Increase Motivation and Knowledge the Environment through Contextual Model

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Abstract

The purpose of this exploratory study is to determine the development of curriculum Environmental Sciences which applies scientific lecture materials that are integrated in the environment, application of environmental knowledge, and character development curriculum on motivation. This study involved 45 students who were selected randomly. Data from samples were obtained by using a questionnaire. Validity and reliability of the survey instrument was conducted by performing a pilot study involving 30 students. The findings of the pilot study as a whole shows that each aspect has high reliability with Cronbach alpha values between 0.77 to 0.823. The findings of the study were analyzed using SPSS software 19.0. The analysis of the results showed that the development of curriculum Environmental Sciences which applies scientific lecture materials that are integrated in the environment is at a good level of motivation; the implementation of environmental knowledge is at the average or moderate level of motivation; and character development curriculum is at the high level of motivation. These findings provide information to various stakeholders to develop environment in order to engage students in a campaign or expansion activities in the environmental awareness among the public.

Keywords: environmental knowledge, curriculum development, knowledge, contextual motivation

1. Introduction

Students who are less proactive in stating an idea find a breakdown of the problems and decision-making in Environmental Science Learning (IPL) is less applied in the environment and impede the development of human resources which concern and conscious towards the environment. Human resource development must be carried out holistically with an emphasis on the development of knowledge, skills, intellectual aspects, including science and technology, ethics, moral values and attitudes of high accountability, as well as prioritizing the principle of equality and progressive. Apart from that, these characteristics will indicate the image of the national character. The emphasis on the character of the nation is important in higher education, in order to produce graduates who will face globalization while maintaining national identity. (Harinder at al., 2011).

Efforts to change behavior and attitudes conducted by various parties in the implementation can take either the classes to the environment or the environment to the classes. Thus, the teaching will utilize environment contextually as a learning resource in order to achieve the learning objectives that have been established through the development of curriculum.

According to Yustina (2011), environment-based (*Lingkungan Hidup)* curriculum development *i*s able to impact positively towards students' attitude and participation, apart from fostering a culture of environmental concern that need teachers from different disciplines to collaborate in implementing curriculum development particularly for co-curricular activities.

The pilot study is an effort to carry out environmental knowledge curriculum development based on the character and environmental literacy. Environmental literacy is the ability or skill of life in understanding the importance of preserving the environment for life and the generations to come. This study aimed to assess the environmental and student motivation in learning IPL through the implementation of IPL development curriculum based on character.

2. Problem Statement

The students' character was found to be poorly developed, lacking and almost non-existent, such a sense of

responsibility to keep public facilities in a good condition. This matter has become its own problem in campus life in particular and society in general and it is observed that they no longer show their care towards the environment. Thus, environmental education is hoped to educate the students to be concerned about the environment (Amini, 2010).

Competency Based Curriculum (CBC) is applied in college as efforts to improve the quality of student learning. It is stipulated in the Decree Mendiknas Number 045 in 2002 the need for CBC approach in higher education curriculum development. Adoption of CBC not only assesses the intelligence on cognitive domains, but also emotional intelligence, attitude and behavior. Assessment in KBK not only prioritizes learning outcomes, but also the teaching and learning process, and fulfill the CBC evaluation which covers cognitive, effective and psychomotor (Anonim, 2011).

3. Purpose of Studies

This study aims to determine the environmental literacy including applications of scientific lecture materials integrated in the environment and the application of knowledge of environmental literacy in the students who took environmental knowledge. In addition, the study also examines student motivation in learning environmental knowledge subjects.

4. Research Methodology

A survey method was conducted to determine students' perception of the environment and student motivation. The research involved 45 students who are taking the subject of environmental knowledge. The study was conducted using a questionnaire to obtain information from respondents. To ensure the reliability and validity of instruments, a pilot study was conducted involving 30 students. The findings of the pilot study showed these results: for aspects of curriculum development for Environmental Science subjects that apply scientific lecture materials to integrate into the life environment Cronbach alpha value of 0.823, to inculcate environmental knowledge 0.77, and curriculum development character on motivation 0.79. Findings of the study were analyzed using SPSS 19.0 software. Descriptive analysis involving the mean and standard deviation are also involved. The scale developed by Meredith et al. (2003) was referred to in order to assess the level of each research aspects:

Table 1. Interval and a survey category for literacy and environment on motivation

Interval	Category
4,7-5	Very Good(A)
3,7- 4,69	Good(B)
2,7- 3,69	Medium/Enough (C)
2- 2,69	Low (D)
<1,99	Very Low (E)

Source: (Modification on Meredith et al, 2003)

5. Results and Discussions

Literacy Assessment of environment, character and motivation to learn on IPL Character-based Curriculum Development is described in detail as follows.

