Utilization of the learning forest prototype to increase the student's careness character of the environment through the Lesson Study for Learning Community (LSLC)

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Abstract. The objective of the research was to build the student's careness character of the environment through the utilization of learning forest prototype. This research was conducted in the even semester of the academic year 2017/2018. The research was conducted by using classroom action research that consists of three cycles through the Lesson Study for Learning Community (LSLC) program. During the learning process, the students planted the plants, fertilize, irrigate, and take care of plants. In this research, the researchers collaborated with some observers. The observers observed the student's activity by using the observation sheets of student's careness character of the environment. The results of the research indicated that the score of each cycle was increased, with the average final score was 91.72. In the initial process, before implementing the research, the student's careness character of the environment has not appeared. Moreover, the result of the first cycle was 89.00 (89 %). Hence, the increase of the first cycle to the second cycle was 2.81 %, then the increase of the second cycle to the third cycle was 3.35 %. Based on the result, the researchers suggest the utilization of learning forest prototypes to increase the student's careness character of the environment.

1. Introduction

Student's potential empowerment as a learner in learning will be more meaningful if the ability to build a student's character is developed optimally. Learning results include affective and psychomotor aspects, in addition to cognitive learning results. An educator as a learning facilitator should be able to provide learning which can generate character-building potential [1], [2]. Meanwhile, biology learning to build environmental care character so far is likely done in the classroom with textual orientation. In order to build a student's careness character of the environment, besides text-based learning, lecturers can facilitate the environmental care character building by using surrounding nature phenomena [3]–[5]. Surrounding nature phenomena will be beneficial for students to understand and analyze environmental conditions which are degraded and damaged. This surrounding environment can be used as a project of critical land restoration into ecologically useful land for students’ learning. This is to be one of the learning methods to strengthen the environmental care character for students. [6]–[8] suggest that schooling environment can be empowered for a contextual means for outdoor learning, to improve learning result.

Based on the rationale above, this research is a strategic step into the empowerment of learner's potential development in the student's careness character of environment building. By this contextual
means, students are reinforced to be always caring for environmental conditions, which are more and more degrading by daily human activities and behaviors. The environmental care character values will be more and more developed when the internalization grows deeper and deeper. This depth of this internalization depends on the habituation done by the learners.

Students of biology education as teachers to become one of the habituation pillars of environmental care character for students. Because one day, they will do and teach the same habituation for their students to strengthen their careness character of the environment. Therefore, the value cultivation since they are students will determine their character building for becoming the next generation. The careness character of environmentbuilding can be done with contextual learning by using the surrounding environment for learning[9], [10]. The careness character of environmentbuilding for students of biology education can be done by using learning forest prototype in learning if this learning forest prototype learning is empowered in learning. It will contribute to one of the contextual learning resources [11], [12].

Empowered learning resources to equip students to understand science cognitively had been much developed. Still, the real learning sources in nature (contextual), which can equip students in cognitive, affective, and psychomotor domains to support the environmental care character building is rarely be developed [7], [13]. In this research, a media and learning resource with the initiation of a project based on learning forest prototype was developed. This learning forest prototype previously did not have educative values. The use of learning forest prototype into learning forest would be a very educative means and be able to build the careness character of the environmentfor students.

Furthermore, [14]suggests that learning should be accommodating science, environment, technology, and society. Through this activity, students will think critically, habituation for environmental care attitude. Furthermore, skillful to work representing cognitive, affective, and psychomotor domains.

2. Method

Was a classroom action research through Lesson Study for Learning Community (LSLC) conducted in the even semester of the academic year 2017/2018. The research subjects were students joining Plant Morphology subject. The research object was the utilization of learning forest prototype to improve student’s carenesscharacter of the environment. The research procedure can be visualized as follows.

![Figure 1. Research procedure (adapted from Kemmis & Taggart, 1988).](image-url)

Based on Figure 1, the research procedure can be described as follows.

