



Journal Homepage: - www.journalijar.com
**INTERNATIONAL JOURNAL OF
 ADVANCED RESEARCH (IJAR)**

Article DOI: 10.21474/IJAR01/4649
 DOI URL: <http://dx.doi.org/10.21474/IJAR01/4649>



RESEARCH ARTICLE

**ENVIRONMENTAL KNOWLEDGE AND ENVIRONMENTAL FRIENDLY BEHAVIOR BASED ON
 GENDER AND EDUCATION LEVEL**

Dahlia Sarkawi*, Agus Priadi and Anggi Oktaviani.
 Lecturer, ASM BSI Jakarta, Indonesia.

Manuscript Info

Manuscript History

Received: 15 April 2017
 Final Accepted: 20 May 2017
 Published: June 2017

Key words:-

environmental knowledge;
 environmental product purchase
 decision; level of education; gender.

Abstract

This study attempted to investigate whether there were differences in knowledge about the environment and eco-friendly purchasing behavior based on gender and education. Data were collected using questionnaire containing questions about environmental knowledge and eco-friendly behavior based on previous research. Collected data were analyzed using descriptive and quantitative techniques. Multivariate Analysis of Variance was used to determine the influence of gender and education level of knowledge and eco-friendly behavior. Results of univariate model testing found that in terms of gender, the gender differences found significant influence on both purchase decisions of environmentally friendly and environmental knowledge. While the education level influence on environmental knowledge, but it did not affect the environmentally friendly purchasing decisions. Based on these findings, it was expected that integrate relevant aspects of environmental conservation in all levels of education, and so was strengthening the role of each gender to support the creation of an enabling environment both for current and future generations.

Copy Right, IJAR, 2017,. All rights reserved.

Introduction:-

Environmental degradation is an issue that recently gained attention from all circles. Based on systems of deep values, knowledge and attitudes is crucial because of the potential impact thereof on the behavior. However, some researchers state that even though environmentally friendly behavior has a positive impact, sometimes it does not guarantee the low impact of such behaviour towards the environment. Environmental knowledge and environmental friendly attitudes are very related and mutually reinforcing especially in search of information on environmental issues. A society that does not know that his behavior may contribute to damage to the environment, will continue to behave like that. Therefore, a socialization is important to do to enhance knowledge. Increasing knowledge, hopefully will have an impact on attitudes towards the environment so that the harmony between humans and nature still awake.

Along with the development of technology, the key issue at present is whether the public can rely solely on technological development and improvement of eco-efficiency to achieve environmental sustainability or whether structured solution that involves a reduction in private consumption and economic growth expected. However,

regardless of the existence of technological advancement, knowledge of environmentally friendly and eco-friendly behavior constitutes an important element remains to be done.

Based on the previous literature, there is a possibility that the level of education and gender will influence the environmental knowledge and friendly behavior. The purpose of this research is to find out whether the level of education and gender will also influence the environmental knowledge and friendly behavior in the city of Bengkulu. Eco-friendly behavior can be an activity of separating organic and inorganic waste, conducting recycling, actively joined the environmental organization, and the decision to buy eco-friendly products. Eco-friendly products are products that impact on environmental damage less than existing products or commonly consumed in the community. The research focuses on eco-friendly behavior in the form of a decision of buying eco-friendly products.

Environmental Knowledge:-

According to Zsoka et al (2013) environmental knowledge means knowledge and awareness of environmental problems and solutions. In general the most important dimension of the environmental awareness of each individual is the environmental knowledge, values, a willingness to act and actual behavior is influenced by several factors including the element of intention and situation.

Next Tan (2011) stated knowledge is the amount of information that is in the memory of a person who influences the way in which consumers interpret and assess the available options. Conceptually, consumer knowledge can be divided into two components: knowledge of objective and subjective knowledge. Objective knowledge refers to the content and organization of knowledge (factual knowledge) that is stored in the memory of someone. This refers to what an individual actually know about the types of products/issues/objects. While subjective knowledge refers to individual assessment or perceptions about what they know and how much they know about the product/problem/object.

