Green products consumption behaviour among industrial engineering undergraduate students based on the theory of planned behaviour

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Abstract. Climate change and pollution are reported more and more severe from year to year. All stakeholders need to prevent and control the environment not to be worse by design, produce and consume green products. Although the government and the companies already put their efforts to produce green products, the consumption behaviour needs to be changed to be greener. It is important to educate and raise awareness about climate change and green product consumption behaviour among youngster, especially undergraduate students because they are the ones who will determine the future of the earth. This study investigated green products consumption behaviour among Industrial Engineering undergraduate students who got courses related to the environment and green products based on the Theory of Planned Behaviour (TPB). The survey is conducted to assess students’ environmental knowledge, environmental ethics, environmental social responsibility, environmental self-responsibility, buying intention and consumption behaviour towards green products. The SEM-PLS technique is used to analyse the data and measure the direct effects between constructs. The survey is conducted from April to June 2018 using an online survey and was resulting 181 valid responses consisted of 55.80% male students and 44.20% female students with age range between 18 - 23 years old. The results revealed that there are significant positive influences between the environmental knowledge and behaviour dependent factors (environmental ethics, environmental social responsibility, and environmental self-responsibility). These factors have significant positive influences on buying intention and finally, the buying intention has a significant positive influence on consumption behaviour. The study concludes that the increase in environmental knowledge will bring to consumption behaviour towards green products. The findings of this study could contribute to the adaptation of behaviour change framework towards green products consumption, especially among youngster.

Keywords: green product, consumption behaviour, theory of planned behaviour, climate change, pollution, SEM-PLS

1. Introduction

The environmental issues faced and are being discussed widely by the world nowadays are climate change and pollution. One of the climate change impacts is the rise in the normal earth temperature that causes extreme temperatures, drought, flooding, storms, rising sea levels, lower food production, and infectious diseases. Previous researches have shown that this warming earth is caused by human emissions of greenhouse gases (GHGs) and likely to be severe [1]. A survey conducted in the 40
nations found that the majority said that climate change was a serious problem with 54% said it was a very serious problem [2].

At the same time, pollution also damages the environment, destroys ecosystems, and causes global climate change. In many parts of the world, industry, mining, electricity generation, mechanized agriculture, and petroleum-powered vehicles produce air pollution, chemical pollution, and soil pollution and made the environmental getting worse [3]. The other threat of pollution form is the plastic pollution. Plastic pollution in freshwater, marine environments and soil-land have been identified as a global problem. Plastic pollution is caused by excessive plastic production and inadequate waste management. Global production of plastics is now up to around 300 million tons and non-degradable plastic accounts for 73% of litter in any aquatic habitat with roughly 50% disposed of after a single-use [4,5].

Under these worsening conditions, governments, industries, and societies are becoming more conscious of the danger of climate change and pollution in the current socio-economic systems that support our life. Governments issued regulations and policies to control climate change and pollution. In 1988, an Intergovernmental Work on Climate Change (IPCC) was established to oversees the reviews and assesses the most recent scientific, technical, and socio-economic information produced worldwide relevant to the understanding of climate change. In 1992, 196 parties/countries adopted the text of the United Nations Framework Convention on Climate Change. The objective of the convention is to control the concentration of GHGs in the atmosphere “at a level that would prevent dangerous anthropogenic (i.e., human) interference with the climate system.”

Some industries see the regulations and policies as opportunities to promote technologies and processes as their competitive advantages that will mitigate the risk of climate change by reducing CGH emissions and producing a green product to help the world in adapting to its effects. Some companies have responded in controlling climate change and pollution by changing their processes using less energy or renewable energy and changing their product design using less amount of materials, uses only recycled materials or natural/biodegradable materials and designed to be reused, disassembled and remanufactured or it is made of materials that can be recycled [6].

On the other hand, the society should have a responsibility also in preventing and controlling climate change and pollution. The consumption behaviour should be changed to become more pro-environmental, and consumers may change purchase patterns, tilting them toward going greener. Information regarding the environment and worsening weather patterns have an impact on the daily behaviour of consumers [7].