2.1. Planning

The action planning was conducted LSLC plan with the following steps:

1. Making learning agenda and instrument, preparing learning scenarios, preparing learning media, preparing material, and equipment to use.
2. Composing learning design with a contextual approach based on forest prototype.
3. Composing observation and evaluation instruments. Instruments were composed of students' activities observations.

2.2. Acting/Implementation
The lecture did action implementation in the classroom after composing planning systematically. Steps for classroom action were as follows.
1. The lecturer did apperception.
2. The lecturer delivered learning objectives.
3. The lecturer divided learning groups containing 4-5 students each. Each group was assigned to learn plant objects in learning forest prototype.
4. The lecturer instructed that learning from the environment required to care for the environment.
5. Students did environmental care activities by planting, maintaining, fertilizing, irrigating, cleaning weeds from plants, and learning in the environment.
6. Each student made notes of learning result in the learning forest prototype.
7. All students did a reflection on the understanding obtained from the learning.
8. Students made learning result conclusions.
9. The lecturer closed learning.

2.3. Observation
Observers did observations during learning. The observers' focuses included learning scenarios and the environmental care activity of students. After observing the learning process, observation results were evaluated. The researcher and observers analyzed the learning process's strengths and weaknesses for the next action.

2.4. Reflection
Reflection was done by evaluating all learning scenarios that students had done. Reflection was used as a reference to plan and determine the next action in the next cycle.

2.5. Data Analysis
Data on environmental care activity observations in each cycle was presented in percentage and visualized in graphics. Narrative description analysis was presented to see the environmental care activity changes.

3. Result and Discussion
Student's careness character of the environment can be done by using learning forest prototype. This activity was able to facilitate students to build their careness character of the environment. The objective of this research was to build a student's careness character of the environment from a learning resource in the form of learning forest prototype.

The learning steps in cycle one were introducing the initiation land of learning forest prototype to students. Instructing students to join field activity by using field activity guides had been made before. Building student groups according to learning forest prototype. Students worked and learned at the field parts had been determined before, lecturer researcher and technical team observed the field activities done by students. Learning activities in cycle 2 and 3 repeated activities in cycle 1, but there were improvements based on the evaluation at the end of each cycle. Learning evaluation in each cycle included an aspect of learning plan implementation and technical activity in the field in the learning forest prototype.

Learning activity implementation by using learning forest prototype was joined by 62 students. All students joined all sequences of environmental care activities in the learning forest prototype so that the learning forest prototype was useful ecologically. The environmental care activities included planting, fertilizing, irrigating, cleaning weeds, maintaining plants, and learning in the environment.
Figure 2. Average scores of students performing Careness Character of Environment.

Based on Figure 2 can describe that the average environmental care activities in cycle 1 were 89.00. The highest activity was in planting plant activity with a 93.00 score. The lowest score activity was cleaning weeds from the plants with an 86.00 score. Fertilizing and maintaining plants produced the same score; 87.00. Irrigating and learning from environment activities scores gained a high score of 90 and 91.00, respectively.

In cycle 2, the improvement of an average of environmental care activity was 2.81% from 89.00 in cycle one into 91.50 in cycle 2. The highest average of environmental care activity was 93.00 in planting plant activity. The lowest was 90.00 in cleaning weeds activity. Fertilizing and learning from the environment obtained the same score of 91.00. Irrigating and maintaining plant activities improved into 92.00.

In cycle 3, the improvement of an average of environmental care activity was 3.35%, from 91.50 in cycle two into 94.67 in cycle 3. The highest average of environmental care activities was, respectively, 93.00 in planting plant and irrigating plant activities. The lowest was 92.00 in cleaning weeds activity. Fertilizing activity obtained score 95.00 while maintaining plant activity improved into 94.00. Learning from environmental activity improved into 93. In cycle 3, the highest average score of environmental care activity was 94.33 in planting plant activity. The lowest was cleaning weeds. Fertilizing and maintaining the environment obtained the same score of 91.00. Learning from environment activity obtained 91.67.

Overall, the highest score of all normal environmental care activities done by students obtained 91.72. The highest activities were planting and irrigating with respective scores of 94.33. The lowest activity was 89.33 in cleaning weeds. Learning activity from contextual learning sources also activates science process skills [11]. A similar notion is suggested by [6], [8] that the cognitive aspect can also be improved by learning outside the classroom.