Schahn and Holzer (1990) States there are two types of environmental knowledge i.e. abstract knowledge (knowledge related to environmental issues, problems, causes, and solutions) and concrete knowledge (such as factual knowledge). According to Noor et al (2012) knowledge identified in consumer research as characteristics that affect all the stages in the decision making. Environmental education is assumed to have a significant impact towards environmental awareness, daily life style, and behaviors of students. Some higher education institutions have recognized the importance of integrating sustainability issues into education to make its impact became the focus and explicit. Research results Zsoka et al., (1995) discovered the existence of a strong correlation between the intensity of environmental education and environmental knowledge of students. This is partly due to the environmental education of its own and partly caused by a higher intrinsic motivation of students committed to participating voluntarily in the environmental education, particularly at the University level. Focusing on environmental education important in shaping the attitude of sustainable consumption (sustainable consumption). Discussing issues of consumerism in the education environment is very useful to raise awareness on the needs of the changing lifestyle-related consumption. The main assumption behind this research is the intensity of involvement in environmental education is a significant factor in shaping behaviors and opinions of students about environmental issues.

Related to the students ' environmental knowledge, Asunta (2004) observing the student in Finland and Germany aged 13-15 years. The research found that the number of sources to get information about the environment is increasing corresponds to a class of students. Next Michalos et al (2009) comparing the environmentally friendly and sustainable behavior between adults and students aged 10-18 years. For adults have the environmentally friendly behavior and sustainable is a determinant of behavior that is far more important than knowledge. However, for high school students the importance of attitude and knowledge as an eco-friendly driving behavior is equally important.

In addition to internal factors reflected in the knowledge, attitudes, and values, some external factors are known to affect the environmentally friendly behavior. According to Fliegenschnee and Schelakovsky (1998) this covers 80% of the environmental awareness of individuals. The important factors are the norms, and traditions, pressure transmitted by the social environment. Student behavior proved to be very strongly encouraged by the immediate environment including family, friends, neighbors, and education. Kagawa (2007) found that students have possibility to conduct environmentally-friendly activities (such as recycling, energy and water efficient, using public transportation, and buying organic products, healthy, and traded fairly) that require small changes in lifestyle.

Boyes et al (2008) compares the benefits perceived by specific activity undertaken to mitigate climate change. The results of his research found that the willingness to do a particular behaviors often exceeds the benefits of such behavior against climate change that are perceived. Certain activities that require little effort and cause a little discomfort (such as turning off unused equipment, conducting recycling) is the most frequent activity done.

Obviously, environmental education will have an impact on the environment-friendly behavior of students in several ways, including the transfer of knowledge and values, as well as through the provision of examples and shaping the school as a social setting. The findings of the cited research in this paper also found that an interest in environmental topics and our commitment to the environment is important in determining the relationship between the environmental knowledge and environmental friendly behavior. This proves that the new challenges for environmental education is how to do something further than the mere transfer of knowledge

As a consequence of the previous discussion, the biggest challenges for environmental education is how to encourage environment-friendly lifestyle and decrease the lifestyle which is unfriendly environment by providing effective enough means to create a broader social impact. The emphasis of the needs connect between cognitive and affective area strategically on environmental education. It is also supported by Vega and Suarez Alvarez Marcote (2010) that tests with the experiment of deductive model in students, concluded that the teaching methods that focus on the attitude can be more successful in encouraging students behavior change compared the use of the tools that is solely oriented knowledge.

In line with Leeming and Porter (1997), Kagawa (2007) States that in a world that is changing very rapidly and it is not certain, higher education needs to play an important role in helping students become active and responsible society. Environmental education in order to strengthen responsibility is crucial at both the students as well as students in which innovative approaches are needed to effectively prepare students dealing with environmental issues and sustainability.

According to Zsoka et al (2013), more recently, Higher Education for Sustainable Development or abbreviated HESD has emerged as a field of science that seeks to understand how sustainability can be enhanced in the operational activity and curriculum in institutions of higher learning. One main goal of the HESD is to play the traditional role of performing transformations of society and serving the public goods of many more. Meanwhile, according to Zilahyi and Huisingh (2009) the University moves further from the previous scientific models and realize that their role in society is broader than earlier norms.