Many previous researches investigated environmental awareness and the consumption behaviour towards green product especially among youngster and/or students. The researches focus on youngster because they believe that the youngster will play important roles and have a big influence in green product consumption behaviour in the effort to save the planet. Therefore, it is important to educate and raise awareness on environmental issues and green products consumption among them. Yu and Yu investigated Taiwanese undergraduate students’ behavioral intention towards green products in the fight against climate change [8]. Maichum, Parichatnon and Peng explored factors affecting on purchase intention towards green product among young consumers in Thailand [9]. While Solaiman et al., tried to link consumption values and green purchase behaviour among Malaysia consumers. Although they did not specifically state young consumers as a target in their research, but the demographics of the respondents showed more than 50% were below 40 years old [10].

This research applies the Theory of Planned Behaviour (TPB) as the framework of green product consumption behaviour change, especially in the Industrial Engineering undergraduate students who got exposed to the climate change and pollution issues during their study. The TPB state that one’s intention will direct someone to perform a specific behaviour. The buying intention of green products is influenced by environmental ethics, self-responsibility, and social-responsibility for environmental issues that lead to consumption behaviour change. Therefore, the research is designed to investigate the relationship between the environmental knowledge and green products consumption behaviour among students based on the TPB. The findings could increase understanding of and promote consumption behaviour change and assist practitioners, policy makers, and academic researchers in determining what drives the behaviour change.
2. Literature review

2.1. Green product definition

Nowadays, manufacturers in the world have more concern in the developing and producing of green products. They see it as a need and opportunity to compete in the market. The reason to produce a green product can be very different for each company, either for legitimacy, competitiveness, and environmental responsibility [11,12,13]. The trend of green product production is increasing since the requirement of European Eco-label for marketed products in Europe. By the end of 2000, there were 50 companies obtained this European Eco-label. At the beginning of 2010, there were more than 1,000 companies [14].

The green product already gained attention among the researcher since 1990. One of the popular topics that is still ongoing is the definition of the green product, constitutes, and dimension of it. Several researchers have tried to define what a green product is. Peattie [15] highlighted the different life cycle phases during which a product can show its environmentally friendly features compare to conventional or competitive products offered. Reindhardt [16] pointed out that a green product is not only has a lower environmental impact but also offer environmental benefits compared to similar products. While Ottman et al. [17] stressed environmental concerns of a green product such as of energy, resources, pollution, and waste. The commission of the European Communities [18] defined green product as a product that uses fewer resources, have lower impacts and risks to the environment and prevent waste generation already at the conception stage.

This study used the green option matrix (GOM) developed by Dangelico and Pontrandolfo [14] to define what green product is. The matrix focused on the phase of the product life cycle and the environmental factors. By environmental factors, a green product could be distinguished by material, energy and pollution/waste factors. A green product with a focus materials factor is, for example, a product that is produced using less amount of materials, uses only recycled materials, etc. A green product with a focus on energy factor is, for example, a product that is more energy efficient, uses renewable energy, etc. A green product with a focus on pollution/waste factor is, for example, a product that is produced not using the harmful material, less pollutant or does not pollute the environment.

2.2. The theory of planned behaviour

Although a great effort and investment have been put on the green products’ development and production, the market share is still low [19]. The eco-label of green products, public policy, and marketing strategies are not effective enough to change consumption behaviour in society. Previous research found that only 30% of U.K. customers concern over environment issues when purchasing consumer goods [20].

It is important to strengthen the environmental concern in society. Information regarding climate change and pollution have an impact on the daily behaviour of consumers. Consumer research recognized knowledge has a direct influence on all phases of the consumption process [7]. Ultimately, priority should be given to the provision of an effective green education to the youngster, especially among undergraduate students. When concern increases, consumption behaviour may change become more environmentally sensitive toward going greener.
Figure 1. The Theory of Planned Behaviour Model (Source: Ajzen [21])

Behaviour change should become a goal for all constituents; companies, organizations, governments, and communities, to promote green consumption. For carrying out this research, the TPB model is used to conceptualize the framework for investigating consumption behaviour among undergraduate students. TBP was proposed in 1991 by Ajzen [21] and has been used in predicting consumer intention as well as behaviour in a wide range of green/pro-environmental areas, such as green hotels and restaurants [22,23], energy efficient products [24], organic products [25], consumers’ intention to buy eco-friendly/green products [26,27].