All students joining filed activities tried to make use of the land environment in learning forest prototype as a means to improve environmental care characters through environmental care-oriented activities. Students have cared for that environment as supporting life resources must be preserved and concerned. An environment so far is damaged by human behavior [15]. If this condition is left aside, this will damage the environment and reduce human life quality. Therefore students are encouraged to have habituation of caring surrounding environment. Besides, students also get inspiration from learning sources, especially in learning materials based on forest prototype. According to [12], learning forest prototype-based learning can improve postgraduate student’s learning activity.

This learning activity from the environment strengthens the teacher in future competence in empowering the environment as a learning source. Learning sources are not only lied in textbooks, but also from the surrounding environment. Teachers in the future must be equipped with an ability to use the environment as a learning source so that someday they will enable their students to do so. It is
essential considering that students joining this learning are biology education teacher in futures that must have science process skills [11]. All students did scientific approach based learning, made the observation in the sites of their respective group, asked and answered questions to discuss their findings from observations, and doing reasoning based on objects in the learning forest prototype area.

4. Conclusion
The conclusion was that the utilization of learning forest prototypes could improve student's careness of the environment. Each cycle experienced score improvement with an average total score of 91.72. The activities include planting, fertilizing, irrigating, cleaning weeds, maintaining the plant, and learning in the environment. The utilization of learning forest prototypes is excellent to do so that students can learn contextually from the environment and understand the actual environment condition. The researcher recommends that the student's careness of the environment is done by paying attention to the surrounding environment directly; one of them is by using learning forest prototype through LSLC. Students get used to caring about the environment, and they can pick up benefits from learning forest prototype as a contextual learning source. Learning sources can be empowered to equip students to understand science cognitively, affectively, and psychomotor. The real learning source in nature (contextual) is expected to be able to equip students in those domains which support the student's careness of the environment.

References
[1] Abdillah M 2001 Religion environmentally friendly: the perspective of the Qur'an Publisher: Paramadina
[2] Aunillah N I 2011 Free implementing character education in schools
[3] Soedarsono S 2002 Character building (character development): changing thoughts, attitudes, and behaviors to form effectively to achieve success personal truth to achieve true success
[4] Kusuma Y A 2017 Character education foundation for strengthening identity as a nation Dakwatuna J. Dakwah dan Komun. Islam3 93–102
[5] Zubaedi M 2011 Design of character education: conception and its application in educational institutions
[6] Rapi M 2012 The use of the school environment as a learning resource in improving learning outcomes biology Lentera Pendidik. J. Ilmu Tarb. dan Kegur. 15 18–31
[7] Husamah H 2013 Learning outside the classroom (outdoor learning) Res. Rep.
[8] Setiyorini N D 2018 Contextual learning science in elementary Learning Through Nature Outdoors Ar-Ridho Semarang Al-Mudarris J. Educ. 1 30–8
[9] Adelia V 2012 Methods of teaching children out of class Jogyakarta Diva Dress
[10] Nisa A R K, Samino S and Arisoesilaningsih E 2014 Organic agroedu-tourism attractions toward an interesting outdoor environmental education to junior high school students J. Trop. Life Sci. 4 123–30
[11] Muhfahroyin M 2016 The development of forest-prototype based learning model to activate students science process skills in biology learning Sci. J. PPI-UKM 3 296–9
[12] Muhfahroyin M and Oka A A 2017 Improving post-graduate students learning activities through lesson study in learning forest-prototype Biosaintifikasi J. Biol. Biol. Educ. 9 311–6
[13] Utomo P 2011 Utilization of environment as a learning resource for early childhood
[14] Hadiati E 2018 The influence on the performance of teacher work discipline MTS se Bandar Lampung al-idayarah Journal of Islamic Education8 50
[15] Faniran A O and Oluwagbenga O O I 2016 Creation and environmental care for global security and peace: The theocentric option Am. J. Acad. Res. 1 A12–24