Environmental change needs behavioral change: consumer’s green purchase behavior in Vietnam

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Abstract: To improve the environment, people need to change behaviors. Encouraging people to use the product is the way that is the most effective, sustainable. Therefore, this study seeks to aim the factors influence on green purchase behavior. This study proposes a new model in which the young's purchase behavior is affected by four factors through the mediator variable. The questionnaire sends to 369 consumers by using the convenience sampling method. Analysis of structural equation modeling (SEM) conducts to identify the effect of the relationship between concepts. The study results indicate that attitudes toward green products and green purchase intention are mediator roles in the effect of environmental concern, environmental knowledge, social influence, and price sensitivity on green purchase behavior. The findings also shed light on how potential factors influencing consumer's behavior. The study indicates that great personal concern and knowledge about the environment to increase the ability to purchase a green product. Besides, the study also finds that price sensitivity does not affect consumers' attitudes toward green products, but it has an impact on their purchase intention. This study provides recommendations to management to improve their strategic sales to increase consumption products and the Government to support businesses producing green products.

Keywords: Environment, Green product, Purchase, Behavior.

1. Introduction
Science and technology have been more developed; people have been more convenient; production has been more effective. However, the trade-off with this development is environmental pollution. The environment is getting worse. The contamination of the environment has a severe problem for every country. Not only Vietnam, every country, everywhere has also been polluted. That is air pollution, water pollution, soil pollution, etc. its consequences are weighty. They change the ecosystem we live in as melting ice, rising seawater intrusion, which is a testament to the climate change (greenhouse effect) stemming from environmental pollution. These environmental issues have a direct impact on all human socio-economic activities, adversely affecting the health of the people and the sustainable development

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of the nation. Therefore, finding ways to protect and improve the environment is always a topic that still needs attention. There are many measures to protect and enhance the environment, from calling for ecosystem protection to applying scientific and technological advances to improving the atmosphere, water, etc.

Changing people's behavior in life is the measure considered to be the most effective in improving the environment. The Government has issued a series of regulations to encourage people to change their behavior more positively towards the environment, such as manage household waste, volunteer activities to collect garbage, break the habit of using products once times, etc. Besides that, the production of green products and recycling products, using friendly environmental products, is always encouraged.

While environmental issues campaigned around the world have changed people's mindset to go back to nature and switch to environmentally friendly products. However, most of Vietnamese still haven't used environment-friendly products. Therefore, this study wants to determine factors to change Vietnamese behavior because this is solution sustainability.

1. Literature Review
Green products are harmless to humans and the environment [1], [2]. It is products that try hard to protect the natural environment by using conservative energy resources and lessening the use of toxic agents, pollution, and waste [3]. According to Yoshi [4], the green product satisfies the consumer's needs without damaging the environment. It uses material safer to the environment, are recyclable.

Green purchase behavior is defined as buying or consuming friendly environment products or recyclable products, which avoid harming the environment and society [4]. It represents a sophisticated form of ethical decision and socially responsible behavior. They attempt to use their purchasing power to bring social changing. According to [5], green purchase behavior is the behavior to buy a green product. Researchers suppose the green purchase can't be unrelated to friendly environment behavior. Not most consumers buy green products do it not for the environment.

Green purchase intention is the probability and willingness of a person to choose to buy friendly environment products compared to other conventional products [1], [6]. It is an indication of an individual's readiness to perform a given behavior [6].

In this study, I agree with TRA and TPB theory to explain consumers' purchase behavior [7], [8]. The theory TRA [7] states that people often consider the results of different actions before taking them and choosing to take steps that will lead to the results they desire. The best tool for judging behavior is intention. In the new theory, Ajzen [8] argues that the plan to conduct behavior is influenced by three factors: (1) attitude toward the behavior, (2) subjective norms, and (3) perceived behavioral control. Ajzen [8] stated that the relative importance of the above three factors in explaining an individual's intentions and behaviors varies across behaviors and situations. He further asserts that in some cases, only one variable may have a significant impact on intention. In contrast, in others, a combination of two or all three variables is needed to explain individuals' intentions and behaviors.

