The effects of family ecology learning on student university environmental awareness

S Nursetiawati*, D Atmanto, and D P Josua
Cosmetology Education Studies, Faculty of Engineering, State University of Jakarta, Rawamangun Muka East Jakarta, 13220, Indonesia

*Corresponding author: sitti-nursetiawati@unj.ac.id

Abstract. Family Ecology is one of the learning materials in the Cosmetology Study Program, Jakarta State University. The aspects studied include; education about environmental care, and the balance between the environment and family units. This study aims to look at the influence of learning experience, and the absorption of material obtained by students in family ecology material, on environmental awareness. The sampling method uses a purposive technique. This study involved 75 respondents by taking research locations at Jakarta State University in the Cosmetology study program. Respondents were involved, overall female sex. The method used in this study is a regression analysis approach with Partial Least Square. Data collection was conducted using a Learning Experience questionnaire, Level of Understanding of Materials in Family Ecology Learning, and Environmental Awareness. The results showed that there was a positive influence between students 'knowledge gained, after studying family ecology material with students' awareness of the environment. Thus, it can be concluded that the science concept, as well as the application of family ecology learning can be used as one of the factors that fosters students' love for their environment.

1. Introduction

Human behavior and the environment influence each other. In SAINS learning, humans recognize the term symbiosis of mutualism, meaning it can be used to describe human life with its environment. Today, humans are increasingly dependent on the sophistication of technological tools, but the development of technology, often not accompanied by human awareness of the environment.

The Indonesian government has arranged environmentally friendly development by maintaining environmental sustainability through the following regulations:

a. UU Number 26, 2007 article 29 paragraph 1 concerning public concern for the provision of green open spaces.

b. UU Number 18, 2008, concerning community participation in managing waste.

c. UU Number 32, 2009, concerning Protection and Management of Living Environment, which states that everyone has the same rights and obligations to take a role in preserving the environment.

d. Minister of Public Works Regulation (Permen PU) Number 06 / PRT / M / 2011, which requires the community to be responsible for managing clean water and using it wisely.

e. The Presidential Instruction of the Republic of Indonesia (Inpres RI) Number 13 of 2011, concerning saving water from upstream to downstream, starting from the socialization of the Head of Government to encouraging the public to save energy, water and electricity.

The existence of these regulations plays a role in improving the quality of the environment in Indonesia. Based on data from the Environmental Performance Index [1], Indonesia is ranked 133
out of 180 countries, with an environmental performance index for the category, (a) Environmental health, ranked 135, (b) Water quality, ranked 147, (c) Water and Sanitation, in rank 123, (d) Heavy metals, ranked 107, (e) Ecosystem vitality, 116th sequence, (f) Biodiversity and Habitat, ranked 104th, (g) Forests, in order 135, (h) Fisheries, ranked 135, (i) Climate and energy, in the order of 75, (j) Air pollution, ranked 98, (k) Water resources, in the order of 140, (l) Agriculture, ranked 51.

Awareness of environmental awareness, at the education level, is carried out through the construction of the Adiwiyata school, with the number of Adiwiyata schools at each level, as follows; (a.) For elementary schools as many as 270 schools, (b) For junior high schools as many as 244, and (c) For high school as many as 192.

The Adiwiyata program at the elementary to secondary school level is planned to create schools that care and have an environmental culture, with the aim of realizing school citizens who are responsible for protecting and managing the environment in order to support sustainable development. Components of Adiwiyata are; (a) environmentally sound policies, implementation of environment-based curricula, participatory activities, and management of facilities and infrastructure that are environmentally friendly.

The implementation of environmental preservation and as a form of learning that is applied continuously, in the world of higher education can be done by including courses that are directly related to the conditions and reality of the environment in the present and future. Jakarta State University, has a variety of study programs, one of which is the Cosmetology Study Program. Two courses in the study program, namely Family Welfare Science and Family Resource Management, are integrated with family ecology learning materials.

1.1 Family Ecology

Impact of environmental problems on a macro basis, moving from problems in the family unit and will lead to global problems. As a derivative of Human Ecology, Family Ecology is a multidisciplinary approach that addresses families to prosperity, while remaining based on environmental sustainability. Family ecology is a very urgent need in this disruption era, in order to overcome the limited availability of resources, with increasingly complex family and community needs [2].

