

## FACTORS INFLUENCING CONSUMERS' BEHAVIORAL INTENTIONS TO REDUCE PLASTIC WASTE: EMPIRICAL RESEARCH WITH THE CASE OF VIETNAM

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### ABSTRACT

*This article aims at analyzing factors that influence on consumers' behavioral intentions to reduce plastic waste. As an application of TPB, this research was conducted to find the relationship between environmental knowledge, attitude, subjective norms, perceived behavioral control with behavioral intentions. The authors used questionnaires from 726 consumers in Hanoi, Vietnam, the authors used SPSS version 20.0 combined with data processing via Microsoft Excel 2013 to find the relationship between environmental knowledge, attitude, subjective norms, perceived behavioral control with behavioral intentions. Results confirmed that all variables except attitude impacted on possibility of individual consumes in a way to reduce waste from plastic. Based on these findings, several recommendations were proposed to enhance behavioral intentions of individual consumers to decrease plastic waste in society.*

Keywords: Behavioral Intentions, Plastic Waste, Reduce, Factors

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### INTRODUCTION

The benefits of plastic are undeniable. However, when people produce, use, and throw away too much plastic, plastic pollution is becoming a global environmental issue. Today, we produce about 300 million tonnes of plastic waste every year. (United Nation, 2018). At least 8 million tons of plastics leak into the ocean, which is equivalent to dumping the contents of one garbage truck into the ocean every minute. If no action is taken, this is expected to increase to two per minute by 2030 and four per minute by 2050 (Ellen MacArthur, 2016). Plastic waste is having a negative impact on the environment, human health and the economy (United Nations Environment Programme, 2018). Vietnam is one of the top 5 contributing countries to the world plastic problem (Ocean Conservancy, 2015). In the light of global sustainable development, it is widely recognized that consumption habit or consumption intention has changed considerably toward plastic-free living. The objective of this research is to identify factors that motivate people to have consumers' behavioral intentions to reduce plastic waste. Recommendations are proposed for both the government to form these consumers' intentions and corporations to adapt with the new shift in consumers' behaviors.

### LITERATURE REVIEW

#### The Theory of Planned Behavior

The theory of planned behavior is an extension of the theory of reasoned action made necessary by the original model's limitations in dealing with behaviors over which people have incomplete volitional control (Ajzen, 1991). To take account of such limitations, besides attitude and subjective norms, Ajzen added a third element to the TRA.

The intention is assumed to be affected by three independent variables. First, attitude toward the behavior refers to one's positive or negative evaluation of performing a given behavior. The second predictor is subjective norms, it refers to the perceived social pressure to perform or not to perform the behavior. The third antecedent of intention is the degree of perceived behavioral control which refers to the perceived ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles (Ajzen, 1991). The more favorable the attitude and subjective norm with respect to a behavior, and the greater the perceived behavioral control, the stronger should be an individual's intention to perform the behavior under consideration (Ajzen, 1991).

#### Model and hypothesis

##### Attitude

Attitude is known as the way that an individual think about a certain behavior (Ajzen 1985). Attitude toward a behavior refers to a person's favorable or unfavorable evaluation of the behavior (Hee Yeon Kim and Jae-Eun Chung 2011). Attitude includes the way people evaluate the behavior, whether it is positive or negative and the willingness people have to perform the behavior (Leonard 2004). According to Ajzen (1985), people are likely to perform a specific behavior when they have positive attitude toward that behavior. There are multiple researches revealing the relationship between consumers' attitude and green consumption behavior (Kalafatis 1999; Kotchen and Reiling 2000, Chan and Lau 2001, Tarkiainen and Sundqvist 2005; Tanner and Kast 2003; Kaiser and Gutscher 2003).

