudes of students caring about the environment increased from 3.34 to 4.17 with the value of the increase is classified as moderate (N-Gain: 0.497), while without using the module only increased from 3.19 to 3.30 with low criteria (N-Gain: 0.058).

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