According to Zsoka et al (2013) University had a difficult challenge: the integration of different perspectives and concepts of sustainability make a holistic and systemic thinking and in need of innovative learning practices which is radicals.

Environmental Knowledge and Gender:-

Knowledge which belonged to both men and women showed a difference in skill. Some researchers consider the male has a numerical skills while females have verbal skills. In the topics of the environment, based on previous research, empirical evidence shows that men have a higher environmental knowledge compared to women. Arcury (1990) States that the gender of a person can be a factor that distinguishes the amount of environmental knowledge. Gendall and Smith (1995) compared the environmental knowledge in six countries. Of the six countries, men tend to have a higher level of knowledge than women. Tikka et al. (2000) found that knowledge about nature and the environment seemed relied on gender because the average value of the knowledge possessed by the men is higher than that of women. Research conducted by Egypt Briggs et al. (2003) found that limited women's environmental knowledge compared to environmental knowledge owned by the men.

Similar to the results of previous research, Mostafa (2007) also found significant differences between men and women related to environmental knowledge. According to his research, an average score of environmental knowledge of men and women of 20,428 17,080 tested use Anova. The result of his significant value declared there is a $0.001 <$ significant differences between men and women in environmental knowledge are perceived.

Environmentally Friendly Behavior:-

Shrum, McCarty, and Lowrey (1995:72) States that consumers are environmentally friendly is anyone who purchase behavior influenced by concern for the environment. In this study, the eco-friendly consumer purchase behavior is

not only influenced by the orientation of the environmentally friendly, but also influenced by other variables. Next Mainieri, Barnett, Valdero, Unipan, and Oskamp (1997:190) States environmental consumerism (eco-friendly purchases) is the activity of buying and consuming products that are friendly to the environment. This definition is also used by several other researchers such as Gupta and Ogden (2006:199); Tan (2011:15); and Saleki, Saleki, and Rahimi (2012:279).

In the same year, Robert and Bacon (1997) defines ecological conscious consumer as someone who bought (or avoiding) the products and services that are considered to have an impact positive (or negative) to the environment. Furthermore, Soonthonsmai (2001) quotes the opinion of Anderson and Cunningham (1972) defines consumer eco-friendly is someone who behave his consumption behavior consciously sought to have positive or neutral effects against the Earth, environment, and society. Both these definitions describe the same thing which consumers consider the effect of consumption of the environment.

Eco-friendly behavior and level of education:-

Efforts to establish environment-friendly behavior have been carried out by various parties. Directorate General of primary and secondary education of the Ministry of National Education, determined that the delivery of subjects about population and the environment in integrative curriculum poured in the curriculum 1984 by incorporating environmental population and material into all subjects at the secondary level of General and vocational. In 1989/1990 to 2007, the Directorate General, through educational projects on population and environment (PKLH) carry out educational programs on population and the environment; While the school's Cultural Environment (SBL) began to be developed in 2003 in 120 schools. Up to the end of 2007, the PKLH project has successfully developed the SBL in the 470 schools, 4 Quality Assurance Agencies (LPMP) and 2 Upgrading Teacher Development Center (PPPG).

Not only on the level of Middle and Elementary Education, an eco-friendly concept has been gaining attention but also from various parties, including academics. Green campus movement emerged in the early 1990s. Since the emergence, many ideas such as conducting vision and articulate the needs of campus to incorporate all types of innovation to reduce the overall environmental impact. Through this movement, it is expected the campus filled with green building, renewable energy systems, local organic food, organics landscape, enriched with original biodiversity, low-pollution transportation systems, bicycle lanes, rainwater storage tank, the water treatment system of gray and black, investing the social waqaf, green chemistry practice, zero solid waste laboratory, green cleaning products, and low greenhouse gas (GHG), and other ideas (Sharp , 2009).

In 2014, a total of 301 universities from 61 countries taking part, this amount increases compared to last year (215 Universities from 49 countries). University of Nottingham (UK) occupies the first rank with value 7,521, followed by University College Cork National University of Ireland (Ireland) with a value of 7.328, and Northeastern University (USA) in third position with value 7,170. This value is retrieved from the information provided by the University online that includes 6 categories. These categories are each given a weighting with the Division as follows: Setting and infrastructure (15%), energy and climate change (21%), waste management (18%), use of water (10%), transportation (18%), and education (18%).