One example that learning family ecology is a challenge that is relevant to environmental conditions in Indonesia in the face of the industrial revolution is that the target of the Sustainable Development Goals (SDGs) is reducing and handling household waste by 2030, where each country must substantially reduce household waste piles through prevention, reduction, recycling, and reuse [3]. One example that learning family ecology is a challenge that is relevant to environmental conditions in Indonesia in the face of the industrial revolution is that the target of the Sustainable Development Goals (SDGs) is reducing and handling household waste by 2030, where each country must substantially reduce household waste piles through prevention, reduction, recycling, and reuse [3].

Family ecology in the Jakarta State University Cosmetology study program is mandatory material, with a meeting duration of five times face-to-face in the classroom, and three meetings to apply knowledge in the community. Family Ecology, is included in the Family Welfare Science course (4 credits) and in the Family Resource Management course (3 credits). This material includes two learning methods in the form of theoretical lectures and practicums.

The description of the family ecology lecture material is to provide understanding and study of families within the ecosystem that synergize and influence each other with the physical, biological, social, economic, cultural and technological environment. Practicum in the family ecology lecture material, is a lecture that elaborates material and theories in observation, interviews, discussions, to arrive at presenting reports in the form of reports of scientific works and presentations.

The lecture topics presented, will be explained in table 1.

| Numb. | Material                                      | Method              |
|-------|----------------------------------------------|---------------------|
| 1.    | Nature of Ecosystem Concept                  | Theory              |
| 2.    | Theory of Classification, theory, and the relationship of human ecology to family ecology | Theory              |
| 3.    | Theory of family and environmental interactions | Theory and practicum |
| 4.    | Theory and practice of Family, home, and energy | Theory and practicum |
5. Theory and practice of the family in a macro environment perspective

6. Theory and practice of the family in a micro environment perspective

7. Family values and environmental cultural

8. Theory Analysis of family development and its impact on the global environment

The concept of ecosystem material in the study of family ecology is studied with the aim that human demands are no longer only dependent and competing to meet their biological needs [4]. All human economic chain activities are sourced and limited by ecosystems [5]. The existence of change and progress, encourage ecosystem innovation, where the understanding of ecosystems has arrived at the network, ranging from suppliers, distributors, agents, service providers, technology providers and organizations or other services in everyday human performance [6].

Ecosystems are defined as biological systems, consisting of all organisms in a particular physical environment, which interact with each other [7]. In family ecology, ecosystem is defined as the complexity of the system with individual networks as family members and communities that support each other to carry out the process of homeostasis or balance between humans themselves, their families, and their surrounding environment.

Correlation of human ecology and family ecology in the learning process is that the ecological system is theoretically dominant looking at human behavior to meet the needs of his family that are directly related to the social and cultural environment. Family ecology learns about dependence between humans as family units with their social and physical environment.

The third material, namely regarding family interaction is the main capital of humans to be accepted in their social groups. The interactions that are intertwined with siblings, neighbors, friends, and other peers will shape the individual's attitude towards education. The existence of feedback in these reference groups as a tool for transmitting human resources intagenerational [8].

The practice of family interaction in family ecology, in the form of discussion of assignments given from lecturers to students to be worked on together with family members. When collecting assignments, students are given a brief questionnaire and asked openly to express their family's reaction and the technique of doing the assignment. After that, students observe how the facilities and the environment around their residence with the symptoms of environmental and social problems that surround their homes.

Regarding family, home, and energy, it covers environmental management where the family ecology course can grow the potential of students in finding solutions to meet their personal needs and family needs without reducing the quality of the environment. Family ecology, provides an understanding so that students have the ability to utilize environmental resources without exploiting.

The assignment of practicum by students is to compare suitable dwellings to be used as dwellings, and dangerous dwellings if used as a place to settle, and explain what the problems and solutions of the two types of dwellings are. Students are also tasked with distinguishing the quality of the environment with the availability of facilities in two different environmental conditions. Students are free to determine the choice of location to be visited. The assignment was divided into small groups of three people. The observations were delivered in the form of educative videos with a maximum duration of 3 minutes and photographs containing their findings, uploaded to Instagram social media by giving conclusions and related to the theories that have been studied, and presented in front of the class.

