Awareness and Attitude of Young People in Hanoi City Toward Environmentally Friendly Products: A Case Study of Bio-Plastic Bags

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Abstract

The awareness and attitude of consumers towards the use of biodegradable plastic bags are important in minimizing environmental pollution caused by plastic bags usage. Awareness of plastic bags' harmful effects on the environment helps limit the use of plastic bags and reducing environmental pollution caused by plastic bags. Applying the behavioral theory of Ajzen (2005, 20216) and utilizing survey data collected by 210 questionnaires from young people in Hanoi city, using exploratory factor analysis (EFA) approach, this quantitative study evaluates the perception and attitude of young people towards the intention to use biodegradable plastic bags and examines their affected factors. The results of the study show that attitude towards the use of plastic bags is mainly influenced by environmental awareness. Intention to use bio-plastic bags is influenced respectively in descending order by attitude and convenience perception of the use of bio-plastic bags. Based on the research results, some proposals for producers, authorities and policy-makers have been recommended. Raising environmental awareness helps change young people's consumption habits and behaviors towards environmentally friendly products. Propagating the imagine of bio-plastics bags and its environmental affects through communication media would help limit the use of ordinary nylon bags. It is also crucial to support businesses producing bio-plastic bags by effective tax policies and enforce 'green consumption' in administrative offices, organizations, schools and public places.

Research purpose:

The main purpose of this study is to evaluates the perception and attitude of young people towards the intention to use biodegradable plastic bags and examines their affected factors.

Research motivation:

The awareness and attitude of consumers towards the use of biodegradable plastic bags are important in minimizing environmental pollution caused by plastic bags usage. Awareness of plastic bags' harmful effects on the environment helps limit the use of plastic bags and reducing environmental pollution caused by plastic bags.

Research design, approach and method:

The study applies the behavioral theory of Ajzen (2005, 20216) to build up the model and hypothesis testing. Based on survey data collected by 210 questionnaires from young people in Hanoi city, together with using exploratory factor analysis (EFA) approach, the study examines the factors affecting the perception and attitude of young people towards the intention to use biodegradable plastic bags in Hanoi city.

Main findings:

The results of the study show that attitude towards the use of plastic bags is mainly influenced by environmental awareness. Intention to use bio-plastic bags is influenced respectively in descending order by attitude and convenience perception of the use of bio-plastic bags.

Practical/managerial implications:

Raising environmental awareness helps change young people's consumption habits and behaviors towards environmentally friendly products. Propagating the imagine of bio-plastics bags and its environmental affects through communication media would also help limit the use of ordinary nylon bags. It is therefore also important to support businesses producing bio-plastic bags by effective tax policies and enforce 'green consumption' in administrative offices, organizations, schools and public places.

Keywords: environmentally friendly products, bio-plastic bag, plastic pollution, awareness, attitude.

1. INTRODUCTION

1.1 Plastic waste, plastic bags and environmental pollution in Vietnam

With a population of 96.5 million people (GSO, 2019), Vietnam annually discharges 23 million tons of domestic waste into the environment, an average growth rate of 5% per year. In 2020, it is estimated that the level of domestic waste is 36.2 million tons, of which plastic waste and plastic bags in Vietnam are currently at a very high, accounting for about 8-12%, approximately 2.5 million tons per year (Thu Huong, 2020). Viet Nam is releasing into the environment 20-60 tons of plastic per day and ranks 17th out of 109 countries with pollution levels caused by plastic waste (UN, 2018), ranking 4th in the world in terms of large amounts of plastic waste dumped into the sea, 6% of the world's total plastic waste discharged into the sea (Ngoc Linh, 2019).

In recent decades, Vietnamese people have developed a habit of using plastic bags regularly, which estimates about 30 billion plastic bags are used and discharged a year. In urban areas, the average consumption of plastic bags is 10.48 – 52.4 tons/day (Phuong Thao, 2019). Two major cities Hanoi and Ho Chi Minh City, on average, discharge about 80 tons of plastic and plastic bags per day (Nguyen Gia Tho, 2019). This type of waste has been causing heavy environmental pollution.

According to the Ministry of Natural Resources and Environment, on average, a household uses about 1kg of plastic bags per month, nationwide about 25 million bags per day (Bich Lieu, 2018). On average, an urban household discharges about 2-5 plastic bags per day. This number is really large and is growing, but only about 17% of plastic bags are regularly reused and a small part of these are collected and recycled (Phuong Thao, 2019).

Plastic waste takes between 500 and 1000 years to decompose itself. Its existence in the environment seriously affects the soil and water, indirectly affecting human health. Biodegradable plastic bags must decompose in 6 months to 2 years or longer, depending on environmental conditions. Therefore, the use of plastic bags is still an environmental burden (Ministry of Health, 2019). The habit of using plastic bags in the daily life of Vietnamese consumers is one of the worrying sources of plastic waste, creating a "white pollution" situation, making plastic pollution increasingly worse. Vietnamese people are consuming about 25 - 35kg of plastic per person per year and it is forecasted that in a few years, when the economic life is more developed, the consumption will reach 40kg per person per year, the output of the plastic packaging industry then reaches about 1.4 million tons (Nguyen Gia Tho, 2019).