According to Rappaport (2008), there are several reasons to apply the concept of campus "Green Campus", among other things:

1. Future Students interested in environmental issues.
2. Do something right either locally or globally consistent with the agenda of social campus action.
3. A lot of walking and biking will increase health.
4. Conserve water to produce a variety of savings: the cost of water, sewer fees, and lower energy costs.
5. Campus with program neighborhood using the campus as the labor of learning, connecting with nature, students discuss environmental values.
6. Examples of environmentally friendly behavior of enriching the discussion of the material, e.g. economic student in the campus learned analysis of cost benefit by assessing alternative options and they get satisfaction when their work results affect the decision of the University.

Environmentally friendly behavior and Gender:-

Tikka et. al. (2000) have proven that on a sample of people in the West, women express more positive attitudes to the environment than men. Zelezny et al. (2000) provide additional evidence that women have higher

environmental attitudes than men in 14 countries (Argentina, Canada, Columbia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Mexico, Panama, Paraguay, Peru, Spain, the United States and Venezuela).

Mohai (1992) and Stern (1992) found that women are more attention on environmental issues than men and that there are differences of belief and value between men and women related to the environment. Based on an in-depth review, Davidson and Freudenberg (1996) conclude that in certain environments, women express greater environmental concern than men. Research conducted Richard and Peterson (1998) make use of 231 students found that female students have the perception of environmental risks is higher than male students. The theoretical explanation for the gender differences involve the improvement of knowledge and tolerance of technological advancements, support for economic growth, and the perception of lower environmental risks for men (Blocker and Eckberg, 1997). For example, the belief in science and technology States that women are likely to have deficiencies in science and technology, so more attention on environmental problems and less likely to support the suitability of the technology (Davidson and Freudenburg, 1996). Some of the writings of ecofeminism also stated that women potentially more concern for the environment than men because of the orientation of the biospheric (Merchant, 1979).

The Results of the Research and Discussion:-

Discussion of the results of the research started by discussing the identity of respondents and cross-tabulations between the different variables that are selected in this study. Based on the data, male respondents in the study totaled less than women. The last level of education the majority of high school or equivalent. Also for women, the majority of respondents to the highest education of high school. The data displays the average score for the variable of subjective knowledge environment for women and men. This variable was measured using five statements where every answer strongly agree given the score five, strongly disagree given score one for statements that are positive. For statements that are negative, the giving of the score is the opposite where the answer strongly agree gain score one while the very closest answers follow agree gained a score of five.

Statement regarding the respondents know the terminology and symbols of the environmentally friendly scored an average of 3.62 for the respondent women and 3.68 for male respondents. This means, men feel more subjectively know the terminology and symbols of the compared to eco-friendly women. But the difference in score between them is not too high. Further to the statement about a product that can reduce litter male respondents also have the average score is higher. The third statement is a negative statement about the difficulty in finding information about eco-friendly products. The results of the calculation of an average score of women is higher than men which means women had a hard time finding information about the environment. The next statement about environmental issues also showed men had higher scores than women. The last statement about how to recycle also obtained an average score of men are taller than women. The next data displays an average score of environmental knowledge based on education. In this study, the level of education that examined are grouped in two categories only. The first category i.e. respondents who have achieved a college degree (Diploma), full degree (Scholar), Masters, or Doctorate. The second category, namely the most highest educated respondents senior high school or the equivalent.