Specifically, in this paper, we defined Attitude as “a person’s favorable or unfavorable evaluation of the reducing plastic waste consumers’ behavior”. Thus, it is hypothesized that:

**H1:** *Attitude toward reducing plastic waste consumers has positive impact on consumers’ behavioral intentions to reduce plastic waste.*

### **Subjective norms**

Subjective norms are defined as “the perceived social pressure to perform or not to perform the behavior” (Ajzen, 1991). Hee (2000) emphasized the influences of important people on individual such as close friends, relatives, colleagues. Consumers who hold positive subjective norms toward certain behaviors will have positive behavioral intentions. (Taylor & Todd 1995; Han 2010). There are a number of researches concluded that subjective norms is an essential factor in predicting behavioral intention (Baker 2007; Dean 2012; Ha & Janda 2012; Kumar 2012). These researches showed that there is a positive relationship between subjective norms and behavioral intentions. When people realize that their important others perform certain behaviors, they are more likely to perform those.

Specifically, in this paper, we defined Subjective norms as “perceived social pressure of certain behaviors”. Thus, it is hypothesized that:

**H2:** *Subjective norms has positive impact on consumers’ behavioral intentions to reduce plastic waste.*

### **Environmental knowledge**

Environmental knowledge is defined as “general knowledge about facts, concepts and relationships concerning the natural environment and its major ecosystems” (Fryxell and Lo, 2003). Environmental knowledge also includes essential collective responsibility for sustainable development (Mohamed M. Mostafa 2007). According to D’Souza, Taghian & Lamb (2006), Environmental knowledge has 2 types: (1) consumers need to be educated to understand the products’ impact on the environment, and (2) consumers knowledge about how products were produced in an eco – friendly way. With an attempt to understand clearly about environmentally friendly behavior, Maloney and Ward (1973) showed the importance in measuring consumers’ environmental knowledge. A variety of articles have shown that there is a significant relationship between Environmental knowledge and Environmentally friendly behavioral intention (Kim and Chung 2011, Aman 2012)

In this paper, Environmental knowledge about plastic waste is defined as “general knowledge about plastic waste pollution”. Thus, it is hypothesized that:

**H3:** *Environmental knowledge has positive impact on consumers’ behavioral intentions to reduce plastic waste.*

### **Perceived behavioral control**

Perceived behavioral control refers to the perception of the ease or difficulty in performing a certain behavior (Ajzen 1991) and reflects experiences in the past as well as foreseen obstacle (Paul, Modi, Patel 2016). There are multiple researches revealing the positive relationship between Perceived behavioral control and Behavioral intention in different research background (Taylor and Todd 1995, Han 2010, Chen and Tung 2014). Perceived behavioral control is also a direct factor for an individual to perform a certain behavior (Icek Ajzen 1985)

In this article, Perceived behavior control is defined as personal perception of the difficulty or the ease when a person performs a behavior. Thus, it is hypothesized that:

**H4:** *Perceived behavior control has positive impact on consumers’ behavioral intentions to reduce plastic waste.*

## **METHODOLOGY**

### **Data and sample**

To test the hypotheses advanced in this paper, a quantitative (survey) research method was adopted. A convenient sample of 726 consumers in Hanoi, Vietnam were approached individually and asked to participate in the study. The rationale of the study, together with the assurance of the confidential and voluntary nature of the study was explained to participants. Whenever necessary, the respondents were assisted to fill the questionnaires.

### **Analytical Methods**

First, the items measuring behavioral intentions to reduce plastic waste, perceived behavioral control, environmental knowledge, attitudes, subjective norms on plastic waste issues have been reviewed based on theories and previous studies, some items were developed to construct a questionnaire for the purposes of this study. Secondly, the pilot study was conducted among 20 randomly selected consumers. This resulted in few changes in the structure of items before the questionnaires were distributed among the participants. After collecting questionnaires, the research team selected the questionnaires, cleaned the data, coded the necessary information in the questionnaire, entered data and analyzed the data using Statistical Package for Social Sciences software (SPSS) version 20.0 combined with data processing via Microsoft Excel 2013. The study comes up with the following variables:

### **Dependent variables**

There are many ways to measure behavioral intentions to reduce plastic waste. The measurement in this study uses “BI” as a dummy variable to determine the probability of consumers’ behavioral intentions to reduce plastic waste. BI: equal to 1 when intending to consume plastic waste, 0 in other cases.