In recent years, consumers have been gradually understanding more about the harmful effects of using regular plastic bags, some people have switched to using environmentally friendly products such as eco-friendly plastic bags, "self-destructing" garbage bags, etc.

1.2 Plastic waste, plastic bags in Hanoi

Hanoi is the capital, cultural, political and economic centre of Vietnam. Hanoi has an area of 3,324 km^2, being the largest city in Vietnam. Hanoi's population is 8,093,900, the second highest in the country, with an average population growth of 2.22% per year. (in 2020 or which year?) Per capita income of Hanoi is VND 130 million per person per year, an increase of 1.5 times compared to 2015 and 1.8 times higher than the per capita income of the whole country (GSO, 2021). Therefore, Hanoi's consumption demand is increasing, the pressure on infrastructure and the environment for the city is growing.

The average daily amount of waste in Hanoi has increased from 4,000 - 5,000 tons per day in 2018 (Ngoc Linh, 2019) to 8,000 tons in 2020, of which plastic waste and plastic bags are about 80 tons per day (Minh Nghia, 2020). Meanwhile, people's habits of using plastic bags and disposable plastic items are increasing. Worryingly, people still do not have the habit of sorting garbage daily, mixing plastic waste, especially nylon, is a relatively common situation. This makes it even more difficult to treat plastic waste.

1.3 Eco-friendly plastic bags – Biodegradable plastic bags

Biodegradable plastic bags – eco-friendly plastic bags are becoming a trend chosen by consumers because of their reasonable prices and help reduce plastic waste pollution. Biodegradable plastic bags, despite limited use in Vietnam, are gradually replacing regular plastic bags in daily life.

Table 1. Types of plastic bags currently in use

Plastic bags or PVC packaging	Recycled plastic bags	Biodegradable bags

On the market today, there are many types of self-decomposing nylon bags with different labels such as: Biodegradable bags, self-decomposing bags, biodegradable packaging, eco-friendly biodegradable bags, etc. Eco-friendly bags can be understood as 'biodegradable' or 'fully biodegradable' bags, currently being encouraged to replace plastic bags at traditional markets, supermarkets and shopping malls. However, biodegradable bags' higher prices compared to regular plastic bags is still a barrier. Bio-plastic bags cost from 50,000 to 90,000 VND per kg, higher than regular plastic bags with prices from 20,000 to 30,000 VND / kg, bags imported from Europe cost from 110,000 VND per kg per roll, 2-3 times higher than plastic bags on the market.

Awareness of plastic bags' harmful effects on the environment is only among an individual consumer segment. Limiting the use of plastic bags has not yet become a habit or trend, so it does not have a strong impact to reduce environmental pollution caused by plastic bags. The most important thing is the community's attitude and actions to reduce the use of plastic bags. While eco-friendly bags that can replace nylon garbage bags are still not popular and pricey, there are no policies or mandatory restrictions on the use of plastic bags, the awareness and attitude of consumers towards the use of biodegradable plastic bags are important in minimizing environmental pollution caused by the use of plastic bags.

2. RESEARCH CONTEXT

2.1 Theoretical basis

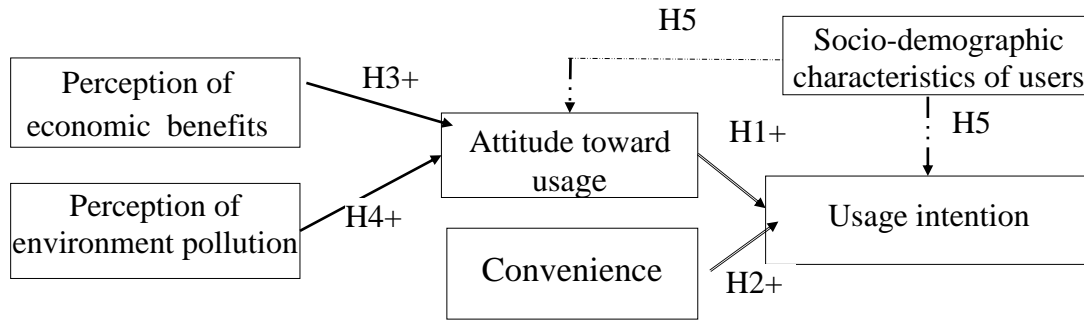The proposed research model is based on Ajzen's behavior theory (2005, 2016). Ajzen's Theory of Planned Behavior (TPB) (1988) and Ajzen 's Theory of Reasoned Action (TRA) (1975, 1987) focused on studying behavioral intention rather than behavioral performance. Behavioral theories can be applied flexibly to a variety of behaviors in different contexts, allowing any additional input variables of value in explaining the behavior of the model. In addition, the TRA and TPB behavior theories assume that an individual's intention, when combined with perceived behavioral control, will help predict behavior with greater accuracy than previous models (Ajzen, 2016).

Behavioral theory TRA and TPB have been applied in research on green consumption behavior by Hoang Trong Hung et al (2018); Green consumption in sustainable development in Vietnam by Tran Ngoc Ngoan (2015) etc.