The Statement regarding the respondents know the terminology and symbols of the environmentally friendly obtained average value of 3.77 for the respondent with the last Education Degree (scholar) or above, and 3.53 for respondents with senior high school education or below. This means, the respondents who have completed undergraduate subjectively feel more knowing the terminology and symbols of the environmentally friendly than respondents with maximum high school education or equivalent. Further to the statement about a product that can reduce garbage respondents from universities graduates also has average score is higher. The third statement is a negative statement about the difficulty in finding information about eco-friendly products. The results of the calculation of an average score of respondents who have completed the Bachelor of respondents with last higher education high school. This means even though higher education, respondents still had a hard time finding information about the environment. The next statement about environmental issues also showed respondents with higher levels of education have a higher score than did the last senior high school education with respondents. The last statement about how to recycle also obtained an average score of higher for respondents with undergraduate education level than respondents with last education high school. In addition to variable environmental knowledge, the study also measured the environmental friendly behavior based on gender and education level. The data 4 describes the descriptive data of the respondents on the basis of gender. Seen that the respondents have only women score higher on average to pay attention to the expired date of the statement. In addition, the average score of the male is always higher for all statements related to the eco-friendly behavior.

Next the data shows an average score of environmentally friendly behavior based on education. Based on the data of average score of respondents with undergraduate education level higher for all statements that is mindful of symbols, eco-friendly content of food or drink, the expiry date, the packaging can be recycled, buying energy-efficient products although expensive, and not buying troubled companies with the environment.

Before performing quantitative statistical tests first conducted a test of the validity and reliability of the instrument. Test the validity of the instrument is intended to be used to measure what it should be measured. While the reliability test aims to gauge whether the tool is already valid last can work well or not. As for the reliability and validity of the test results can be seen in the data.

Based on the data, it looks that all test questions item passes the validity and reliability. Statements to measure the variable purchase eco-friendly products represented six statements (KP1-KP6), while for eco-friendly knowledge is represented by five statement (PL1-PL5). Testing the validity of done using Pearson Correlation. It looks that all items have value > 0.3 . Reliability testing was done using the Cronbach's Alpha where applicable provisions of public value must be above 0.4. Next, to find out the influence of gender and education level of the test is performed with Multivariate Analysis of Variance.

Based on the processing of multivariate data, gender differences do not give significant effects against the knowledge of environmentally friendly and eco-friendly products ($0.079 > 0.05$). In addition to this level of education also does not give significant effects against knowledge of environmentally friendly and eco-friendly purchases ($0.058 > 0.05$). Similarly, for the interaction between gender and educational level no distinction average knowledge of environmentally friendly and eco-friendly purchasing behavior ($0.172 > 0.05$). There is a slight difference with the results of the calculation are univariate. Test of Between Subject Effect in table 7 illustrates the univariate model testing. Gender differences provide the significant effects against purchasing decisions (0.043 significance level) and environmental knowledge (0.044 significance level). It can be viewed from the significance level which is worth < 0.05 . Meanwhile, the difference in level of education does not influence on buying decisions (significance level 0.171) but the effect on environmental knowledge (significance level of 0.017). Increased knowledge about the environmental problems will increase the attention and public awareness. But sometimes it does not directly affect behavior change. Attitude (related to concrete objects and situations, both positive and negative with particular intensity and relevance) is assessed in relation to the environmental education, socially conscious lifestyle, consumption habits and different solutions to environmental problems. Changes in attitudes and values is the catalyst needed for the action, but not enough to change behavior towards the expected. Gender effect both to the environmental knowledge as well as eco-friendly purchasing decisions. Results of research Lee (2009) found that adolescent girls have a higher score in the purchase of environmentally-friendly behavior. Other variables examined in the study also found that teenage girls have a higher score on the attitude towards the environment, attention to the environment, that environmental problems are perceived seriousness, responsibility-environmental responsibility are perceived, and the influence of peer to peer. By contrast, teenage boys have an average score of higher on identity in environmental protection. Literature from the West as reported by Mainieri et al. (1997) also proves that more women participate in eco-friendly behavior in General and the specific environment-friendly consumption than men.

Zelezny et al. (2000) associate gender differences in environmental responsibilities are perceived to relational orientation and a strong eco-centered that socialized to women since they were small. Consumers are women, due to the orientation of their relational responsibility and empowerment, is the potential to improve the cultural environment in their social networks in the community. They also play an important role as opinion leaders to influence their partners in the protection of the environment and personal interaction.

Based on testing of the influence of the difference in level of education against the decision of buying eco-friendly products, it is found that the difference in the level of education does not influence on buying decisions. Perhaps it is more driven by other factors such as the willingness to pay more expensive. In General, eco-friendly products like organic vegetable and fruit, or indeed LED lights set prices more expensive.