**Independent variables**

With perceived behavioral control (PBC1, PBC2), attitudes (At1, At2, At3) and subjective norms (SN1, SN2, SN3, SN4): Participants were asked to rate their feelings for each question on a 5-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree).

With environmental knowledge (EK): Participants were asked to answer 12 questions about related to plastic waste and their impacts in easy, medium and difficult order. Each correct answer is worth 1 point, each wrong answer is not deducted, the number of correct answers is counted as the score of each person.

**Analytical model**

To determine the influence of factors on consumers’ behavioral intentions to reduce plastic waste, dependent variable employed in the model is “BI” with four independent variables including “PBC”, “At”, “SN”, “EK”. Binary Logistic regression model is presented as follows:

$$P_i = E (BI=1) = \frac{e^{b_0 + b_1At1 + b_2At2 + b_3At3 + b_4SN1 + b_5SN2 + b_6SN3 + b_7PBC1 + b_8PBC2 + b_9EK}}{1 + e^{b_0 + b_1At1 + b_2At2 + b_3At3 + b_4SN1 + b_5SN2 + b_6SN3 + b_7PBC1 + b_8PBC2 + b_9EK}}$$

In which:  $P_i = E (BI = 1) = P (BI = 1)$  is called the probability that the event “Consumers’ behavioral intentions to reduce plastic waste” occurs (BI = 1) when the independent variables set up with specific values.

**RESULTS AND DISCUSSION**

**Scale test**

**Tab 1. The reliability test of the scale**

Factors	Number of Items	Cronbach’s Alpha
Subjective Norms	4	<b>0.724</b>
Attitude	3	<b>0.713</b>

Cronbach's alpha coefficient was used to evaluate the reliability of each scale. Analysis result shows that all scales meet the reliability requirements. Specifically, Cronbach’s alpha coefficient shows that the scales of the groups of factors are reliable (>0.7).

**Descriptive analysis**

**Tab 2. Descriptive statistics**

Factors	Observed Variables	Content	Mean	Mode	Standard Deviation
Subjective Norms	SN1	My family encourages me to reduce using single – use plastics.	4.13	4	0.730
	SN2	My friends are conscious of plastic waste pollution and tend to reduce plastic waste in their consumption.	4.17	4	0.713
	SN3	Celebrities who have influence on me are conscious of plastic waste pollution.	4.04	4	0.857
	SN4	If my office/school has regulation of reducing plastic waste, I will follow it.	4.27	4	0.730
Attitude	At1	I like the idea of reducing plastic waste consumption.	4.16	4	0.900
	At2	Reducing plastic waste consumption is a good idea.	4.31	4	0.716
	At3	I have a favorable attitude toward consumers’ behavior to reduce plastic waste.	4.12	4	0.926
Perceived Behavioral Control	PBC1	I have enough time to look for alternatives for plastic utensils.	3.40	4	1.017
	PBC2	I have enough money to buy alternatives for plastic utensils.	3.39	4	1.002
Knowledge	EK	12 questions about plastic waste.	5.10	4	2.001
Behavioral Intention	BI	-Have not intended to perform reducing plastic waste behavior yet. -Have already intended to perform reducing plastic waste behavior.	0.73	1	0.443