2.2 Research model

Applying the TRA and TPB behavior theories, combined with the current situation and trends in the use of biodegradable plastic bags, the study looked at the main factors affecting the attitude towards the use of biodegradable plastic bags as (i) perception of economic benefits, (ii) environmental awareness, factors affecting the usage intention of biodegradable plastic bags, including (i) attitude, (ii) perception of convenience (behavioural control).

For consumers, shopping at convenience stores and take away food is increasing day by day. Regular use of plastic bags is inevitable and easy to do due to the convenience and low cost of plastic bags. This use does not appear to be influenced by family members, or friends (subjective norms are ignored, not considered in this research model for the usage intention of bio-plastic bags).

Figure 1. Research model and hypothesis after EFA (Author, 2021)

The research model of factors affecting the perception, attitude and usage intention of bio nylon bags consists of 5 factors (Figure 1) with the concepts in Table 2.

Table 2. Definition of factors in the research model

Concept	Definition	Reference
Environmentally friendly products/ Green products	Environmentally friendly products are products created from environmentally friendly materials, production and management technologies, reducing negative impacts on the environment during use, disposal, and maintenance process, ensuring safety for the environment and human health, and be certified or recognized by a competent authority.	Law on Environmental Protection, Law No. 72/2020/QH14, dated November 17, 2020 (effective from January 1, 2022)
Environmentally friendly consumption/ Green consumption	Environmentally friendly consumption/green consumption is the purchase, use or consumption of environmentally friendly products and services certified by the Vietnam Eco-label or recognized in accordance with the provisions of law.	Law on Environmental Protection, Law No. 72/2020/QH14, dated November 17, 2020 (effective from January 1, 2022)
Behavioral intention	The subjective intention of the consumer in performing a particular behavior or action; The state of awareness immediately prior to the performance of behavior, a factor that leads to the performance of behavior.	Ajzen, I., 2005, 2016
Attitude toward a behavior	A positive or negative evaluation of an individual's performance of behavior.	Ajzen, I., 2005; Blackwell, R. D., et al., 2006
Perception of convenience	An individual's perceived ease or difficulty of performing the particular behavior; Perception of the presence of factors that can facilitate or impede behavioral intention	Ajzen, I., 2005, 2016
Perception of economic benefits	An individual's perception of the presence of economic benefits resulting from the cost of purchasing the product.	Theory; Author
Perception of environment	An individual's perception resulting from awareness of environmental issues when using a product.	Shek Isaccs, 2015; Hoang Thi Bao Thoa, 2016; P.Asha, Rathiha, 2017,

Source: Author, 2021.

2.2.1 Usage intention towards bio plastic bags

According to Ajzen, I. (2005, 2016), a behavioral intention is defined as an important antecedent to future behavior. The strength of intention indicates how much people attempt to conduct the behavior. Therefore, understanding behavioral intention results in a valuable prediction about a given behavior (Ajzen, 2005, 2016).

Behavioral intention includes and is measured through manifestations: positive behavioral intentions tend to motivate each person to perform the behavior, choose, buy, use, and stick with the product. On the contrary, negative behavioral intentions cause people to change their behavior, not perform the behavior, give up the product, do not choose, buy and use the product (Chu Tien Dat, 2014).

The proposed research model consists of two dependent variables namely the behavioral intention to use biodegradable plastic bags and attitude towards the use of bio-plastic bags, and other independent variables that affect these two variables. According to TPB theory, behavioral intention can be predicted with high accuracy from attitude towards behavior and perceived behavioral control (Ajzen, 2016).

2.2.2 Attitude towards the use of bio-plastic

Attitude towards a behavior is the degree to which performance of the behavior is positively or negatively valued. According to the expectancy-value model, attitude towards a behavior is determined by the total set of accessible behavioral beliefs linking the behavior to various outcomes and other attributes (Ajzen, 2005).

A positive attitude will encourage people to choose, buy, use and stick with the products. On the contrary, a negative attitude will not support or limit the purchase or use of the product (Chu Tien Dat, 2014). Consumer attitude towards bio-plastic usage is based on the perception of consumers' beliefs about friendly environmentally products, economic benefits, environmental protection and an awareness of resource saving when using bio-plastic bag.

Attitudes towards the use of biodegradable plastic bags are formed based on consumer's perception of environmentally friendly products, awareness of economic benefits, environmental awareness and awareness of saving resources.

Hypothesis H1: A positive attitude towards the use of biodegradable nylon bags will increase usage intention.

2.2.3 Perception of convenience

Perception of convenience (or perceived behavioral control) reflects the ease of difficulty of performing a behavior and whether the behavior performance is being controlled or restricted. Perception of convenience is determined by the total set of accessible control beliefs i.e., beliefs about the presence of factors that may facilitate or impede performance of the behavior (Ajzen, 2016).

Perception of convenience in the process of using the product creates the user's confidence in the product. Convenience is formed mainly based on the product's attributes or the product's intrinsic features and attributes. The attributes of the bio-nylon bag such as lightness, compactness, ease of carrying, ease of purchase, ease of use or disposal make it convenient, easy, maneuverable and flexible to use.