The TPB describes that an individual’s attitude (beliefs and values about the outcome of the behaviour), subjective norms (beliefs about what other people think the person should do or general social pressure) and an individual’s perceived behavioural control (individual’s perceptions of their ability or feelings of self-efficacy to perform behaviour) will determine one’s intention. Intention will direct someone to perform specific behaviour [21]. This relationship is typically dependent on the type of relationship and the nature of the situation as shown in Figure 1.

3. Method
The objective of this research is to investigate the relationship between knowledge on climate change and green product with environmental ethics, environmental social responsibility and environmental self-responsibility that will lead to buying intention and behaviour among industrial engineering undergraduate students using the theory of planned consumption behaviour. For that purpose, a questionnaire survey method to collect data and to test the hypotheses is used. Partial Least Square Structural Equation Modelling with the help of smartPLS v3.0 Software was conducted to analyse the collected data.

3.1. Research framework and hypotheses
The research model is developed based on the TPB as describe in the theoretical background and the literature review as presented in Figure 2. The environmental ethics construct is used to reflect an attitude towards behaviour, the environmental social responsibility construct is used to reflect the subjective norm and the environmental self-responsibility construct is used to reflect the perceived behaviour control. While the knowledge on climate change and green product act as an initiator of behaviour change. To meet the research objective, the following hypotheses are developed:

H1. Students’ knowledge of climate change and green products is positively related to their environmental ethics.
H2. Students’ knowledge of climate change and green products is positively related to their social responsibility.
H3. Students’ knowledge of climate change and green products is positively related to their self-responsibility.
H4. Students’ environmental ethics is positively related to their consumption intention.
H5. Students’ social responsibility is positively related to their consumption intention.
H6. Students’ self-responsibility is positively related to their consumption intention.
H7. Students’ consumption intention is positively related to their consumption behaviour.
3.2. Questionnaire
The questionnaire is composed of 32 questions, excluding personal information from respondents which is adopted and modified from Yu and Yu [8]. The questionnaire is divided into 6 sections. First section measures students’ knowledge of climate change consists of 4 questions and green product consists of 4 questions. The second section measures students’ perception of environmental ethics consists of 5 questions. The third section measure students’ perception of environmental social responsibility consists of 5 questions. The fourth section measures students’ perception of environmental self-responsibility consists of 4 questions. The fifth section measure students’ perception of buying intention consists of 5 questions. The last section measures students’ perception of consumption behaviour consists of 5 questions. The questionnaire is designed on the 5-point Likert scale, with 1 is strongly disagree and 5 is strongly agree.

To ensure the questionnaire is well understood, a pre-test is conducted. The pre-test is done to 6 senior students who are in the fourth year and doing the final project. The pre-test was conducted as an interview in which the students could ask thorough explanations of the questionnaire items to ensure each item is fully understood. The pre-test took around 30 minutes for each student.

3.3. Participants and data collection
The respondent's target for this research is Industrial Engineering undergraduate students of Bina Nusantara University who are in the second year to the fourth year, approximately 300 students. The second-year students are chosen as minimum target respondents based on they already taken courses related to industrial engineering including environmental engineering, business ethics, production system, manufacturing processes, leadership, and sustainable engineering course. The survey was anonymous, and the students were informed there were no correct or incorrect answers and the survey was not related to any course assessment.

