



INTEGRATED LEARNING MODEL FOR ENVIRONMENTAL EDUCATION AMONG STUDENTS IN A HIGHER EDUCATION LEVEL

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Abstract

This study's objectives are: (1) to study general information about learning activity in environmental education in a higher educational level; (2) to study integrated learning model for environmental education in a higher educational level; (3) to study problems and limitations of integrated learning model for environmental education in a higher educational level. The present study employed questionnaires to collect the data from 400 students and in-depth interview for 10 instructors and experts.

The present study found that there are 126 male students (31.5%) and 274 female students (68.5%). About 54.5% are aged at 18-19 years. Most of the samples face the problem of wastewater disposal (41.75%), air pollution (64.5%) which is coming from dust (45.5%), car emission (61.25%), power plant (70.5%).

Most of the sample reported that the expected integrated learning model for environmental education is the integration with other courses in which provides the benefit for daily life, the exchange of opinion about environmental problems and management in the classroom. The educational media should be clear and more interesting contents. Teaching and learning activities should be made outside the classroom in order to generate the direct experience for students, promote the life skill in environment, and create environmental awareness among students.

For limitations and recommendations, the teaching should have more interesting courses, better educational media, and improved contexts. The limitation was found that the students have no interest in contents due to the out of date information. Contents of the course in environmental education should be improved and updated.

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Introduction

Present, environmental problems in the local, regional, and global level have impacted to all population such as air pollution, water pollution, soil degradation. These problems lead to human adaptation to deal with such environmental changes in the near future. Environmental changes create more natural disasters that effect whole population. Population need to adapt themselves to cope with natural disaster situations. It can be said that human is the main actor that generate continuously environmental population. As a results, it is better to change human behavior to be more pro-environmentally behavior, leading to create lesser environmental problems.

Human development is essential for environmental management. Developing human behaviors; such as knowledge, awareness, skill, participation, assessment, can be the better way to generate lesser environmental problems. Learning and practicing in environment courses can be regarded as the important means to develop human. Integrated learning model for environmental education among students is the new approach which can generate the human behavioral changes among higher educational students. It is able to form better environmental attitude, environmental awareness, and also pro-environmental practices. In present, integrated learning model for environmental education among students is one of the important approaches that can solve the environmental problems and generate the sustainable environment.

Faculty of Social Sciences and Humanities, Mahidol University, launches pro-environmental activities such as waste separation, setting the committee of cleaning and sanitation. Also, the faculty assigned lecturers and staffs to take care of the area of the faculty frequently.

Integrated learning management is the linkage among internal course area, within course area and real situation that generate meaningful learning to the students. It provides a relationship of the environment which helps the student link and apply in their life (Teerachai Buranachote, 2001: 6-7).

Integreated Unit Teaching is not the determinants of teaching method because teaching method considers the contents and activities what learning should do. Teachers will choose their teaching method by themselves with help their students reach the learning objectives. Teachers can also choose the study media and activities to be more



enjoyable to their students. In addition, Integrated Unit Teaching is the teaching method combining contents and activities in other courses. This method allows environment contents combining in courses that relates with environmental education such as sciences, social studies (Department of Environmental Quality Promotion, 2000: 62).

According to the characteristics of Integrated Unit Teaching that provides learning development to the students, it helps the students realize the learning content affect to their livelihood. They are able to link the relationship among nature, environment, society, culture, custom, community, and nation. They can analyze the causes of changes, impacts, and adaptation. It also can help the students solve the problems, develop learning habit, gather the knowledges, develop analytical skill, evaluate information, consider the decision, develop working skill, develop systematical work, realize their values, and happily live with others (Ministry of Education, 2004: 5).

Integrated learning model for environmental education is important for determining the learning management in whole educational reform system. It generates the desirable characteristics of students, which requires all stakeholders' participation by providing knowledge, understanding, and the content of integrated learning model to personnels in order to generate good attitude and values on environment (Ministry of Education, 2004: 7).

Therefore, researcher wants to create environmental changes by empowering new generation people through environmental education in a higher educational level with the intention of behavioral changing to be more environmental friendly and sustainably in the future.

Research objectives

1. To study the general situation of environmental education in a higher educational level.
2. To study integrated learning model for environmental education in a higher educational level.
3. To propose the recommendation on integrated learning model for environmental education in a higher educational level.



Scope of Research

Content: The present research studies in content and theories related with environmental education for generating the integrated learning model for environmental education in the higher educational level in order to make students are able to apply environment education for environmental changes.

Areas: This study uses Mahidol University, Salaya campus, as a study site for collecting data from undergraduate students.