Family ecology, which also discusses families in a macro way, touches the level of poverty in Indonesia. The discussion of the theory in family ecology on a macro basis is the condition of the middle to lower economic community, the impact of the current environmental situation on the dynamics of the economy in Indonesia, the condition of financially limited communities and how the family can be subjective and objective.

Practicum is carried out with a case study, in which students search for families with criteria that are included in low economic conditions, such as scavengers who have a family, and do not have permanent housing, or unskilled workers who live in slums. The results of the studies that have been obtained are individually written and linked to the material content that has been obtained during the theory class.
Families in the micro environment in family ecology material explain the human needs of certain nutrients by the process of planting vegetables that are environmentally friendly, processing foods that are good for the body, introduction of substances or activities, objects, and habits that come from the household, but can damaging the environment, and the dynamics of farmers and fishermen in Indonesia.

Family values, in some studies, correlate directly with the environment. Where life values in the form of goals or principles in society, will have a direct impact on the environment. Likewise in different environments, it will relate to differences in the order of social values [9]. The section analyzes family development and its impact on the global environment, discusses data and facts about Demographic Bonuses, population growth, mortality and birth rates in Indonesia, and the Human Development Index (HDI) and Index relating to environmental conditions in Indonesia.

1.2 Learning Experience

One element of education is the learning experience of students. Learning experiences have a significant impact on the results of the teaching and learning activities (KBM) process. The urgency in seeing student learning experiences is to guarantee quality and improve goals in learning. As for individual students, with the assessment of learning experiences, students can develop themselves professionally, gain insight in accordance with the provision of positive feedback, so that as participants themselves, students will feel valued and try to improve learning [10].

Specific learning experiences are orientation to access learning resources, contain learning opportunities provided, teaching and assessment strategies used, see teacher support in developing students, and can be used as an overall evaluation material about student experience in a desired subject [11]. An effective learning experience is one that is well understood, easy to remember, and produces a way of thinking or practicing something new, which is better. In adult education, students will be fully responsible for the learning they do. Learning experience with students is determined by themselves. Ideally, learning experiences involve a variety of activities that can add or complement lectures [12].

The concept of Indonesian education, currently focused on learning experiences centered on students. This idea is a paradigm shift in distributing knowledge by facilitating learning and encouraging student participation [13]. Understanding that is integrated in the design of learning desired, and set by educators, will harmonize the perceptions of educators and participants, so that it will create learning experiences that are able to meet the expectations of both stakeholders [14].

The learning approach in Indonesia is currently through a variety of methods, including designing environment-based learning. The learning experience gained by students who learn closer to their environment is different from learning in the classroom. [15] explains that environmental education can encourage students to understand environmental objectivity, understand their own desires, and value others.

1.3 Environmental Awareness

Education is the best way to overcome environmental problems and as a preventive step to protect the environment, because education is not only able to change individual cognitive abilities, but can change human behavior in accordance with his perspective. Increasingly complex environmental problems, become an important issue in the scope of education. In education, environmental learning can be designed through formal and formal systems.

Factors other than education, such as family, media, and culture also influence a person's view of the environment. However, formal education is an effective step to introduce and give understanding to individuals to participate in protecting their environment [16].

Informal and formal education, in any form, is a way of increasing environmental awareness that can help stimulate the prevention of environmental problems for adolescents [17]. Environmental awareness will encourage someone to be positive and have affection for their environment. Therefore, awareness and concern for the environment and its causes and adverse effects need to be investigated as the context of environmental awareness [18].

Environmental awareness in the realm of education can be defined as factors that shape memory cognition by sensory stimulation, identification, and training of perceptions [19]. Environmental awareness can be meaningful as an individual's emotional attitude towards the environment in assessing the surrounding conditions, using natural resources in a good way, giving someone emotional and conceptual reference to respecting the environment, caring about the surroundings, and applying wisely to the environment.
Environmental awareness according to [20] is an individual awareness of problems, perceptions, appreciation and exploration of the environment by conducting environmental interactions. Environmental awareness involves events experienced by individuals, emotions, social groups, and includes symbolic meanings [21].

Based on the results of research conducted by [22], environmental awareness is an awareness of environmental problems and active involvement of someone in environmental organizations. Individuals who have higher cognitive levels of environmental problems and cause-effect schemes of their behavior will be more likely to take deliberate actions for their environment [23].