The survey is conducted from April to June 2018 using an online survey and was resulting 181 response rates or 60.33% of the population. The sample size is considered valid in 95% confidence level and 5% margin error since the minimum sample size of 300 population is 169 responses [28,29]. Of the questionnaire, 101 (55.80%) were answered by male students and 80 (44.20%) were answered by female students. The students’ age range between 18 to 23 years old, with an average 20.13 years old. The distribution of students participated regarding year studying were 64 (35.36%) second-year students, 77 (42.54%) third-year students and 40 (22.10%) fourth-year students. When asked whether he/she heard about climate change issue before, 170 (93.92%) students answered “yes”, while 11 (6.08%) students answered “no”. When asked whether he/she heard about green (eco-friendly) product before, 167 (92.27%) students answered “yes”, while 14 (7.73%) students answered “no”.

| Item                           | Attributes | Response | Percentage (%) |
|--------------------------------|------------|----------|----------------|
| Gender                         | Male       | 101      | 55.80          |
|                                | Female     | 80       | 44.20          |
| Age (years old)                | Average    | 20.13    | 11.12          |
|                                | Maximum    | 18       | 9.94           |
|                                | Minimum    | 23       | 12.71          |
| Year of Studying               | 2nd-year student | 64     | 35.36          |
|                                | 3rd-year student | 77     | 42.54          |
|                                | 4th-year student | 40     | 22.10          |
| Heard about climate change     | Yes        | 170      | 93.92          |
|                                | No         | 11       | 6.08           |
| Heard about a green product    | Yes        | 167      | 92.27          |
|                                | No         | 14       | 7.73           |

4. Data analysis and results
The measurement model was evaluated by reliability and validity tests which conducted before the hypotheses testing. To conduct the hypotheses testing, the bootstrapping process was employed to obtain standard errors and t-values. All data analysis was done using SmartPLS v3.0 software.

4.1. Reliability and validity of the model
The measurement model purpose is to verify whether the measure variables can be used to accurately measure latent variables in the overall model. For that purpose, reflective indicator loadings and Cronbach’s alpha are used to measure indicator reliability, Average Variance Extracted (AVE) is used to measure convergent reliability and Composite Reliability (CR) is used to measure internal consistency.

The assessment of indicator loadings shows that all questionnaire items had value more than the recommended value of 0.500 as suggested by Hulland [30], which indicates that all questionnaire items have internal consistency and reliable. All of the constructs had a Cronbach’s alpha coefficient beyond 0.700, which also indicates all constructs were internally consistent and reliable [31]. Both indicator loadings and Cronbach’s alpha assessments were within the range recommended that indicating acceptable indicator reliability.

The AVE evaluates how well measured variables explain latent variables. A high AVE assesses strong discriminant validity and convergent validity with the latent variable. Bagozzi and Yi [32] and Fornell and Larcker [33] suggested that the value of AVE should above 0.500. The minimum AVE in this study is for environmental ethics variables which is 0.556 and this result shows that the convergent reliability of the model is acceptable.

The CR shows a high internal consistency among latent variables. Fornell and Larcker [33] and Gefen et al. [34] recommended that CR values should be more than 0.700. The CR values for all constructs in this study were all in between 0.860 and 0.943, thus could be concluded that the internal consistency of this model is acceptable.