Perceived behavioral control has been included in the research model of Hoang Trong Hung et al. (2018) for green consumption intention. However, perceived behavioral control had no impact on green consumption intention in this study.

Hypothesis H2: The convenience of using biodegradable plastic bags has a positive affect on the intention to use bioplastic bags.

2.2.3 Perception of economic benefits

Benefits are often determined by product attributes, which are internal factors that influence attitudes and behavior. Perceived benefits are often formed by economic benefits such as the cost of purchasing the product, the cost of operating, using and disposing of the product. Economic theories all show that the cost of purchasing a product (product price) has a negative effect on the quantity purchased and used. Research by Vu Anh Dung et al (2012) has shown that the factors of price, quality, brand, and design affect the process of green consumption behavioral intention. Author Aidnrila Biswas (2016) has pointed out that the price, quality and availability of products have an impact on consumers' intention to pay higher for green products.

Hypothesis H3: Economic benefits have a positive affect on attitudes towards the use of biodegradable plastic bags.

2.2.4 Perception of environment

Perception of environment comes from awareness of the environment and environmental pollution in the process of using products of each individual. Each individual's awareness of environmental protection will influence the choice of environmentally friendly products (Hoang Trong Hung et al., 2018; Hoang Bao Thao, 2016, Hui-hui Zhao et al., 2018). associates, 2014; Wilson et al., 2014).

Currently, the problem of environmental pollution is becoming more and more serious in urban areas of Vietnam, in which the pollution of plastic and plastic products in general and especially the pollution of plastic bags is increasingly aggravated.

Hypothesis H4: Perception of using bio-plastic bags to help reduce environmental pollution has a positive impact on attitudes towards using bio-plastic bags.

2.2.5 Demographic – sociological factors

Demographic factors including age, gender, income, education level, occupation all affect the decision to choose and use the product of each individual. Demographic factors affect behavior of environmentally friendly products consumption at BigC supermarkets (Nguyen Thi Dieu Quynh, 2013). Gender factors affect the relationship between green consumption intention and behavior (Hui-hui Zhao et al., 2014). However, the study of P.Asha and R.Rathiha (2017) shows that there is no significant difference among gender in attitude towards environment and attitude towards green products.

Hypothesis H5: Demographic factors create a difference to attitudes and intention to use biodegradable plastic bags.

Table 3. Factors and hypotheses

Factor	Expected relationship	Reference
Attitudes	Hypothesis H1: A positive attitude towards the use of biodegradable nylon bags will increase usage intention.	Ajzen (2016)
Perception of convenience	Hypothesis H2: The convenience of using biodegradable plastic bags has a positive effect on the intention to use bioplastic bags.	Ajzen (2016)
Perception of economic benefits	Hypothesis H3: Economic benefits have a positive affect on attitudes towards the use of biodegradable plastic bags.	Theory
Perception of environment	Hypothesis H4: Perception of using bio-plastic bags to help reduce environmental pollution has a positive impact on attitudes towards using bio-plastic bags.	The author developed from previous studies.
Demographic - sociological characteristics of consumers	Hypothesis H5: Demographic factors create a difference to attitudes and intention to use biodegradable plastic bags.	The author developed from previous studies and the situation of Hanoi.

Source: Author, 2021.

3. RESEARCH METHODOLOGY

3.1 Objectives of the study

The main objective of this study is to identify factors affecting the attitude and intention to use the bio-plastic bag and their influence level in Hanoi city among teenagers. A specific research model is proposed to explore these factors.

3.2 Research design

In order to develop the research model and testing, the research was conducted by two-step methodology. The first step was primary research, which applied a desk research method and the second step was exploratory research, which applied a qualitative and quantitative research method.

Exploratory research: Exploratory research was implemented using a qualitative research method. Data collection was gathered by in-depth interviews and focused on group interview techniques. Exploratory research was conducted initially to collect fundamental information known as the qualitative research method to identify the factors most relevant to the study context and to have a better understanding of the potential influence of these factors on attitude and usage intention towards the bio-plastic bag. In addition, this exploratory research helped confirm the use intention as the key responsive variable to be researched in the second survey stage.

In-depth interviews: These interviews were conducted with key knowledgeable people such as directors,

managers, sales managers, sales etc. at the agents or shops, commercial centres, supermarkets, who are directly responsible for selling environmentally friendly products. Direct interviews with young people were conducted to have an understanding of the consumption habit, perceptions and attitudes of young people towards the environmentally friendly products.

In-depth interviews and focus group interviews helped us to construct a scale of variables for each factor. The interviews were conducted using semi-structured questions, which assisted in gaining insights into specific information and close discussion. The group interviews are useful to have a better understanding of the perception, attitude and the usage of consumers, which has assisted in identifying more accurate research issues.

Quantitative method: Exploratory factor analysis (EFA) is applied to identify factors affecting attitude and usage intention toward bio-plastic bags for teenagers in Hanoi

3.3 Questionnaire design

Based on the hypotheses, a questionnaire survey with the stated preferences was developed to understand the attitudes and intentions of users.

