

The Influence of Environmental Economics Education Intensity and Ecological Economics Understanding on Environmentally Consumption Behavior Trends (A Case Study on Economics Education Students, Universitas Negeri Gorontalo)

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Abstract: *The study was aimed to elaborate: (1) the difference of environmentally consumption behavior of Universitas Negeri Gorontalo (Gorontalo State University) students who had obtained environmental economics education with high and low intensity; (2) the difference of environmentally consumption behavior of students who had high or low level of ecological economics understanding; (3) the interaction between environmental economics education and ecological economics understanding towards environmentally consumption behavior. This study was ex post facto using factorial design approach. The populations were all Economics Education students of Gorontalo State University. Proportional random sampling was used as sample gathering technique and factorial annova two ways with interaction was used to analyze the data. The conclusions were: (1) the difference of environmentally consumption behavior was influenced by environmental economics education with high and low intensity; (2) the difference of environmentally consumption behavior was influenced by ecological economics understanding with high and low level of understanding; (3) the difference of environmentally consumption behavior was influenced by high and low level of understanding on ecological economics after controlled by environmental economics education with high intensity; (4) there was no difference of environmentally consumption behavior on high and low level of understanding on ecological economics after controlled by environmental economics education with low intensity; (5) there was an interaction between environmental economics education and ecological economics understanding towards environmentally consumption behavior.*

Keywords: *environmental economics education, ecological economics understanding, environmentally consumption behavior.*

I. Introduction

Today's young people, with future generations yet to come have big responsibilities to save the planet from man-made disasters that endanger environmental sustainability (Goleman, 2009). Start-up action that can be done by young people is realizing any possibilities to decrease the effects of global warming, such as consuming eco-friendly products (Ling-Yee, 1997). It is based on young people awareness of which their consumption behavior would directly affect to the environment (Lee et al. 2010). Young people consumption awareness is formed by responsible behavior toward environment and honoring the existence of other beings on planet (Junaedi, 2005).

The change of behavior can be actually initiated through educational process, starting with the understanding on the importance of human beings existence, underlining that human beings are part of ecosystem. Every economic activity must have outcome, Hanley (2001), stated that various problems will be aroused on environmental and social dimensions. Basically, man actions cannot be separated from need fulfillment activities as a part of economic system, in which there is environment and social dimensions. To change one's behavior through educational process is engaged by behaviorism. Behaviorism theories were once pioneered by B. F. Skinner, Pavlov, Thorndike, Tolman, and Hull. They held three basic assumptions in order to crystallize it, namely: (a) learning demonstrated through behavior change; (2) environment forms the behavior; (c) the principles of proximity and reinforcement (how close in time two events entangle each other and increase the probability that an event will happen again). The linkage of consumption behavior and ecological behavior, Prugh (1995) stated that in fulfilling their needs, human beings are supposed to concern the ecology by responsibly seizing the nature as well as dissociate value free views that lead to rational behavior (not egocentric). As broadly known that natural resources can be categorized either renewable or unrenewable resources. In terms of unrenewable resources, mankind need wise management and use in order to sustain the resources for future generations.

Wahjoedi (2013) put forward that economics behavior is primarily directed to cherish and keep the nature and environment balance, back to nature, and not cause more harm to nature and environment. The environmental values have always been international needs, therefore in national scale it has to be real economic

action. Its implications in economics education are that the environmental knowledge and awareness must include to both theoretic and implementative studies through economics learning in educational institutions, either schools or non-schools.

Wahjoedi (2007) revealed that economics educational institutions are the places in which economics education learning happen. By having careful study, the places where the process of economics and business educational learning can be mapped in more specific structure. Those places are formal education (schools/campuses), informal education (family) and non-formal education (society). Formal education (school institutions), where the economics education is conducted, can be started since the very beginning, starting from kindergarten, elementary school, junior high school, senior high school or vocational high school, to higher school (university, institutes, academy, and colleges). Informal economics education can be conducted domestically in family. Its processes go through not only by having understanding on economic issues theoretically and observing the reality, but also by involving every member in household to produce, consume, and distribute. However, informal economics education in fact can also be conducted in economic and social institutions in society, either private or state owning institutions. Social institutions include both community organizations and social-politic organizations. In economic institutions, the economics education can be conducted in both entrepreneur and industry fields. Besides, as revealed by Leal Filho et al (quoted by Matthew James, 2011), higher education institutions are able to build significant effects in order to promote sustainable future. Moreover, Cortese (quoted by Matthew James, 2011) stated that:

“If we are to achieve a sustainable future, institutions of higher education must provide the awareness, knowledge, skills, and values that equip individuals to pursue life goals in a manner that enhances and sustains human and non-human well-being”.