Results later in this study is the difference in level of education influence on environmental knowledge. The conclusion drawn by Boyes et al (2008) state that environmental education has the highest potential to encourage behavior change with activities such as eating less meat or pay more for electricity with renewable energy where students actually have low willingness to do so, but will slowly be increased along with the perceived benefits that

would be gained from such activities. Based on a map drawn by the thinking of students (between the ages of 12-19 years) to represent the current consumption and future, Ben (2004) found that the students strongly believe that the development of the technology will be able to deal with environmental problems in the future and consumption will only be limited by financial constraints. In contrast, less than 20% of students in Australia are researched by Worsley and Skrzypiec (1998) holds the same optimistic view, however, this does not mean that they are willing to reduce their consumption. Boyes et al. (2008) found that not only the problem of teen's willingness to reduce consumption, but their awareness towards the benefits of sacrifice that was performed also still low. In research Kagawa (2007), students tend to agree with radical statements about environmental issues but refused to make radical changes in personal life or at the level of communities and social. The need to maintain economic growth as the goal was not asked. Subsequent research by Zsoka et al., (1995) discovered the existence of a strong correlation between the intensity of environmental education and environmental knowledge of students. Failure to make the connection between consumerism and environmental problems often caused by the weakness and inaccuracy of environmental education, indicating the need to change the focus of the environmental education in order to create effective solutions on issues related to the attention on the environment.

Conclusions:-

Research on environmentally friendly behavior has a lot to do. This article tries to assess knowledge and environmentally friendly behavior based on gender and education level. Knowledge is considered as an important variable that is present in each stage of decision making. It is therefore important to examine these variables as important factors that affect the environmentally friendly behavior. Knowledge can be acquired either through formal institutions ranging from primary level up to University, and can also be obtained informally through the family, the neighborhood, and the various sources of information that currently tend to be easy to access. Apart from the level of education, there is evidence from previous research on gender differences in environmental knowledge and environmentally friendly behavior.

The results of the study prove that gender differences provide the significant effects of the purchase of eco-friendly products and environmental knowledge. Meanwhile, differences in education level has no effect against the decision of buying eco-friendly products but the effect on environmental knowledge. Although many earlier studies found evidence of the influence of level of education towards environmentally friendly behavior, but is related to the specific attitude of environmentally friendly behavior, namely the purchase of environmentally friendly behavior are not evidenced in this study. This can be understood because if mere posturing, it would still be in a level of cognitive or affective. While the behavior of purchase eco-friendly products have already reached the level of conative in which to effect a positive attitude into actual buying behavior of many other factors that also affect. Even in some research tries to find the moderation variables can strengthen or weaken the relationship between attitudes and behavior in line with the emergence of the phenomenon of the green gap IE not synchronized between a positive attitude towards the environment by actual eco-friendly behavior.

Environmental education should be started as early as possible. Informally, the environmental education starts from the family environment, while formally done since school. Current students will have an important influence on the conditions of the environment in the future that will make the merger of institutionalization and sustainability issues into education are relevant.

Both national and local, are school program of Adiwiyata has been rolled out to provide not only knowledge about the environment, but also how to behave environmentally friendly. This program will be more effective with the support of the neighborhood nearest the family in order to be in sync with the program rolled out the school. In the family role of women became especially important where the wife may affect the behavior of her partner or as a mother who gives her child's education. The existence of the fact that men have a higher environmental knowledge compared to women can be a means of increasing environmental knowledge through a knowledge sharing environment with the women around him, good surroundings at home, community or work environment. In addition, the necessary attention is at the University level, where the echoes of programs such as the national Adiwiyata does not exist, but also can be driven via the participation of the campus on the assessment of green campus which the conduct already at the international level.

Acknowledgements:-

The authors would like to acknowledge the financial support from the Academy of Bina Sarana Informatika and STMIK Nusa Mandiri Jakarta, Indonesia.