Based on the summary table of results, it can be seen that most of the respondents of the independent variable group agreed with the selected questions (there are 10/10 observed variables which have the Mode value of 4). Specifically, the variable with the highest agreement rate is SN2 (4.16), the variable with the lowest average value is PBC2 (3.39). The standard deviation of the observed variables is not large (approximately 1), so it can be said that the answers are not too different, most respondents have similar opinions. Particularly, the variable "Environmental Knowledge" assesses the individual's understanding of the characteristics of plastic waste, the answers have a fluctuation level on quite large scores (standard deviation = 2.00) and the majority of respondents have a score of 4/12 (it means that they answer correctly 4/12 questions). It shows that among participants, the level of understanding of plastic waste is different and mostly the level of their environmental knowledge is only average. Moreover, the average value of the dependent variable "Behavioral Intention" is 0.73, indicating that up to 73% of survey respondents intend to reduce plastic waste. From the average value of each variable group, it can be said that the majority of respondents have a positive attitude towards the behavioral intention to minimize plastic waste, they are significantly affected by behavioral intention of relatives / friends / celebrities. . . therefore, they intend to carry out these consumer behaviors in the future.

**Binary logistic regression analysis**

The result of Hosmer and Lemeshow Test about the suitability of the model with observational data shows that the model will not be considered to be consistent with the observation data set if Sig. < 0.05. We see from the research results table, Sig. of the studied model is 0.103, that demonstrates the model in accordance with the observed data set.

**Tab 3. Hosmer and Lemeshow Test**

Step	Chi-square	Df	Sig.
1	13.272	8	.103

The accuracy of the forecast is shown in the manifest status Table 3. This table shows that in 194 cases that have not / do not intend to consume to reduce plastic waste model correctly predicted 80 cases, so the correct rate is 41.2%. In the case of 532 cases of actual consumption intended to reduce plastic waste, the model of false prediction 26 cases, the correct rate is 95.1%. Since then get the correct prediction rate of the entire model is 80.7%.

**Tab 4. Classification**

Observed		Predicted			Percentage Correct
		BI			
Step 1	BI	0	1		
				80	114
		26	506	95.1	
Overall Percentage					80.7

When the dependent variable BI in binary form, it is inappropriate to assume that the remainder has a normal distribution, which invalidates the statistical tests in the normal regression, instead it will be a binomial distribution. The research team used the Binary Logistic regression model to predict the probability that "Behavioral Intention" according to the rule if the probability is predicted to be greater than 0.5, the expected result said "Yes" and vice versa. From regression equation on the variable "Behavioral Intention" impacted by 10 factors from the research model.

**Tab 5. Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
SN1	.016	.125	.015	1	.901	1.016	.795	1.298
SN2	.495	.160	9.598	1	.002	1.641	1.200	2.245
SN3	.681	.194	12.349	1	.000	1.976	1.352	2.890
SN4	-.108	.139	.597	1	.440	.898	.683	1.180
At1	-.070	.143	.241	1	.624	.932	.705	1.233
At2	.032	.152	.044	1	.834	1.032	.766	1.391
At3	.094	.157	.358	1	.550	1.098	.808	1.493
PBC1	.000	.128	.000	1	.999	1.000	.777	1.286
PBC2	.675	.129	27.370	1	.000	1.963	1.525	2.528
EK	.196	.054	12.973	1	.000	1.216	1.093	1.353
Constant	-6.743	.780	74.749	1	.000	.001		

Wald test is used to check whether independent variables are meaningful in the regression model. Sig Wald test of the independent variables SN2, SN3, EK and PBC2 are less than 0.05 (95% confidence level) shows that the regression coefficients of these variables are significant in the model. The remaining variables do not make sense in the model. This may be because the independent variables in the model are correlated.

Estimation of the regression provides information about the effect of the independent variable on the dependent variable. Based on the table above, it can be seen that Environmental Knowledge, Perceived Behavioral Control about financial resources,

affecting by consumption behavior of friends and celebrities for each individual increase the probability of behavioral intention. The remaining variables do not make sense in the model. This may be because the independent variables in the model are correlated.

The independent variable "Environmental Knowledge" is a quantitative variable,  $B_{10} = 0.196$ , it can be said that in condition of other factors unchanged, if the consumer A has more than consumer B one correct answer, the probability of A's Behavioral Intention increases by 21.65% ( $e^{B_{10}} = e^{0.196} = 1.2165$ ) compared to that of B. When people's knowledge about plastics waste pollution increases, they are more likely to increase the consumption intention to minimize plastic waste. The result is similar to previous studies by Kim & Chung (2011) and Aman (2012).