Santrock (2008) added that school environment, where young people acquire the knowledge, also gives the influence to their consumption behavior. Their activities give them influence since school is the nearest environment for them and continuously having direct interaction to the young people. Neolaka (2008) stated that environmental education is a program to educate children, students to have understanding, awareness, appropriate attitudes and behaviors based on environmental norms and ethics. The way how to build environmental awareness to be mankind’s attitude is by having environmental awareness practices. To acquire understanding and awareness, practices must be primarily done. Those who want to have environmental awareness need to do practices to preserve the environment continuously and simultaneously until it becomes their culture to be their daily attitudes and behaviors.

Harbinson (quoted by Marzuki, 2009) wrote that without informal education, school advantages cannot be fully realized because education is lifelong sustainability. Skills and knowledge gained in schools will not develop without any stimulation, existence, and enrichment after one finishes their formal education. Those three important things are owned only in informal education. Shortly, human skills and knowledge are supposed to be lifelong sustainability only in informal education.

Research hypotheses are as follow:

H1: There is any difference of environmentally consumption behavior between students who received environmental economics education with high and low intensity.

H2: There is any difference of environmentally consumption behavior between students who have ecological economics understanding with high and low level of understanding.

H3: There is any difference of environmentally consumption behavior between students who have ecological economics understanding with high and low level of understanding after controlled by environmental economics education with high intensity.

H4: There is any difference of environmentally consumption behavior between students who have ecological economics understanding with high and low level of understanding after controlled by environmental economics education with low intensity.

H5: There is an interaction between environmental economics education and ecological economics understanding towards environmentally consumption behavior.

II. Research Method

The study was aimed to describe and analyze the relationship between three variables. The research design used by researcher in this study was ex post facto research using factorial design approach. The following is the elaboration of the research design:

Table: Research Design

	The intensity of environmental economics education (<i>high</i>)		The intensity of environmental economics education (<i>low</i>)	
	Ecological economics understanding (<i>high</i>)	Ecological economics understanding	Ecological economics understanding (<i>high</i>)	Ecological economics understanding

		(low)		(low)
Environmentally Consumption Behavior	ECB1	ECB2	ECB3	ECB4

(Source: prepared by researcher, 2013)

This study population was 160 students of Economics Education at Gorontalo State University. However, the samples taken were 114 students.

Research Instruments

Research instruments were developed into some variable indicators which its development was based on theoretically studies, thinking framework, and operational definition which were compatible with the research contexts. Intensity variables of environmental economics education in campus included: (1) teaching; (2) research; (3) green campus physical operations (M. James & K. Card: 2012), in family included: (1) setting the real examples; (2) verbal description; (3) relevant behavior guidance; (4) discussion on relevant cases (Neolaka, 2008; Wahyono, 2001), in society included: nongovernmental organization; (2) business; (3) industrial (Unesco – Unep, 1990; D. Brown et al, 2008).

Variables of ecological economics understanding included: (1) consumers’ understanding on eco-friendly product consumption; (2) consumers’ understanding on eco-friendly products (D’Souza et al quoted by Cheah and Phau, 2011; Laroche et al, 2001). Meanwhile, variables of environmentally consumption behavior included: (1) environmentally friendly buying behavior; (2) considering environmental issues when making a purchase (Paco, A, do and M. Raposo, 2008).

III. Results And Discussion

The difference of environmentally consumption behavior between students who received environmental economics education with high and low intensity

The test using T_{value} was to examine if there was any significant difference of environmentally consumption behavior with high intensity of environmental economics education and low intensity of environmental economics education. It was found that $T_{value} 5.566 > T_{table} 1.660$ and data significance value $0.000 < \alpha 0.05$ so that H_0 was rejected which meant there was any significant difference between environmentally consumption behavior with high intensity of environmental economics education and environmentally consumption behavior with low intensity of environmental economics education.

It showed that the intensity level of environmental economics education would give difference on students’ environmentally consumption behavior. This means that the behavior change is a part of education, in line with behaviorism theories spearheaded by B. F. Skinner, Pavlov, Thorndike, Tolman, and Hull. They held three basic assumptions in order to crystallize it, namely: (a) learning demonstrated through behavior change; (2) environment forms the behavior; (c) the principles of proximity and reinforcement (how close in time two events entangle each other and increase the probability that an event will happen again).