Environmental education is one of the cognitive processes in clarifying values and concepts to develop, understand, and appreciate the skills and attitudes needed in mutual relations between people, cultures, and in the physical environment. Environmental education must also be applied in decision making, as a means of educating environmental quality issues, and instilling the orientation of human awareness of the environment [24].

2. Methods
This study uses quantitative methods whose data is measured by examples which generally number quite a lot and represent the population and describe comprehensively about the condition of the entire population studied. The resulting data focus on objectivity, with procedures using formal instruments during the data collection [25].

The population of this study were cosmetology students, faculty of engineering, Jakarta State University with the characteristics of having attended Family Welfare Sciences courses and or Family Resource Management courses. Examples of this study were 75 respondents, with data collection through purposive sampling technique.

Data is collected through three instruments, with one instrument being the result of development. The measuring instrument is:

a. Learning Experience, modified from the Experience of Teaching and Learning Questionnaire (ETLQ) [26] with 33 items, with dimensions of the teaching and learning environment, students' approaches to the process of learning, critical thinking. Choice of answers using a Likert scale with four choices, 1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Agree, 4 = Agree, 5 = Strongly Agree.

b. The level of understanding of family ecology learning material is constructed according to the objectives of the lecture, which is referred to using 10 Likert scale items. 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree.

c. Environmental awareness variables, assessed using the Revised New Ecological Paradigm (R-NEP) Scale instrument [27]. With 15 items, using a Likert Scale, 1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Agree, 4 = Agree, 5 = Strongly Agree.

3. Results and Discussion
Respondents in this study were overall female. The level of education of the respondents is students from class 2018 to students of class 2016. Examples are taken based on one class for class 2018 which has received Family Welfare Sciences courses, and one class for the class of 2016 which has taken Family Resource Management courses. An instrument trial was conducted on 15 female students with the results of reliability for learning experience instruments $\alpha = 0.710$, the level of material understanding $\alpha = 0.673$, and environmental awareness $\alpha = 0.654$.

From exposure to literacy literature, the hypothesis proposed is as follows:

H1 : Learning experience influences students' environmental awareness
H2 : Learning experience influences the level of understanding of family ecology material
H3 : The level of understanding of family ecology material influences students' environmental awareness

In this study, the results of the PLS test (see Figure 1) show that in the Learning Experience, there are two dimensions that significantly influence the Environmental Awareness of students, namely student approach to learning and critical thinking. Each increase in the 1 index of Learning Experience in Student Approach to Learning will increase Environmental Awareness by 2%. In addition, each 1 index increase in Learning Experience in Critical Thinking will increase Environmental Awareness by 1%. Critical thinking is one that influences environmental awareness because in transformational learning, individuals will learn
through their critical perspectives, evaluate experiences gained from the learning process, and interpret them according to their environmental experience.

In addition, every 1 index increase in the Level of Understanding Family Ecology Subject topic will increase Environmental Awareness by 41.6%. The results of the study are in line with research conducted by [28], which states that all types of environmental education are the basis for promoting individual attitudes towards their environment and providing human guidance in behaving for their environment.

**Figure 1.** Analysis of the Effect of Learning Experience, and Level of Understanding of Family Ecology Lecture Material on Student Environmental Awareness

| Variable                                      | Environmental Awareness |
|-----------------------------------------------|-------------------------|
| Learning experience in teaching learning environment | 0.000 0.089            |
| Learning experience in student approach to learning | 0.002 0.000**          |
| Learning experience in critical thingking      | 0.001 0.000**          |
| Level of Understanding topic Family Ecology Subject | 0.416 0.447            |

Note: **p < 0.001 dan *p < 0.0

Other research also mentions that the nature of environmental education is a form of understanding the environment through education, to raise awareness of the environment, understand the subjective relationship between human desires and their needs for environmental resources and to modify and reflect one's attitudes towards utilization values [19].

4. **Conclusion**

The main purpose of family ecology material is so that students can understand the concept of family as part of the ecosystem, manage the environment wisely, and to achieve optimal well-being without damaging the environment that is used as a resource for humans. Referring to the results of research that show that family ecology learning can influence environmental awareness of students, it is recommended that formal and informal educational institutions also involve students in environment-based education. In addition, family ecology material is useful in identifying family problems that have an impact on the environment, as a guideline for students to adapt, and interact and in reciprocal processes, both for fellow humans and with their environment.
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