References:-

1. ÁlvarezSuárez, P., Vega Marcote, P., 2010. Developing sustainable environmental behavior in secondary education students (12-16), Analysis of a didactic strategy. *Procedia Social and Behavioral Sciences* 2, 3568e3574.
2. Arcury, T. (1990) Environmental attitudes and environmental knowledge. *Human Organization*, **49**, , 300–304.
3. Boyes, E., Skamp, K., Stanisstreet, M., 2008. Australian secondary students' views about global warming: beliefs about actions, and willingness to act. *Research in Science Education* 39, 661-680.
4. Briggs, J., Sharp, J., Hamed, N. & Yacoub, H. (2003) Changing women's roles, changing environmental knowledge: evidence from Upper Egypt. *The Geographical Journal*, **169**, 313–325.
5. Gendall, P. & Smith, T. (1995) Knowledge of scientific and environmental facts: a comparison of six countries. *Marketing Bulletin*, **6**, 65–73.
6. Kagawa, F., 2007. Dissonance in students' perceptions of sustainable development and sustainability. *International Journal of Sustainability in Higher Education*, **8**, 317- 338.
7. Lee, K. 2009. Gender Differences in Hong Kong Adolescent Consumers' Green Purchasing Behavior, *Journal of Consumer Marketing*, **26/2**, 87-96.
8. Michalos, A.C., Creech, H., McDonald, C., Hatch Kahlke, P.M., 2009. Measuring Knowledge, Attitudes and Behaviours towards Sustainable Development: two Exploratory Studies. International Institute for Sustainable Development, Winnipeg.
9. Mostafa, M.M. 2007. Gender differences in Egyptian consumers' green purchase behaviour: the effects of environmental knowledge, concern and attitude, *International Journal of Consumer Studies*, **31**, 220-229.
10. Noor, N.A.M., Muhammad, A., Kassim, A., Jamil, C.Z.M., Mat, N., Mat, N., dan
 - a. Salleh, H.S. 2012. Creating Green Consumers: How Environmental Knowledge and
 - b. Environmental Attitude Lead to Green Purchase Behaviour?, *International Journal of*
 - c. *Arts & Sciences*, Vol. 5 No.1. Pp 55-71.
11. Robert, J.A., & Bacon, D.R. 1997. Exploring Subtle Relationship between Environmental Concern and Ecologically Conscious Consumer Behavior, *Journal of Business Research*, **40**, Pp. 79-89.
12. Schahn, J., & Holzer, E. (1990). Studies of Individual Environmental Concern: The Role of Knowledge, Gender, and Background variables. *Environment and Behaviour*, **22(6)**, 767-786.
13. Sharp, L. 2009. Higher education: the quest for the sustainable campus, *Sustainability: Science, Practice, & Policy*, Vol. 5 Issue 1, pp. 1-8.
14. Shrum L. J., John A. McCarty, dan Tina M. Lowrey. 1995. Buyer Characteristic of Green Consumer and Their Implication for Advertising Strategy, *Journal of Advertising*, Vol. XXIV No. 2. Pp 71-82.
15. Soonthonsmai, V. 2001. Predicting Intention and Behavior To Purchase Environmentally Sound or Green Products among Thai consumers: An Application of the Theory of Reasoned Action, Dissertation Doctor of Business Administration, The Wayne Huizenga Graduate School of Business and Entrepreneurship Nova Southeastern University.
16. Tan, Booi-Chen, 2011. The Roles of Knowledge, Threat, and PCE on Green Purchase Behaviour, *International Journal of Business and Management*, Vol. 6 No. 12. Pp. 14-27.
17. Tikka, P., Kuitunen, M. & Tynys, S. (2000) Effects of educational background on students' attitudes, activity levels, and knowledge concerning the environment. *Journal of Environmental Education*, **31**, 12–19.
18. Zelezny, L., Chua, P. and Alrich, C. (2000), "Elaborating on gender differences in environmentalism", *Journal of Social Issues*, Vol. 56 No. 3, pp. 443-57.
19. Zsoka, A., Szerenyi, Z. M., Szechy, A., & Kocsis, T. 2013. Greening due to environmental education? Environmental knowledge, attitudes, consumer behavior and everyday pro-environmental activities of Hungarian high school and university students, *Journal of Cleaner Production*, **48**, 125-138.