Population: This study collected data from undergraduate students who enrolled in Human and Environment course, elective course, in every faculties and years.

Definitions of the study

Integrated learning model for environmental education is the learning model linked with environmental education.

Environmental education is the systematic process of providing environmental knowledge and educational technology to the students in order to create environmental changes and better quality of life.

Conceptual framework

This study employed of the integrated learning model for environmental education as a conceptual framework. Researcher has collected the general information about environmental education in a higher educational level, integrated the environmental education in the course, and also studied the problems and limitations of environmental education in order to creat integrated learning model for environmental education in a higher educational level.

Expected outcomes

1. Knowledge, awareness, skill, and participation in environment for solving the existing environmental problems.
2. Situation about environmental education in Mahidol University, Salaya campus.
3. Experiences about integrated learning for environmental education among students in a higher educational level.



Methodology

This study comprises with 4 steps of research implementation:

1) Study on information of surrounding area and determine samples of the study; lecturers who teach environmental courses, and undergraduate students in the campus.

2) Create the research tools.

-Researcher creates valid and reliable research tools to fit with research objectives by considering concepts, theories related with the research objectives.

-Researcher gives the research tools to experts to consider and check the validity of the tools.

-Researcher creates research tools to assess the projects, including questionnaire for undergraduate students and in-depth interview guideline for lecturers.

3) Study integrated learning model for environmental education.

-Study the learning contents that fit with integrated learning pattern in environmental courses.

-Interview with lecturers who teach environmental courses.

-Collect information from undergraduate students by questionnaire for improving the integrated learning model.

Research tools

1. Questionnaire: This tool is for collecting characteristics of undergraduate students about integrated learning model.

2. In-depth interview guideline: This tool is for lecturers and experts who teach environmental courses in the university.

The method of integrated learning model includes 2 methods.

1. Survey research: Researcher employs the questionnaire to collect information from undergraduate students aged 18 years and over who enrolled in the elective course of “Human and environment” in Mahidol University because they can participate integrated learning model efficiently.

2. In-depth interview: Researcher employs in-depth interview guideline to collect information from lecturers who teach environmental course because they can adopt integrated learning model for environmental education.



Results

Researcher found the results in any issues about attitudes and opinions towards this project as follows.

For the integrated learning model, it was found that characteristics of student who are mostly needed by the university includes (1) having responsibility, practicing learning skill, and having good relationship with lecturer and friends (88.0%), (2) having responsibility (7.5%), (3) having good relationship with lecturer and friends (3.75%), and practicing learning skill (0.75%).

For the problem if integrated learning model, it was found that there is no problem (62%), lack of participation (21.5%), lack of learning facilities (11.25%), have no fundamental knowledge of environment (4.25%), and lecturer is not qualified (0.75%).

For the program, it was found that proportion of integrating environment with other courses are 50:50 (55.75%), 70:30 (30.25%), 80:20 (13%), and 100% (2%).

It was found that the course that is needed to integrate with environment is the course of “Life skill” (57.75%), “Environmental education” (34%), “Population studies” (7.75%), and other (0.5%).

For the changes after integrating with environment, it was found that the student has changed (96.25%), and not changed (3.75%).

For the in-depth interview results, it was found that most wanted integrated learning model and components is the integration with other courses which can be utilized in the daily life. The model should create the opinion exchange about environmental problem among students in classroom. The instructional media should be clear in content and interesting. Off-site activities should be made in order to generate direct experiences among students. In addition, life skill with environment should be promoted with the intention of creating the environmental consciousness to the students.

The integrated learning model also include the off-site activities, linkage with other courses, and sharing opinion among students.



Conclusion

1. Study on environmental education course in a higher educational level

1.1 General information: There were 400 students in this study, covering 126 men (31.5%) and 274 (68.5%). Almost students had 18-19 years of age (54.5%) and were Buddhists (54%). Most of them were studying in Faculty of Engineering (20.75%), studying on-site (86%), had GPA 3.01 (79.25%), and finishing science-mathematic area in their high-school (93.5%). Most of them resided in 4-6 family size (72.25%), had monthly expenditure more than 5,000 baht (57.75%), and resided in central and Bangkok metropolitan (56.75%).

1.2 Environmental and livelihood information: Most of soil in their residence were mold soil (75.25%), Most of land usage purpose was for residence (51%) with mostly found soil problem was chemical residue (69.75%). Most of water usage in their residence were pipe water (71.75%) with mostly found water problem was wastewater disposal (41.75%). More than half of the respondents faced the air pollution (64.5%), especially dust problem (45.5%), and 61.25% of air pollution came from vehicles. Most of the respondents used electricity as a main power usage (70.5%). Majority of the power problem were expensive problem (97.75%). About half of their household had a plantation (50.5%) with vegetable garden (72.5%) and most of them planted chilli (44.5%). Most of their household did not raise the animal (85.5%) and mostly animal-raised household raised chicken (60%).