Table 2. Measurement model validity and reliability

| Item           | Indicator Loadings | Cronbach’s Alpha | AVE   | CR   |
|----------------|--------------------|------------------|-------|------|
| Knowledge      |                    |                  |       |      |
| CC1            | 0.609              | 0.816            | 0.638 | 0.860|
| CC2            | 0.538              |                  |       |      |
| CC3            | 0.634              |                  |       |      |
| CC4            | 0.599              |                  |       |      |
| GP1            | 0.749              |                  |       |      |
| GP2            | 0.697              |                  |       |      |
| GP3            | 0.754              |                  |       |      |
| GP4            | 0.682              |                  |       |      |
| Environmental  |                    |                  |       |      |
| Ethics         |                    |                  |       |      |
| EE1            | 0.659              | 0.800            | 0.556 | 0.861|
| EE2            | 0.802              |                  |       |      |
| EE3            | 0.828              |                  |       |      |
| EE4            | 0.787              |                  |       |      |
| EE5            | 0.632              |                  |       |      |
| Social         |                    |                  |       |      |
| responsibility |                    |                  |       |      |
| SCR1           | 0.789              | 0.855            | 0.632 | 0.896|
| SCR2           | 0.818              |                  |       |      |
| SCR3           | 0.786              |                  |       |      |
| SCR4           | 0.820              |                  |       |      |
| SCR5           | 0.761              |                  |       |      |
| Self-          |                    |                  |       |      |
| responsibility |                    |                  |       |      |
| SFR1           | 0.776              | 0.786            | 0.607 | 0.860|
| SFR2           | 0.738              |                  |       |      |
| SFR3           | 0.744              |                  |       |      |
| SFR4           | 0.852              |                  |       |      |
| Buying         |                    |                  |       |      |
| Intention      |                    |                  |       |      |
| BI1            | 0.847              | 0.924            | 0.768 | 0.943|
| BI2            | 0.922              |                  |       |      |
| BI3            | 0.893              |                  |       |      |
| BI4            | 0.842              |                  |       |      |
| BI5            | 0.874              |                  |       |      |
| Consumption    |                    |                  |       |      |
| Behaviour      |                    |                  |       |      |
| CB1            | 0.869              | 0.889            | 0.694 | 0.919|
| CB2            | 0.855              |                  |       |      |
Table 3. Discriminant validity (Fornell-Larcker criterion) results

|                    | Buying intention | Consumption behaviour | Environment ethics | Knowledge | Self-responsibility | Social responsibility |
|--------------------|------------------|-----------------------|-------------------|-----------|---------------------|-----------------------|
| Buying intention   | 0.876            |                       |                   |           |                     |                       |
| Consumption        | 0.691            | 0.833                 |                   |           |                     |                       |
| behaviour          |                  |                       |                   |           |                     |                       |
| Environment        | 0.604            | 0.636                 | 0.746             |           |                     |                       |
| ethics             |                  |                       |                   |           |                     |                       |
| Knowledge          | 0.469            | 0.35                  | 0.51              | 0.661     |                     |                       |
| Self-responsibility| 0.679            | 0.632                 | 0.723             | 0.469     | 0.779               |                       |
| Social responsibility| 0.700           | 0.612                 | 0.724             | 0.455     | 0.740               | 0.795                 |

Note: ** p < 0.05

4.2. Hypotheses testing

This study used path analysis for direct effect investigation constructed with smartPLS v3.0 software and gave the findings of t-values for hypotheses relationship as shown in Figure 3.

Table 4 presents the results of testing the seven hypotheses. The knowledge of climate change and the green product showed positive and significant influence on environmental ethics. The t-value for this relationship is 9.314 (β = 0.516, p < 0.05), so hypothesis H1 is supported. A positive and significant influence on knowledge and social responsibility also found. The t-value for this relationship is 7.408 (β = 0.465, p < 0.05), then hypothesis H2 is also supported. Hypothesis H3 is also supported because the findings of this hypothesis testing showed that knowledge is positively and significantly correlated to self-responsibility with t-value 7.581 (β = 0.477, p < 0.05).

From Table 4, it is also found that the environmental ethics, social responsibility and self-responsibility have positive and significant influence to buying intention. The corresponding t-value for the relationships are 3.933 (β =0.382, p < 0.05), 4.495 (β = 0.402, p < 0.05) and 3.159 (β =0.323, p< 0.05), respectively. In this case H4, H5 and H6 are supported.
Figure 3. The result of hypotheses testing for direct effects (t-value, p < 0.05)

Finally, the findings also revealed that buying intention showed significant positive influences on consumption behaviour towards the green product. It is seen that the relationship has t-value 16.752 ($\beta = 0.691$, p < 0.05) that made H7 is supported.