The questionnaire consists of 3 main parts:

Part 1, general information, asked questions about respondents' understanding of environmentally friendly products and the use of plastic bags. Part 2, attitude and perception of environmentally friendly products, are questions that assess the level of awareness, attitude,

perceived convenience and intention to use biodegradable plastic bags. Part 3 includes questions about demographics: gender, age, occupation, professional qualifications, income, studying majors, which year the students are in.

In part 2 , respondents were asked whether they agreed or disagreed with the psychological statements or variables. Their given answers were judgments on a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree.

3.4 Data collection

The survey was carried out in 4 districts of Hanoi: Hai Ba Trung district (70 questionnaires), Ba Dinh district (70 questionnaires), Thanh Xuan district (70 questionnaires), and Nam Tu Liem district (70 questionnaires). Data were collected in two forms: face-to-face interviews and handing out survey questionnaires. The research team distributed 280 survey questionnaires in the 4 areas mentioned above at stores and shopping centers, or shops with a large number of young customers.

The survey was conducted for two months, from the beginning of February 2021 to the end of March 2021. The number of valid survey questionnaires collected was 210. The percentage of valid questionnaires collected is 75%.

3.5 Data analysis

With the support of SPSS (Statistical Package for Social Science) data analysis was implemented through 4 steps as follows: (i) Statistic description, (ii) Reliability analyses: Cronbach's Alpha test and confirmative factor analysis EFA, (iii) Model fitness test, (iv) Analysis of variance (ANOVA) with t-test was conducted to find

significant differences in attitude and intention to use bio-plastic bag among different groups of the teenager.

4. RESEARCH RESULTS AND DISCUSSIONS

4.1 Sample characteristics

The survey data includes 210 surveys, of which 65.2% are female, 34.8% are male. Students account for the highest proportion, 72%, the remaining 28% of respondents are office workers, professionals, teachers and other occupations.
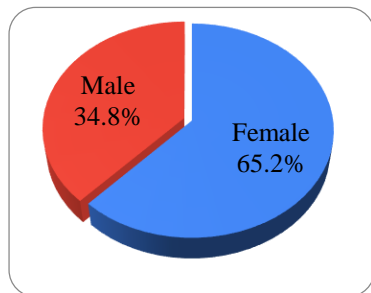
53% of respondents have expertise in economics, 31% have expertise in engineering, 10% in foreign languages and 6% in other specialties.

94% of respondents have an undergraduate degree, 4.8% have a graduate degree, and 1.2% have other degrees.
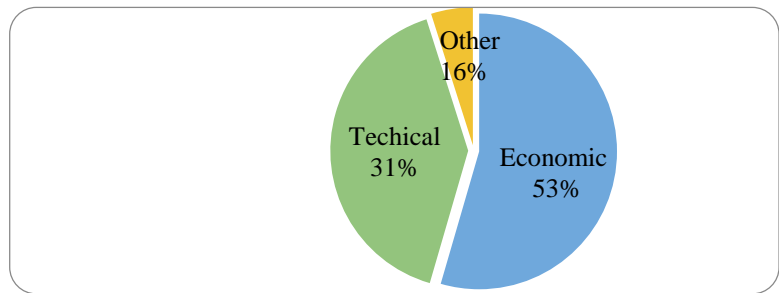
61.4% of respondents are currently not living with their families, only 38.6% live with their families. Of which, 59% live in Hanoi, the remaining 41% live in other provinces, but are currently working and studying in Hanoi.

Respondents who are living with a family of 3 - 4 people account for 57.1%, of 5 - 6 people is 35.2%, of less than 2 people is 3.3% , and of 7 people or more is 3.8%. Thus, respondents' household size of 3 to 6 people accounts for the highest proportion, 92.3%. The larger the family size, the more demand for plastic bags will be.

Of the total number of people who do not live with their families, 14.8% live in dormitories or collective living quarters, 16.7% live in private houses, and the remaining 35.2% live in other forms of housing.

Figure 2. Structure by gender

Figure 3. Structure by specialties

Table 4. Frequency Table

Categories	Percentage	Cumulative percents
1. Gender		
Male	34.8%	34.8%
Female	65.2%	100%
2. Structure by specialties		
Technical	31%	31%
Economic	53%	84%
Other	16%	100%
3. Awareness and attitude of plastic bag use		
Plastic bags	93.8%	
Other bags	6.2%	100%

| Bio-plastic bags | 13.8% | |
| Regular plastic bags and recycled plastic bags | 62.5% | 100% |

Source: Author, 2021.

4.3 Awareness and attitude towards the use of plastic bags for household waste

Plastic bags are still the most common bags used for daily household waste by individuals and households (93.8%), a small percentage (6.2%) of respondents use other types of waste containers (disposable paper bags, cardboard boxes and packaging, trash cans).

Bio-plastic bags are currently being used at a relatively modest rate (13.8%), regular plastic bags are still widely used even though most people (99% of respondents) understand the harmful effects of nylon bags on the environment. The percentage of people using regular plastic bags and recycled plastic bags is 62.5%.