1.3 For the cultural aspect, Almost respondents thought that they belongs to local environment (86.5%). Most of them decided in real situation (41.25%). When they had conflict in the household, they employed conciliation with parents (44%). When they had conflict in the community, they employed conciliation with community committee (33.75%).

1.4 For integrated learning model, most of the respondents wanted all students are responsible, practicing the learning person, and good relationship with teacher and friends (88%). Most of them were not found any problems (62.25%). Proportion of core curriculum and local curriculum was 70:30 (42.5%). Proportion of course integrated with other courses was 50:50 (55.75%). Course that was needed to integrate with environment was Life Skill (57.75%). Most of the respondents thought that Integration with environment can provide behavioral changes (96.25%). Most wanted integrated activity was environmental



promotion (53.5%). Most favorite integrated activities were launching internal learning unit in the campus (34%) and environmental promotion (34%).

2. Study the integrated learning model in a higher educational level: It was found that most of the respondents wanted the integrated learning model in a higher educational level because it could provide the higher advantage in daily life. This model can provide opinion exchange towards environmental problems and problem solving among students in class. Content and media for this model should be clear and interesting. This model should provide off-site extra activities in order to provide direct experience for the students with teachers association. Also, this model could promote life skill and environmental awareness among students.

3. Problems and limitations of integrated learning model in a higher educational level: For the teaching method, students might feel bored if the teaching method was not interesting and media was not improved. For the content, students might not interest in contents if it was not updated and not convince student enough. The updated content should be made in order to convince the students. For the teachers, teacher who teach in this model should be the one who have environmental background. Teacher should integrate environmental education in the course efficiently with the intention of promoting knowledge to students and student participation in class. For the general problem, it should promote student to learn and face direct experience towards environment with the purpose of generating life skill.

Discussion

Integrated learning model and its component aims to integrate environmental content to any courses in higher education in order to generate benefit to students. Also, instructional media and content should be clearer and more interesting for student. Learning activities should be outdoor activities with the purpose of providing the direct experiences, creating the life skill, and generating the environmental awareness to students (Hulley, 1999). Jessadawiroj (2003) found that integrated learning model for environmental learners can generate analytical skill, ethics, learning values, and communication skill. Many courses can be integrated such as literatures and social studies, mathematics and sciences.



Teachers in grade 5 can develop study plan which integrate science, technology, and social studies. They can employ study plan as a tool for integration in a further teaching.

For the problems of study in environmental course, sometimes students can be bored if there are uninteresting content and unimproved instructional media. The improvement of content and instructional media is required. Teacher should promote direct experience and skills to the students. Learning Theory highlights the adaptability of subjects to their surrounding environment (Chan-em, 1976). Successful learning model should consider Learning Theory as a way to improve student's awareness, skill, and behavior. Educational personnel and psychologist can also apply this theory to create desirable behavior to the subjects (Awakul, 1997: 177-181)

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As for the research results in Problems with teaching and learning management in the environmental subject Makes students bored and uninterested in the subject content. Lack of interest in learning in the classroom Teaching media has not been improved and developed to make students more interested. Content issues In the teaching



and learning of environmental subjects, it was found that students lacked interest because the content was old and not up-to-date and did not meet the needs of the learners. Makes students not interested in learning about the environment. They want to improve the content of learning in environmental subjects. To be modern towards living life in the present day more Problems with teachers in environmental subjects It is necessary to have people with true environmental knowledge become instructors in environmental subjects and the instructors can integrate the subjects well and efficiently, making students gain knowledge, become interested, and want to participate. Organize more classes in environmental subjects. General problems in teaching environmental subjects Students should be encouraged to Learn from the real experiences of the students. Studying various places about the environment and integrate lifestyle with skills for living with the environment well which is consistent with Learning Theory (Learning Theory) has been found by psychologists and educators. Educational psychologists (Sucha Chanaem, 1976, p. 144)) have given a definition of learning to mean The ability of organic matter to adapt to the environment For the survival of that organism, the rules of learning It is considered the basis of psychology. It is about learning which is required to succeed in training. You should study these criteria to gain understanding. which corresponds to the factors that promote and support learning. Learning comes from improving and changing human behavior. From not knowing to knowing, from not understanding to understanding. There are many factors that cause learning (Wichit Awakul, 1997: 177-181).



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