Besides, Gage and Berliner (quoted by Surjani, 2012) stated that behavior change as a part of experience. Behaviorism emphasizes on forming behavior as an outcome of learning. By behaviorists, students are considered as passive. The response and particular behavior employ practices and habituation and state that the change of behavior is derived from learning process. This theory emphasizes on the measurement and observation of behavior change. If students are given positive reinforcement, so the response would be positive.

The result of this study supported empirical study conducted by research team of Research and Development (Balitbang) Center Java Province (2007) about “research on students’ social behavior of environment and environmental conservation efforts”. The result of study revealed that appropriate environmental economics education influenced individual attitudes and behavior on environmentally economics. The appropriate environmental economics education means that the high intensity of environmental economics education influenced the student’s attitudes and behavior of environmentally consumption behavior. These results also supported and proved the relevance of theory proposed by Kerr (1999), Cholisin (2004), Samsuri (2004, 2009) that the universal objective of environmental economics education was forming individual attitudes and behaviors toward environmentally economics.

The difference of environmentally consumption behavior between students who have ecological economics understanding with high and low level of understanding

The test using T_{value} was to examine if there was any significant difference of environmentally consumption behavior with high understanding level of ecological economics education and low understanding level of ecological economics education. It was found that $T_{value} 3.984 > T_{table} 1.660$ and data significance value $0.000 < \alpha 0.05$ so that H_0 was rejected which meant there was any significant difference between environmentally consumption behavior with high understanding level of ecological economics education and environmentally consumption behavior with low understanding level of ecological economics education. It

showed that the understanding level of ecological economics would give difference on students' environmentally consumption behavior. Students' understanding that being implicated on the change process was in line with cognitive learning theories developed by Jean Piaget which emphasizes more on learning as a process happens in human's mind and explains learning by focusing on mental and structure changing process as a result of understanding the world. The theory was based on four main principles: active learner in order to understand the experiences, understanding of students to developed what they have known, learning in order to develop understanding instead of learning from notes, and learning is one's structurally mental change. This result proved and supported the research result revealed by Junaedi (2008) that the improvement of understanding level on ecological economics could solve the environmental issues in Indonesia which nowadays the reduction happens in consumer society. By having that understanding, consumer society will realize more the importance of using eco-friendly products.

The result of this study was also in line with the theory stated by Birtwistle and Moore (2007) that ecological economics understanding is forming sustainable consumption that supports now and future capabilities, without causing environment damages or missing the function in the nature system and individual is expected to be able to have consumption behavior by concerning their nature and its surroundings environment.

The difference of environmentally consumption behavior between students who have ecological economics understanding with high and low level of understanding after controlled by environmental economics education with high intensity

The test using T_{value} was to examine if there was any significant difference of environmentally consumption behavior between students who have ecological economics understanding with high and low level of understanding after controlled by environmental economics education with high intensity. It was found that $T_{\text{value}} 2.642 > T_{\text{table}} 1.664$ and data significance value $0.010 < \alpha 0.05$ so that H_0 was rejected which meant there was significant difference between students who have ecological economics understanding with high and low level of understanding after controlled by environmental economics education with high intensity. It showed that there was any difference of students' environmentally consumption behavior towards the understanding level of ecological economics.

The difference of environmentally consumption behavior in this group was in line with the second hypothesis testing result. That was when students had different ecological economics understanding, then their environmentally consumption behavior was also different. This finding proved and supported the research results revealed by Junaedi (2008) that the improvement of understanding level on ecological economics could solve the environmental issues in Indonesia which nowadays the reduction happens in consumer society. By having that understanding, consumer society will realize more the importance of using eco-friendly products.

The result of this study was also in line with the theory stated by Birtwistle and Moore (2007) that ecological economics understanding is forming sustainable consumption that supports now and future capabilities, without causing environment damages or missing the function in the nature system and individual is expected to be able to have consumption behavior by concerning their nature and its surroundings environment.

The difference of environmentally consumption behavior between students who have ecological economics understanding with high and low level of understanding after controlled by environmental economics education with low intensity

The test using T_{value} was to examine if there was any significant difference of environmentally consumption behavior between students who have ecological economics understanding with high and low level of understanding after controlled by environmental economics education with low intensity. It was found that $T_{\text{value}} 1.547 < T_{\text{table}} 1.679$ and data significance value $0.334 > \alpha 0.05$ so that H_0 was accepted which meant there was no significant difference between students who have ecological economics understanding with high and low level of understanding after controlled by environmental economics education with low intensity.