While 99% of survey respondents are aware of the harmful effects of using plastic bags on the environment, they do not understand deeply and comprehensively about its seriousness. 38.6% think that bio-plastic bags have a decomposition time of less than 6 months; 38.1% think that the decomposition time is from 6 to 12 months, 12.4% think that it is from more than 1 year to 2 years and 11% think that it is more than 24 months.

Bio-plastic bags have not been common to consumers. Only 47.6% of respondents regularly hear of bio-plastic bags, 52.2% of respondents rarely hear of bio-plastic bags.

The identification of bio-plastic bags is still limited. 49% of the respondents could distinguish the difference between regular nylon bags and biodegradable or recycled nylon bags and 50% of the respondents could not distinguish different types of nylon bags.

Consumers hardly care about the price of nylon bags in the market. Because the price of plastic bags is low, the cost of using nylon bags only accounts for a small proportion of spending of each person or each household. Only 22.4% of the respondents know the price of the bag they are using, 76.7% do not know their prices.

The rate of willingness to buy and use bio-plastic bags is quite high, 81% of the respondents, despite not knowing the price of bio-plastic bags.

However, the price level remains a barrier to the purchase and regular use of bio-plastic bags. 46.7% of respondents are willing to pay for bio-plastic bags if they cost less than 50,000 VND/kg. 25.7% of the respondents are willing to pay only for the price from 50,000 - 60,000 VND/kg. 27.6% of the respondents are willing to pay for bio-plastic bags for more than 60,000 VND/kg . With a price of over 80,000 VND/kg, only 20% of the respondents are willing to pay. The willingness to pay for the product will be more limited because most of the young respondents are students, who do not have a stable regular income, thus their ability to pay is limited.

4.4 Results

The research model of factors affecting attitude and intention to use bio-plastic bags consists of 5 factors: perception of economic benefit, perception of the environment, attitude towards usage, perception of convenience and intention to use bio-plastic bags.

The variables of the adjusted model are all statistically significant (Sig. < 0.05); Factors of economic benefit and perception of the environment both have positive effects on attitude factor (in accordance with hypothesis H3 and H4). Factors of attitude and convenience have positive effect on intention to use (in accordance with hypothesi H1 and H2) (Table 6).

Model has no multi-collinearity relationship (VIF = 1.606 and 1.388 < 10) (Table 5).

Test of Durbin-Watson = 1.916 and 1.757 respectively, indicating that model has no autocorrelation (d_L (1.738) < 1.916 < 4 – d_U (4 – 1.799) and d_L (1.738) < 1.757 < 4 – d_U (4 – 1.799), Dubin Watson table with n = 200 , k = 3) (Table 5)

Sig. tested F equals 0.00 < 0.05, thus, the multiple linear regression model fits the data range and is usable (Table 4).

Table 5. Model test

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
					R Square Change	F Change	df1	df2	Sig. F Change	
Stage 1	.838a	.702	.700	.51489	.702	244.308	2	207	.000	1.916
Stage 2	.865a	.748	.745	.44486	.748	306.787	2	207	.000	1.757

a. Predictors: (Constant), LITB, NMTB, TĐTB, TTTB;   b. Dependent Variable: TDTB, YĐTB

Table 6. Standardized coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.423	.166		2.551	.011					
	NMTB	.894	.052	.824	17.151	.000	.838	.766	.650	.623	1.606
	LITB	.028	.059	.023	.472	.638	.529	.033	.018	.623	1.606
2	(Constant)	.222	.142		1.563	.120					
	TDTB	.653	.038	.696	16.966	.000	.835	.763	.592	.725	1.380
	TTTB	.293	.045	.265	6.460	.000	.630	.410	.226	.725	1.380

- Dependent Variable: TDTB;   b. Dependent Variable: YDTB

Note: Regression of 1st Stage   and 2nd Stage

NMTB: Perception of environment pollution   TDTB: Attitude toward usage

LITB: Perception of economic benefits   TTTB: Convenience

TDTB: Attitude toward usage   YDTB: Usage intention

Regresion results show that, perception of environment has positive impact on attitude (sig. = 0.011 < 0.05, statistically significant). Perception of economic benefit has no effect on attitude factor (sig. = 0.638 > 0.05, non statistically significant) (Table 6).

Therefore, the attitude towards usage has only been influenced by awareness factor of environment:
        TD = 0.824NM.