Environmental concern defines people's awareness of the environmental issues and their willingness to resolve them [2], [9] or signify the readiness to contribute to their solution [6]. The consumer has a severe concern for the environment resulted in positive attitudes for green products [10], [11], [12], [14] and more chances of buying green products [10], [11], [12], [13], [14], [15]. Based on these findings, hypothesizes propose:

H1: Environment concern has a positive impact on attitudes toward green products.
H2: Environment concern has a positive impact on green purchase intention.

Environmental knowledge is a set of ecological knowledge possessed by individuals about the environment. It is a basic knowledge possessed by a consumer about things that can be done to assist in environmental protection activities [16], [17]. Ali et al [6] defined environment knowledge as a general knowledge of a fact, relationships concerning environmental facets, or impacts. The consumer's level of environment knowledge has affected consumer's attitudes about green products [13], [16], [18] and green purchase intention [1], [6], [13], [16]. Hence, this study suggests:
H3: Environment knowledge has a positive impact on attitudes toward green products.
H4: Environment knowledge has a positive impact on green purchase intention.

Social influence is the degree of influence of another to make decisions [4], [9] as parents, relatives, close friends, acquaintances, famous person, etc. Social influence was found to have a positive correlation with attitudes toward green products [9] and green purchase intention [1], [9]. Therefore, the following hypothesizes propose:

H5: Social influence has a positive impact on attitudes toward green products.
H6: Social influence has a positive impact on green purchase intention.

Price sensitivity defines as the extent of consciousness and reaction displayed by consumers when finding differences in prices of products or services. It is the extent to which a customer accepts price growths for a specific product in terms of economic and psychological gains [19]. According to Eles et al. [12], price sensitivity is the awareness of consumers with the cost they paid for a green product. Consumers are sensitive to green product prices. Even they are familiar with the kind of green product, but they aren't willing to pay more. According to previous studies, the price sensitivity had a significant effect on attitudes toward green products [12] and green purchase intention [1], [6], [19]. Based on these arguments and findings, the seventh and the eighth hypothesis of this study are:

H7: Price sensitivity has a positive impact on attitudes toward green products.
H8: Price sensitivity has a positive impact on green purchase intention.

Attitudes towards green products is an individual's positive/negative evaluation of green products [17]. A person has a positive attitude toward a green product as the cause of friendly environment purchase intention [10, 13], [17], [15] and purchases behavior [15], [19], [20]. Thus, the ninth and tenth hypothesis are:

H9: Attitudes toward green products have a positive impact on green purchase intention.
H10: Attitudes toward green products have a positive impact on green purchase behavior.

Based on these previous studies, when consumers have a higher intention to buy the product, they are likely to purchase behavior enhanced [13], [15], [17]. Therefore, the following hypothesis inferred:

H11: Green purchase intention has a positive impact on green purchase behavior.

2. Research methodology
To achieve this study's goal, seven scales construct based on previous research. All items develop in English, but they revised and modified in Vietnamese. Those depend on this research objective and characteristics of the subjects. Finally, a questionnaire consisting of 31 questions is used. All items measured on a Likert five-point scale, from "strongly disagree" to "strongly agree".

Quantitative research conduct using direct interviewing. The sample selected in a convenient, with the participation of 369 consumers in four big cities in Vietnam. These were Can Tho, Ho Chi Minh, Da Nang and Ha Noi. The percentage of participants in Can Tho was 25.5, Ho Chi Minh held 26.3%, Da Nang held 24.9%, while Ha Noi only took 23.3 %. The sample comprised 38.5% males and 61.5% females. Based on age, under 25 customers held 18.7%, people aged 25 to 30 held 64.2%, people aged 30 to 35 held 10.3%, and above 35 customers only took 6.8%. Based on income (million dong/month), under 5 million dong participants occupied 7.6%, participants with 5 to 15 million dong income occupied 64.8%, participants with 15 to 25 million dong income occupied 22.8%, and above 25 million dong income customers only took 4.9%. Scales in the model evaluated for reliability and exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). To test hypotheses in a theoretical framework, this study used an analysis of structural equation modeling (SEM). The SPSS 20.0 and AMOS 20.0 software analyze the data.