5.1 The Development of the IPL Curriculum by Applying Scientific Materials with Environmental Integration

Table 2. Mean score values and category of environment literacy by applying science in the development of environmental curriculum

No	Items	Alternative answers					N	Mean score (Category)
		5	4	3	2	1		
1	2.1 I do not find the scientific materials related to the environment.	1	1	3	13	27	45	4.42 (good) (B)
2	2.2 Environmental lessons should be given as integrated with science subjects.	17	27	1	0	0	45	4.36 (good) (B)
3	2.3 Learning science is not related to the importance of environment.	0	0	1	13	31	45	4.67 (good) (B)
4	2.4 Integration of environmental knowledge with scientific materials contributes to our daily life needs.	15	29	1	0	0	45	4.31 (good) (B)
5	2.5 Preserving our environment is a necessity of life.	34	11	0	0	0	45	4.76 (very good) (A)
	Total							22.52/5
	Mean score							4.50 (good) (B)

Based on table 2, the application of scientific materials in the development of integrated environmental curriculum has the mean score value of 4.50 (good). For the item number 2.1, that many students disagreed that many states did not find scientific materials related to the environment subject, obtained mean score 4:42 (categorized as good). For item number 2.2 which the students indicated that they strongly agree that the environment subjects should be given as integrated with science subject, mean score of 4:36, also categorized as good. Item number 2.3 on the students felt strongly disagree that learning science is not related to the importance of the environment, obtained mean score of 4.67 (categorized good). For Item 2.4, more students expressed their agreement if the integration of environmental knowledge to contribute to scientific material needs of daily life, obtained mean score of 4:31 (categorized good). Further on item number 2.5 students strongly agree that preserving our environment is a necessity of life, so that our environment intact, clean and away from dangerous outbreaks of disease, acquired Mean scores of 4.76 (categorized very good).

Of the five items, the highest mean score was obtained for item 2.5 which is categorized as very good and the lowest mean score for item 2.4 is categorized as very good as well. It is understood that the future generations require natural resources and the chance to enjoy a better life. However, these expectations cannot be achieved without instilling awareness and cultivating right actions to maintain the environmental balance. The balance of nature seems to be increasingly disturbed because of the action of human who use the natural resources disproportionately. They cut down trees without planting new trees. Deforestation often occur but the government does not seem to crack down this act of damaging the environment. Caring for environmental sustainability is the duty of every human being. For that purpose, environmental education must be developed and provided to our younger generations.

Students should increase their ability to think critically and innovatively to improve their quality of life and face global competition. They should also be creative, and diligently seek opportunities to obtain a decent life that they deserve. Environmental education is one of the means to produce students who are aware and concerned about the environment as the root causes of the environmental crisis is man himself. So the application of scientific materials in the development of environmental curriculum is a necessity for everyone especially students as it is very important to keep nurturing the environment (Hendrawati, 2012).

5.2 Scientific Materials in the Development of Life Environmental Integrated Curriculum and Its Applications

Table 3 outlines the results to determine the application of environmental knowledge.

Table 3. Min score value and environmental literacy category on application of environmental knowledge

No	Items	Alternative answers					N	Mean score (Category)
		5	4	3	2	1		
1	3.1 Implementation of mutual cooperation in maintaining cleanliness and planting trees on campus is the responsibility of the entire campus community.	36	9	0	0	0	45	4.8 (very good) (A)
2	3.2 Maintenance of green plants around campus area should be done with a vision in mind to ensure sustainable development.	22	23	0	0	0	45	4.49 (good) (B)
3	3.3 Cutting down of trees in the campus area must go through a procedure and done with high moral accountability.	30	14	1	0	0	45	4.64 (good) (B)
4	3.4 Planting trees, maintenance and cleanliness of the plant at the biology field is the moral responsibility of the student.	35	10	0	0	0	45	4.78 (very good) (A)
	Total							17.91
	Mean score							4.68 (good) (B)

Table 3 shows that students agree with the application of Environmental knowledge and the mean score is 4.68 and categorized as good. For the item 3.1, which states that the students agree that the implementation of mutual cooperation in maintaining cleanliness and planting trees on campus is the responsibility of the entire campus community, the mean score is 4.8, and is categorized as very good. For the item 3.2, which states that the students agree that the maintenance of green plants around campus area should be done with a vision in mind to ensure sustainable development, the mean score is 4.49, and is categorized as good. For the item 3.3, which states that the students strongly agree about the process of cutting down of trees in the campus area must go through a procedure and done with high moral accountability, the mean score is 4.64 and is categorized as good. For the item 3.3, which states that the students strongly agree if planting trees, maintenance and cleanliness of the plant at the biology field is the moral responsibility of the student the mean score is 4.78 , and is categorized as very good.

Out of the four items, the highest mean score obtained is for the item 3.1 (which states that the students agree that the implementation of mutual cooperation in maintaining cleanliness and planting trees on campus is the responsibility of the entire campus community) and is categorized as very good. The lowest mean score was found for the item 3.2 (which states that the students agree that the maintenance of green plants around campus area should be done with a vision in mind to ensure sustainable development), and is categorized as good.