The relevance of the model $R^2 = 0.702$ or the model explains 70.2% of the variation in attitude towards the use of bio-plastic bags via the environmental awareness

variable, the remaining 28.2% of the variation is explained by other factors not included in the model. Sig.F = 0.000, the model is meaningful (Table 5).
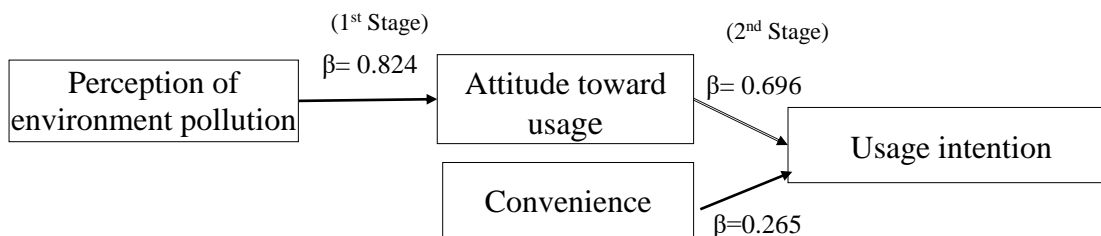
Teenagers' intention to use bio-plastic bags is descendingly influenced by attitude and convenience factors (both are statistically significant sig. = 0.00 < 0.05)

$$YD = 0.696TD + 0.265TT$$

Attitude and convenience factors have a positive influence on the intention to use bio-plastic bags, which is completely consistent with the hypothesis.

(1st Stage)   (2nd Stage)

Figure 2. Results of testing model (Author, 2021)

The relevance of the model $R^2 = 0.748$ or the model explains 74.8% of the variation in the intention to use bio-plastic bags via the attitude and convenience factors, the remaining 25.2% of the variation is explained by other factors not included in the model. Sig.F = 0.000, the model is meaningful (Table 5).

Regression results show that the perception of the environment has the greatest direct influence on the attitude and indirectly affects the intention to use bio-plastic bags, and the attitude factor directly affects the intention to use bio-plastic bags. This result is

completely consistent with the survey data. 99% of survey respondents are aware of the harmful effects of using plastic bags on the environment, they do not understand deeply and comprehensively about its seriousness.

The model results are completely consistent with the study of Hoang Trong Hung et al. (2018), the two main factors, attitude towards green consumption and concern about the environment, affect green consumption intention, thus have an indirect impact on the green consumption behavior of consumers in Hue city; the results are in line with the research results of

Hoang Thi Bao Thoa (2016), effective awareness and concern about the environment have an impact on the relationship between green consumption intention and behavior.

The economic benefit factor does not have a statistical effect on the attitude towareds using bio-plastic bags. Economic benefits are related to the price of bio-plastic bags, reusability, economic savings and production resources. This is consistent with the reality of the survey, because the survey respondents hardly pay attention to the cost of buying and using plastic bags, because the price of plastic bags is low, only accounting for a small proportion in the household's spending structure (Only 22.4% of the respondents know the price of the bags they are using, 49% of the respondents do not know the difference between bio-plastic and regular plastic bags, 55.2 % of respondents rarely hear of bio-plastic bags). Respondents are well aware of the harmful effects of plastic bags on the environment, but quantifying the environmental damage caused by plastic bag waste is still a difficult problem to solve.

Research results are similar to the research results of Nguyen Thi Dieu Quynh (2013), perception and attitude are two of the factors affecting eco-friendly bags consumption behavior at the Hue Big C supermarket, or the research results of Hui-hui Zhao a, Quian Gao, Yao-ping (2014) and Qinghua Zhu, Ying Li, Yong Geng, Yu Qi (2013), concern about the environment is a factor affecting the relationship between green consumption intention and behavior; the results are consistent with the research results of Wilson Kong et al (2014), consumer's perception and awareness of green organizations, eco-label and green products have a significantly positive influence on intention to purchase green products.

Survey results on consumers' willingness to buy and use bio-plastic bags and willingness to pay for environmentally friendly products (81% of respondents are willing to buy and use bio-plastic bags) are in line with the research results of Hoang Thi Bao Thoa (2016), consumers are willing to pay more for eco-friendly products, the market for eco-friendly products is expanding.

In short, attitudes towards the use of bio-plastic bags are influenced by environmental awareness. This factor explains 70.2% of the variation in attitude towards the use of bio-plastic bags.

Intention to use bio-plastic bags is influenced by following factors (in descending order of magnitude): attitude towards the use of bio-plastic bags and convenience. These two factors explain 74.8% of the variation in the intention to use bio-plastic bags.

Table 7. Mean of variables

Factors	Variables	Mean
Perception of economic benefits	LI (LITB)	3.02
Perception of environment	MT (MTTB)	3.61
Attitudes towards bio-plastic use	TD (TDBB)	3.74
Perception of convenience	TT (TTTB)	3.11
Intention to use	YD (YDTB)	3.58

Source: Author, 2021.

The regression results are also quite compatible with the statistical results. Mean of the attitude factor is highest (mean = 3.74), higher than mean of perception of convenience (mean = 3.11). Mean of perception of enviroment is rather high (mean = 3.61). Mean of perception of economic benefit is lowest with 3.02. The interviewers have no attention on the cost of plastic bags, due to their price is really cheap. The mean of intention to use bio-plastic bag is not as high as expected (mean = 3.58). This figure is in correspondent with the survey statistics, bio-plastic bags are currently being used at a relatively modest rate (13.8%) (Table 4).

4.5   Testing the significant differences between groups

The differences in attitudes and intention to use bio-plastic bags between different groups of young people were tested based on demographic factors, including: age, gender, occupation, qualifications, majors, income, place of residence.

