Learning Ecology at the Eco- Park

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Abstract

This study aimed to determine the learning outcomes that the students in Ecology achieved at the Eco-Park at West Visayas State University Lambunao Campus, Lambunao, Iloilo. The participants of the study were the BEED IV-B students taking Bio 217 (Ecology) during the first semester of the school year 2009 – 2010. The students divided themselves into four groups. Each group conducted ecology-related activities such as construction of herbal garden and nursery for fruit bearing trees, waste management, and biodiversity assessment. Performances of students were self – rated and validated by their group leaders and the subject teacher. Teacher's basis for the grades/score included pre and post-tests, interviews, transcripts of focus – group discussions, field notes, journals of reflections, photo elicitations of workplace and activities of students, checklist, and informal visits. Learning was in the real world where students appreciated the relevance of the scientific method to the environment. The said environment was different from the controlled, school science laboratory room. Students became fascinated with nature, and they had the opportunity to explore the plants and animals in their environments. Outdoor education at an Eco- Park enhanced the students' learning of ecology.

Keywords: Ecology, Eco – Park, outdoor education

In the pursuit of new knowledge, scientists employ several techniques in their laboratories. However, when science students work in the classroom laboratory, they rarely appreciate the techniques and efforts their teachers provide them. Laboratory classrooms are usually known to be as boring places and students consider their stay in these rooms as time-consuming. Lack of interests among students in these rooms arises from the inadequacy of its facilities (De la Cruz, 2006).

Students achieve education outside the classroom. Social and natural environments are also sources of learning, the exposures of students to various conditions best fit their learning capabilities. Students will be delighted with their adventures in the field (Lakbay Kalikasan, 2006).

An eco-park was established at West Visayas State University Lambunao Campus, Lambunao, Iloilo, as a place for learning and research. Aside from providing a healthy learning environment, it is believed that education facilitated outside the classrooms validate theoretical learnings inside the classroom. Further, the students all together will discover things that will provide them with surprises, enhanced self-confidence, and intellectual discovery.

This study shifts from the traditional laboratory inside a contained classroom to an open space in the park. This shift reinforces the theory that the best classroom is the real world. The eco-park is where students can observe and study organisms in their real habitats and not on books or black boards. Doing their activities provides them a sense of stewardship and belongingness and above all a degree of independence. Students practiced values like, cooperation, open-mindedness, objectivity, curiosity, and rationality while learning. The results of this study provide data and baseline information to support alternative learning facilities with priorities for outdoor education and collaborative inquiry as learning strategies.

The study is qualitative in nature. The data gathered were systematically analysed (Strauss & Corbin, 1990). The emphasis of the study was on the effects of the natural environment on stress, challenges on humans and experiential learning. The students become aware that they function within the ecosystem and beyond social customs and norms. The basic elements of teamwork are instilled among students when they work together. According to John Dewey (1938), experience is central in the educational process. Education requires a design within the theory of experience.

The Constructivist grounded theory emphasizes the subjective interrelationship between the researcher and participants, and the construction of meaning (Hayes & Oppenheim, 1999). This paradigm is congruent with the belief about the nature of truth and reality. The stories that the participants tell show this relationship between the self and the environment.

This study was conducted to determine the learning performance of BEED IV – B students through outdoor education at the Eco- Park during the first semester of school year 2009-2010.

> "You can teach a student a lesson for a day but if you can teach him to learn by creating curiosity, he will continue the learning process as long as he lives." (Bedford in The Art of Self-Education, No Date).

Research Questions

1) Are there significant differences in the pre-test and post-test performances of the students before and after utilizing the Eco- Park as setting for learning ecological concepts?
2) What are the concepts in Ecology that the students have learned using the Eco-Park as a learning venue?
3) What are the values and attitudes learned by students through outdoor education at the Eco- Park?
4) What are the skills learned by the students at the Eco-Park?
5) What are the problems met by the students while learning at the Eco-Park?

Methodology

Research Design

The study used a combination of quantitative and qualitative research designs. It attempted to document and ascertained that a learning strategy, outdoor education at the Eco- Park, enhanced the learning performance. It brought together people from diverse social locations and with diverse skills and abilities. The quantitative design covered the pre-test and post-test administered. Qualitative (action) research covered the informal interviews and participant observations. According to Reason and Bradbury (2001), action research is being described as a "family approach inquiry that is participative, grounded in experience, and action - oriented".