No difference of environmentally consumption behavior on this group was caused by the low intensity of environmental economics education. The intensity level of environmental economics education was really influence the environmentally consumption behavior. The low intensity level of environmental economics education made students also have lower environmentally consumption behavior. It was in line by what already being stated by Wahjoedi (2013) that environmentally economics education had an important role in theoretical and implementative study through learning process in educational institutions, both schools or non-schools to direct economics behavior in order to cherish and keep the nature and environment balance, back to nature, and not cause more harm to nature and environment. The environmental values have always been international needs, therefore in national scale it has to be real economic action.

The interaction between environmental economics education and ecological economics understanding towards environmentally consumption behavior

Tests of Between-Subjects Effects						
Dependent Variable: prlk.kons.berw.lingk						
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	
Corrected Model	11681.182 ^a	3	3893.727	18.572	.000	
Intercept	274341.927	1	274341.927	1308.540	.000	
IPEL	7344.992	1	7344.992	35.034	.000	
PEE	3295.117	1	3295.117	15.717	.000	
IPEL * PEE	1002.917	1	1002.917	4.784	.031	
Error	23062.055	110	209.655			
Total	372045.000	114				
Corrected Total	34743.237	113				
a. R Squared = .336 (Adjusted R Squared = .318)						

In table 4.5 and table 4.6 can be seen that the interaction value between the intensity of environmental economics education with ecological economics understanding was $F_{count} = 4.784$ and its significance value were 0.031. That result showed that the value of $F_{count} 4.784 > F_{table} 3.08$ and the significance value was lower than alpha 5% ($0.031 < 0.05$). Therefore, hypothesis H_0 was rejected. In other words, there was an interaction between the intensity of environmental economics education and ecological economics understanding towards environmentally consumption behavior. It could also be interpreted that the intensity of environmental economics education and ecological economics understanding collectively and significantly influenced the environmentally consumption behavior.

This finding stated that if the higher intensity of environmental economics education was compensated by the higher level of ecological economics understanding would result to the higher environmentally consumption behavior. The intensity of environmental economics education between students was different. However, when the intensity of students' environmental economics education was high with different level of ecological economics understanding level, thus to acquire better environmentally consumption behavior students needed to have both higher intensity level of environmental economics education and higher level of ecological economics understanding. It happened because when students had higher level of ecological economics understanding, they would have environmentally consumption behavior. As stated by Birtwistle and Moore (2007) that sustainable consumption supports now and future capabilities, without causing environment damages or missing the function in the nature system and individual is expected to be able to have consumption behavior by concerning their nature and its surroundings environment using ecological economics understanding.

The finding showed that the intensity of environmental economics education was important to form individual's environmentally consumption behavior. To direct an individual or a student to have environmentally consumption attitudes and behavior, the intensity of economics education could be gained both in campus, family, and society which was really influencing and had an important role. Empirical study conducted by research team of Research and Development (Balitbang) Center Java Province (2007) about "research on students' social behavior of environment and environmental conservation efforts". The result of study revealed that appropriate environmental economics education influenced individual attitudes and behavior on environmentally economics.

IV. Conclusions And Suggestions

Conclusions

1. The difference of environmentally consumption behavior was influenced by environmental economics education with high and low intensity.
2. The difference of environmentally consumption behavior was influenced by ecological economics understanding with high and low level of understanding.
3. The difference of environmentally consumption behavior was influenced by high and low level of understanding on ecological economics after controlled by environmental economics education with high intensity
4. There was no difference of environmentally consumption behavior on high and low level of understanding on ecological economics after controlled by environmental economics education with low intensity.
5. There was an interaction between environmental economics education and ecological economics understanding towards environmentally consumption behavior.

Suggestions

1. For lecturers in the field of Economics Education, it is suggested to direct the campus program by adding environmental knowledge on environmentally economics education through teaching and learning, researching, or programs of real environmental vibe arrangement in school or campus, which definitely need to be supported by all elements in the campus.
2. For parents considering the parents role really influences environmentally consumption behavior, it suggested to act actively by improving the awareness, giving understanding, giving exemplary and intensely elaborations to their children so that it can form environmentally consumption behavior.
3. For society, it is suggested to support and actively act to achieve educational goals and individual behavioral change which will result to the society development and behavior.
4. For further researcher, it is suggested to consider other different variables that those in this study to gather deeper data and it is also suggested to use different methods and broaden research population by including students from different program study.

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