The testing results show that there is no difference between groups in terms of gender, age, occupation, qualifications, majors, income, and place of residence (Sig. Levene's > 0.05; Sig. > 0.05).

This result is similar to the result of Research by P. Asha, R. Rathiha (2017), which shows that there is no significant difference between gender in attitude towards environment and attitude towards green products. However, it is different from the research conclusions of Hui-hui Zhao et al (2014), in which the gender factor affects the relationship between green consumption intention and behavior, and different from conclusions by Nguyen Thi Dieu Quynh (2013)., in which demographic factors affect consumption behavior of environmentally friendly products at BigC supermarket. However, the study of P.Asha and R.Rathiha (2017) shows that there is no significant difference between gender in attitude towards environment and attitude towards green products.

5. CONCLUSIONS AND IMPLICATIONS

The study is based on survey data on 210 young people about their awareness and attitudes towards the use of plastic bags and bio-plastic bags.

The research results reflect the actual situation of using plastic bags for garbage in particular and the use of plastic bags in Hanoi city, the opinions of the survey respondents are objective although the number of respondents is limited.

Biodegradable nylon bags completely meet the utilities for consumers (small, compact, easy to buy, easy to carry, low cost, convenient) and is a product that contributes to improving environmental quality. However, biodegradable plastic bags are still not widely used in households due to three main reasons:

Firstly, product cost is relatively high (2-3 times higher than regular nylon bags) because the production technology has to be completely imported from abroad, the production stages are more complicated and require a high-quality workforce. On the other hand, consumers' income is limited, so the amount of money spent on buying garbage bags is not much.

Second, propaganda and educational work to raise people's awareness about environmental protection has limitations, such as lack of consistency between levels, departments, branches, media agencies and educational institutions, lack of funds to organize extensive propaganda campaigns etc.

Thirdly, green/environmentally friendly products in general and biodegradable plastic bags in particular have not been invested in introducing products to consumers properly. Domestic consumers rarely hear of or see these products. Mainly customers with high education and interest in this type of product, find and buy it themselves.

The study has established a research model on factors affecting the attitude and intention to use bio-plastic bags - environmentally friendly products on the basis of Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB) by Ajzen (2005, 2016). The research model considers the influencing factors on the perspective of psychological approach based on the consumer's internal perception.

Statistical results show that the specific impact of the factors in descending order of magnitude is as follows:

Perception of environment has the strongest influence on the attitude towards the use of bio-plastic bags. This factor explains 70.2% of the variation in attitude towards the use of bio-plastic bags.

Attitude factor has the strongest influence on the intention to use bio-plastic bags, followed by convenience factor. These two factors explain 74.8% of the variation of intention to use bio-plastic bags.

In terms of demographic factors including age, gender, occupation, qualifications, majors, income, place of residence, there are no differences between different groups of young people in attitudes and intention to use biodegradable plastic bags.

Research results indicate some implication such as, in order to reduce environmental pollution for plastic waste, raising awareness about environmental issues for consumers, especially young people - potential customers, can help improving and changing attitudes, changing consumer's behavior towards the use of ordinary nylon bags to bio-plastic bags.

Propagating the imagine of bio-plastics bags and its environmental affects through communication media would help to limit the use of ordinary nylon bags; Encourage consumption and use of bio-plastic bags at commercial centre and supermaket; Support businesses producing bio-plastic bags by effective tax policies. Enforce 'green consumption' in administrative offices, organizations, schools and public places.

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8. APPENDIX

Table 1. Model test (1st Stage)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1.1	.838[a]	.702	.700	.51489	.702	244.308	2	207	.000	1.916

a. Predictors: (Constant), LITB, NMTB

b. Dependent Variable: TDTB

Table 2. Model test (2nd Stage)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1.2	.865[a]	.748	.745	.44486	.748	306.787	2	207	.000	1.757

a. Predictors: (Constant), TTTB, TDTB

b. Dependent Variable: YDTB

Table 3. Standardized coefficient (1st Stage)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1.1	(Constant)	.423	.166		2.551	.011					
	NMTB	.894	.052	.824	17.151	.000	.838	.766	.650	.623	1.606
	LITB	.028	.059	.023	.472	.638	.529	.033	.018	.623	1.606

a. Dependent Variable: TDTB

Table 4. Standardized coefficient (2nd Stage)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1.2	(Constant)	.222	.142		1.563	.120					
	TDTB	.653	.038	.696	16.966	.000	.835	.763	.592	.725	1.380
	TTTB	.293	.045	.265	6.460	.000	.630	.410	.226	.725	1.380

a. Dependent Variable: YDTB

NMTB: Perception of environment pollution   TDTB: Attitude toward usage

LITB: Perception of economic benefits   TTTB: Convenience

YDTB: Usage intention

Table 5. KMO and Bartlett's test of Attitude factor

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.881
Bartlett's Test of Sphericity	Approx. Chi-Square	1212.168
	df	55
	Sig.	.000

Table 6.   KMO and Barlett's test of Intention factor

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.860
Bartlett's Test of Sphericity	Approx. Chi-Square	1424.981
	df	28
	Sig.	.000