The combination of these two research designs facilitated clarifications on the theoretical propositions and the bases of the results. Both decisions offer a better understanding of the links between theory and empirical finding.

Participants of the Study

The student-participants were twenty- seven male and female students at West Visayas State University – Lambunao Campus enrolled in Bio 217 (Ecology) during the first semester of school year 2009 – 2010. A faculty course facilitator conducted the class.

Instruments

In order to determine the learning performance of BEED IV–B students enrolled in BIO217 (Ecology) at Eco Park, the following research instruments were used:

A fifteen – item multiple choice pre-test and post-test. This researcher-made test underwent face and content validation.

A researcher – made checklist made up of a fifteen-item test about concepts, values attitudes, and problems met which the participants checked as whether they learned, developed, and met.

These instruments underwent face and content validation from an expert. They were pilot-tested and garnered a high reliability coefficient.

Other sources of data were transcripts of focus group discussions, field notes, journals of reflections, photos of workplace and activities of students, and informal visits.

Procedure

During the first month of classes, the following were discussed: a.)content of the syllabus, b) requirements of the course, c) grading system, d) group assignments, e) the research and their roles, and f) administration of the pre-test.

At the Eco-park, the following activities were conducted by groups: a) construction of the herbal garden, b) construction of the nursery of fruit bearing trees, c) waste management at the Eco-park, and d) assessment of biodiversity.

The following sources were tapped for data collection: a) pre-test and post-test results b) transcripts of informal interviews, c) transcripts of focus-group discussions, d) field notes, e) journals of reflections, f) photo elicitations and g) checklist

Analysis of Data

For quantitative data analysis, the mean, standard deviation, t-test for dependent sample, frequency, and percentage were used. All statistical computations were processed through the Statistical Package for Social Science Software (SPSS). For qualitative data, data-content analysis was used.

Results and Discussions

Table 1

Differences in means and standard deviation of the pre-test and post-test

	n	M	SD	Description
Pre-Test	27	4.11	1.74	Low
Post Test	27	10.82	2.06	High

The pre-test performance of BEED IV – B students studying ecology inside the classroom was low. Their scores did not reach the 50% passing score (7.5). They may have forgotten some environmental concepts which they have learned.

The post-test performance of BEED IV – B students after outdoor education at Eco Park is high, 96% of them got scores above 50% passing score. The Eco-park experiential learning may have helped to improve their scores.

Table 2

Difference between means of Ecology Test

	N	Mean	SD	t	df	(Sig (2-tailed
Pre-Test	27	4.11	1.74	-17.12*	26	.000
Post-Test	27	10.82	2.06			

Note: $* p < 0.01$

There was a significant difference in their pre-test and post-test performances as shown in the post test. This can be ascribed to studying

ecology in the natural setting. Students have become more aware of the Eco-park and were inclined to promote the conservation of the place.

Basic ecological concepts were duly identified and learned. They were: a) Ecology is the scientific study of the relationships between organisms and their environment, b) Changes in climate will affect ecosystem at many levels, c) Nutrients are recycled within the ecosystem; d) Ecology is an interdisciplinary science, and e) Ecosystem components form a hierarchy.

Values and attitudes were learned and developed. These are curiosity, conservation of natural resources, responsibility, rationality, and open-mindedness.

The skills learned were: a) Illustrate the importance of the environment; b) Classify plants according to their nature; c) Evaluate and propose measures for the betterment of waste management system of the eco-park; d) Assess biodiversity; and e) Identify and label the scientific names of plants.

Conclusions

The findings of this study support the fact that utilizing the natural setting in science instruction and working collaboratively improve the learning process.

The average pre-test performance of the BEED IV – B students indicates that the group is homogeneous and with low performance.

The average post-test performance of the BEED IV – B students shows that there is an apparent improvement in the students' performance.

The significant difference in the post- test performance from the pre-test performance supports the fact that the strategy of utilizing the natural setting in the Eco-Park introduces an innovative, effective, and more interesting way for science instruction.

Outdoor education will not only supersede the traditional method but will enhance the students' performance and science instruction.

The strategy of utilizing the Eco-Park as a venue for learning and research will provide a change in the development of concepts. Attitudes, skills, and values are learned through experience.

Recommendations

Based on the results of the study, it is recommended that students need to be supported and encouraged to become independent learners. This can be achieved if the benefits of outdoor education are experienced by all students. Likewise, the school administration has to give importance to outdoor education and the academic community give due attention to environmental conservation to address the government's thrusts/priority programs.

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