3. Main findings
Cronbach’s Alpha coefficient use to assess the inter-item consistency of measurement items. The results of the Reliability show seven concepts that have all credibility. All of them are greater than 0.7, and composite reliability value range from 0.758 to 0.850. Thus, internal consistency reliability considers acceptable, and the measurements are reliable.
Then, the exploratory factor analysis uses to assess valuable observations. The results of the EFA analysis show that 25 observations indicate sufficient convergent validity. The resulting CFA model produces good fit indices: Chi-square = 415.621, degrees of freedom = 254, Tucker-Lewis Index = 0.953, comparative fit index = 0.960, root mean square error of approximation = 0.042. The p-values corresponding to all the items is significant (0.000).

To verify the established hypotheses through the path coefficients acquire from the SEM, the suitability of the model regarding the relation of variables is generally meeting the evaluation criteria (Figure 1).

![Figure 1. SEM (standardization) results.](image)

The SEM test results show that all the individual paths are significant at the 0.05 level, except the routes linking price sensitivity with attitudes toward green products (Table 1). Summarize, of the eleven hypotheses, one is not supported. The results also show that the attitudes toward green products (AT) and green purchase intention (IN) play a role as a partial mediator in the linking environment concern (CO), environment knowledge (EK), social influence (SI), price sensitivity (PR) with green purchase behavior (PUR).

| Hypothesizes path | Standardized Estimate | P-value | Decision |
|-------------------|-----------------------|---------|----------|
| H1: CO → AT       | 0.278                 | 0.000   | Supported |
| H2: CO → IN       | 0.334                 | 0.024   | Supported |
| H3: EK → AT       | 0.291                 | 0.000   | Supported |
| H4: EK → IN       | 0.334                 | 0.000   | Supported |
| H5: SI → AT       | 0.193                 | 0.002   | Supported |
4. Discussion, Managerial implications
This study proposes and tests a purchase behavioral model from environmental concern, environment knowledge, social influence, price sensitivity through attitudes toward green products, and green purchase intention. The results have the following academic significance and provide valuable implications for managers.

This study also provides several valuable implications for managers of the company, environmentalists, and governments. If they want to change consumer's behavior in increasing friendly environment consumption products, they need to understand the impact of the influencing factors. Environment concern and environment knowledge have a more substantial impact on green purchase behavior. This is the key for businesses, environmentalists, and governments to change consumer behavior. Thereby, the environment changes more positively. To do that, consumers need to be able to access more information about the hourly and severe consequences that environmental pollution has caused. Besides, the public communication of people's daily actions has a significant change in the environment, such as indiscriminate dumping of waste, using products that are difficult to destroy, wasting energy sources, etc. Besides, practical actions to protect and improve the environment should be commended and praised. By popularizing knowledge and meaningful images about the environment, people will have specific knowledge about the environment as well as the interest will be raised to a higher level. Since then, consumers have gradually changed their behavior (consumption of green products instead of other common products).

5. Conclusion
This study aims to analyze consumer behavior in buying a green product. The results show that environmental concern, environment knowledge, social influence, price sensitivity are determinants of green purchase behavior, although the effect is indirect. Besides that, environment concern and environment knowledge have the most significant impact of attitudes toward green products, green purchase intention, and green purchase behavior (indirect). In other words, when consumers have greater concern and knowledge of the environment, they tend to buy and use green products. This study provides further evidence to support the view that the mediating role of attitudes toward green products and green purchase intention with green purchase behavior in the previous study.

The study is subject to certain limitations. The theoretical framework of this study tests in Vietnam. The framework should be tested in other markets because there may be differences. On the other hand, the convenience sampling method selects. Consequently, it is not feasible to generalize the results obtained from this research.

This study examines only some of the significant factors. Other factors are also likely to increase purchase, such as quality products. Future research could examine the impact of these factors.

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