Table 4. Hypotheses result of the research model

| Hypotheses          | Relationship                                      | Std beta | Std error | |t-value| Decision |
|---------------------|---------------------------------------------------|----------|-----------|--------|----------|----------|
| H1                  | Knowledge -> Environmental ethics                 | 0.516    | 0.055     | 9.314  | *        | Supported |
| H2                  | Knowledge -> Social responsibility                | 0.465    | 0.061     | 7.408  | *        | Supported |
| H3                  | Knowledge -> Self-responsibility                  | 0.477    | 0.062     | 7.581  | *        | Supported |
| H4                  | Environmental ethics -> Buying intention          | 0.382    | 0.084     | 3.933  | *        | Supported |
| H5                  | Social responsibility -> Buying intention         | 0.402    | 0.089     | 4.495  | *        | Supported |
| H6                  | Self-responsibility -> Buying intention           | 0.323    | 0.103     | 3.159  | *        | Supported |
|                     | Buying intention -> Consumption                   | 0.691    | 0.041     | 16.752 | *        | Supported |

Note: ** p < 0.05

5. Discussion

This study investigated the factors those influence consumption behaviour towards green product consumption among undergraduate students based on the theory of planned behaviour. The findings reveal that the students’ knowledge of climate change and green product determine the environmental ethics, environmental social responsibility, and environmental self-responsibility. It might be due to the fact that the awareness of the danger of climate change and pollution will affect an individual’s attitude (beliefs and values about the outcome of the behaviour), subjective norms (beliefs about what other people think the person should do or general social pressure) and individual’s perceived behavioural control (perceptions of their ability or feelings of self-efficacy to perform behaviour). Some students may look that climate change is really happening, and it happened because of human behaviour. This can thus be understood that students have high environmental ethics, environmental social responsibility, and environmental self-responsibility. Therefore, the effort to increase students’ awareness about environmental issues, especially among undergraduate students in Indonesia must be maximized. Sulistyawati et al. [35] found that second grade of a senior high school in Yogyakarta had a low and inconsistent understanding regarding climate change and its impact on health. They reported that they prefer to get climate change information via talking with family. In summary, adolescent knowledge regarding climate change and health needs to improve with proper content and appropriate media.

Environmental social responsibility had a strongest direct influence on buying intention towards green product among undergraduate students studied compare to environmental ethics and environmental self-responsibility. It shows that the social pressures are important factors that determine youngster to buy a green product. The social pressures could come from friends, family, and media. The youngster would be motivated to buy a green product if their environmental contributions are acknowledged or admired by others [36]. Ohman [37], Yu [8] and Solaiman et al. [10] supported that social pressure has an influence towards the consumers with green product buying intention.

Finally, the buying intention will lead to the consumption behaviour change toward the green product. This behaviour change in green product consumption including action to switch products for ecological reasons and make an extra effort to buy the product. The result of this behaviour change would increase the intakes of green products, the more consumers are concerned with the environment, the more they buy green products. There are still many tasks awaiting to promote the green products consumption behaviour and the successfulness of it relaying on cooperative and join efforts among governments, industries, and society to make the earth a better home.

The result of this study could also serve as a reference for academician to develop undergraduate curriculum in Indonesia, especially in engineering major. The education of environmental ethic and
responsibility should be embed in the courses so the awareness of the environmental issues and green products consumption could continuously increase among the students.

6. Limitation and suggestion
The study measured the green product consumption behaviour at a single point in time. Therefore, the interpretation should consider conditional aspect when the study is conducted. Furthermore, the construct variables that influence consumption behaviour are dynamic. They change over time. The future research should try to find the newest trend in the society towards green product consumption.

One other limitation which should be expanded in the future research is the focus and number or participant. The survey should be expanded with a larger number of students from various major and university. By doing so, the conclusion drawn from the study could be broader and accurate.

7. Conclusion
The author proposed Theory of Planned Behaviour as a theoretical framework to investigate undergraduate students’ consumption behaviour towards the green product. The study started with the environmental knowledge that will form an individual’s attitude, subjective norms, and an individual’s perceived behavioural control. The results showed that this environmental knowledge had a significant positive influence on an individual’s attitude, subjective norms, and an individual’s perceived behavioural control. The individual’s attitude, subjective norms, and an individual’s perceived behavioural control will create behaviour intention. The results revealed that all those factors had had a significant positive influence on behaviour intention. Finally, the behaviour intention will lead to consumption behaviour towards a green product which proven had a significant positive relationship. Hence, understanding of this behaviour change chain toward green product consumption is important. Further research and examination of this behaviour change pattern are needed to strengthen this study and increase the consumption of green products.