The application of environmental knowledge is required in schools so that students understand the importance of maintaining hygiene in the surroundings and to cultivate self-awareness about the importance of maintaining the environment. Educational environment does not immediately restore the condition of the environment that has been damaged. However, with time, processes, and resources, environmental education is very much necessary to reduce further environmental damage.

Many formal and informal ways that is available to incorporate environmental knowledge in education. Through formal education, the curriculum is applied and intended for the students in a rigid and doctrinaire manner as the students need to be informed and be made understood about environmental management. It is hoped that they will be able to participate actively to maintain the environmental nature. However, theories without application will not return any results. Meanwhile, through informal way, the knowledge can be directly applied in any field without the need to communicate the theories (Roswita 2010).

Direct implementation is an accurate way of instilling environmental education as it would induce direct actions. The knowledge can be implemented by activities such as planting trees or cleaning up the surroundings which is done as mutual cooperation. In this way learners can develop characters, such as collaboration, caring, and

mutual respect as they realize the importance of maintaining the environment. Ministry of Education (2010) states that character education involves knowing well, feeling good, and behaving well. Character education emphasizes on cultivating habits or customs which continues to be put in action. Further, this is manifested by sense and intention (*Rasa and Karsa*) which is the affective and creativity development, reflected in the willingness to do out of being concerned. In line with character education, the practical and academic application of the environmental knowledge, it is very helpful to motivate students in learning about environmental knowledge and organization towards their character development.

5.3 The development of Character-based Curriculum on Students' Motivation

Table 4 shows the scores for students' learning motivation before and after learning through the application of a brief contextual model.

Table 4. Scores for students' learning motivation before and after learning through the application of a brief contextual model

No	Motivation indicator	Students learning motivation				% increase in motivation
		before		after		
		score	category	score	category	
1	interest	3,48	Medium	4,32	High	21,26
2	relevance	3,51	Medium	4,35	High	21,08
3	hope	3,22	Medium	4,22	High	27,95
4	outcome	3,45	Medium	4,26	High	20,58
Mean score		3,41	Medium	4,29	High	22,72

Table 4 shows that the scores for students' learning motivation after learning through the application of a brief contextual model is high. This can be seen

from the mean score on motivation indicators of interest before and after the learning experience as being increased from 3.48 (medium category). to 4.32 (high category). This shows that the application of contextual models can motivate the students and develop their interest and curiosity about the material they learn. According to Santoso (2011), interest is a greater sense of liking and a sense of connectedness with a matter without any force or command. In accordance with the opinion of Dimiyanti and Mudijono (2006), it is said that motivation has a close relationship with interest. Students who are interested in a particular subject areas tend to be attentive and motivated in the subject area.

The students' learning motivation at the relevance indicator increased from mean score (3.51) at the medium category to mean score (4.35) at the high category. It can guessed that learning aims as well as functional value are deemed as appropriate by the application of contextual models and can motivate students to be more enthusiastic in learning activities. The hope indicator on average showed the mean score (3.22) increase from the medium category to the mean score (4.22) the high category. This is due to the students being motivated by material taught during the learning progress that the students understand the subject matter and have a desire to succeed in the subject matter. The increase occurred in indicators hope after learning through contextual model, which shows that a sense of confidence is fostered in the students to present their views on the current discussion. Hamzah (2008) states that learning is less effective without hope, because with high expectations, students will seriously pay attention to the instructions of teachers, because hope can trigger the motivation to improve the result.

The outcome indicator showed the average score increased from the mean score (3.41) at the medium category to mean score (4.29) in the high category. It is suggested that there has been an increase in students' motivation to learn and be improved in their learning outcomes. Maslow as cited by Asrori (2007) states that a person is motivated by wanting to meet his need. Motivation has a very important role in learning, both in the process as well as the achievement of outcomes. Someone with high motivation is generally able to gain success in the learning process. In accordance with the opinion, Ardyansyah (2011) and Sardiman (2007), said that a teacher or educator should raise the interest of students who are interested in the subject matter to be learned by presenting interesting teaching materials, designing learning activities for the students to feel free in actively trying things that they have learned. Motivation for being concerned about on the environment will develop a positive attitude

in the application of environmental knowledge which will induce positive, real, consistent and active participation of students in daily life on an ongoing basis which will lead to formation of habit and character building (Yustina et. al 2011).

6. Conclusions and Recommendations

All of the tested items are categorized as good in this study on the implementation of character-based curriculum development to increase environmental literacy through environmental knowledge and application. The application of science materials in environmental curriculum development among students is also categorized as good. The students were found to have a good knowledge about the environment. Overall findings of this study illustrate that students still have the awareness about the importance of the living in an ideal environment. This study generally provides information for various parties to involve students in campaign to develop environmental activities and environmental awareness in the community. It can be concluded that Character-Based Application of Curriculum Development through Application of Contextual Model can increase students' motivation. Therefore, through this learning and teaching methods students' motivation can be improved to study environmental knowledge. Continuous efforts should be made to enhance public awareness about the environment. Students at the university level need to be engaged in these activities as they have a high motivation towards the wellness of the environment.

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