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9. Appendix

Table 5. Questionnaire items and results

| Constructs                          | Question                                                                 | Mean  | SD   |
|-------------------------------------|--------------------------------------------------------------------------|-------|------|
| Knowledge on climate change         | Climate change is likely to have a big impact on people.                | 4.293 | 0.681|
|                                     | I am certain that climate change is really happening.                   | 3.983 | 0.726|
|                                     | When, if at all, I think my country will be the first start feeling the effects of climate change | 4.133 | 0.726|
|                                     | Pollution cause climate change happens faster                            | 3.939 | 0.754|
| Knowledge on green products         | A green product is produced using less amount of materials, uses only recycled materials or natural/biodegradable materials and designed to be reused, disassembled and remanufactured or it is made of materials that can be recycled | 4.398 | 0.697|
|                                     | A green product is used more energy efficient than conventional products, uses only energy from renewable sources or produces energy from renewable sources | 4.133 | 0.812|
|                                     | A green product is less pollutant than conventional products, does not pollute the environment or reduces pollution caused by other products | 4.249 | 0.745|
|                                     | The green product could preserve the environment and prevent climate change | 4.099 | 0.754|
| Environmental ethics               | I avoid buying products which are potentially harmful to the environment. | 3.508 | 0.847|
|                                     | When I use green products, I feel that I can help the environment.       | 4.221 | 0.704|
|                                     | I feel more comfortable when I use green products rather than normal products. | 3.873 | 0.850|
|                                     | I will buy products made with recycled materials.                        | 3.823 | 0.811|
|                                     | To maintain a healthy economy, all living things have a moral right to exist | 4.144 | 0.724|
| Environmental social responsibility | I would recommend green products to my friends and family.               | 4.260 | 0.726|
|                                     | I feel morally obliged to buy green products.                            | 4.105 | 0.764|
|                                     | I participate in activities that aim to protect and improve the quality of the environment. | 4.928 | 0.863|
|                                     | I support nongovernmental organizations working to minimize the negative impacts on the environment. | 4.127 | 0.760|
|                                     | We should take responsibility for environmental issues.                  | 4.370 | 0.692|
| Self-Responsibility                 | I consider the environmental issue when making a purchase.              | 3.785 | 0.805|
|                                     | I have changed my purchased products for ecological reasons.             | 3.641 | 0.849|
|                                     | I think individuals have a responsibility to protect the environment.     | 4.276 | 0.739|
|                                     | When I use green products, I feel that I support environmental preservation. | 4.182 | 0.695|
| Buying Intention                    | In the near future, I am willing to buy green products.                 | 4.188 | 0.721|
|                                     | In the near future, I am willing to purchase products with a green mark /eco-friendly label. | 4.221 | 0.671|
|                                     | In the near future, I plan to buy products with a green mark /eco-friendly label. | 4.116 | 0.755|
|                                     | In the near future, I will choose products that avoid using corrosive chemical materials. | 4.182 | 0.687|
|                                     | In the near future, I will purchase products made from recyclable materials. | 4.061 | 0.776|
| Consumption Behaviour               | I make a special effort to buy products that are made from recycled materials. | 3.746 | 0.914|
|                                     | I have switched products for ecological reasons.                         | 3.707 | 0.899|
|                                     | When I have a choice between two equal products, I purchase the one less harmful to other people and the environment. | 4.116 | 0.755|
|                                     | I make a special effort to buy chemical products such as detergents and cleansing solutions that are environmentally friendly | 3.845 | 0.862|
|                                     | I have avoided buying a product because it had potentially harmful environmental effects | 3.834 | 0.866|

[37] Ohman N 2011 Buying or lying—the role of social pressure and temporal disjunction of intention assessment and behaviour on the predictive ability of good intentions *Journal of Retailing and Consumer Services* Volume 18, Issue 3