Consumption behavior of celebrities has the strongest impact on the consumption intention to minimize plastic waste of each individual with  $b_3 = 0.681$  ( $e^{B_3} > 1$ ). It shows that in 2 consumers have the same conditions, consumer who is more affected by the consumer behavior of celebrities has the probability of their behavioral intention greater. Similarly, although the impact is less strong ( $b_2 = 0.495$  and  $e^{B_2} > 1$ ) but each individual also tends to increase their consumption intention to minimize plastic waste when affected more by consumer behavior of their friends, compared to other individuals, in condition of other factors unchanged. Therefore, when consumers realize that their celebrities, friends have consumption behavior to minimize consumer plastic waste, they will tend to increase their consumption intention to minimize plastic waste.

The factor "Perceived Behavioral Control" on financial resources has  $B_9 = 0.675$  and  $e^{B_9} > 1$  shows that when each individual has financial resources to learn about the negative effects of plastic utensils, they also tend to increase the consumption intention to minimize plastic waste stronger than other individuals, in condition of other factors unchanged. This is quite true in Vietnam, most of the residents' income is low, so high-cost plastic substitutes are considered the biggest barrier to changing the consumption habits of plastic utensils.

## RECOMMENDATION AND CONCLUSION

The article provides a number of certain results on the factors influencing consumers' behavioral intentions to reduce plastic waste of people in Hanoi, Vietnam. Some hypotheses have been proved by regression results. Analyzing data collected from 726 consumers, concluded that in order to increase consumers' behavioral intentions to reduce plastic waste, it is necessary to enhance the knowledge of consumers to plastic waste problems, take advantage of effects influence the whole society as well as create favorable conditions for prices for plastic substitutes.

The study shows that each individual's behavioral intention to reduce plastic waste is most affected by consumer behavior by friends and celebrities. Therefore, it is necessary to build environmentally friendly lifestyles of the people through programs to reduce consumption of plastic, encourage the creation of environmental and consumer associations and clubs to reduce plastic waste activities, coordinating with relevant ministries and departments, celebrities and influencers organize propaganda activities, launch the community connection movement. This provides a lot of useful information to bring consumer access to reduce the plentiful plastic waste for consumers while spreading this eco-friendly lifestyle to more people.

Financial resources (Income) of each individual is also a factor that has a strong impact on consumers' behavioral intentions to reduce plastic waste. In Vietnam, plastic utensils, especially disposable plastic utensils, are very cheap while substitutes are highly priced, which is considered a barrier to consumption to reduce plastic waste. The government should support enterprises to promote R&D activities, increase production scale to reduce the cost of plastic substitutes; subsidize alternative products; levy high environmental tax for plastic utensils, enforce policies on sanctions for individuals or organizations involved in consumption cause too much plastic waste, improper handling, misuse of plastic utensils ... to thereby narrow the gap between prices plastic utensils and replacement products.

The study also emphasizes the positive impact of environmental knowledge on consumers' behavioral intentions to reduce plastic waste. Therefore, all information should be disseminated regularly and widely to people in all forms such as publishing books; organize short-term classes on consumption to reduce plastic waste, waste sorting, reusing and recycling plastic products; support and coach volunteers to manage environmental monitoring; enhance people's awareness through the media, product packaging, etc. These activities need to focus on clarifying the positive impact of environmentally friendly products and unstoppable harm of plastic waste to help people make the right choice as a smart consumer.

Most importantly, every citizen should have personal solutions to limit plastic waste to protect themselves and their families, and protect the surrounding environment, contributing to raising awareness of the commune. That solutions should be prioritized in the following order: Replacement - Saving - Reusing.

Despite the efforts to properly collect data, the compilation of data is not comprehensive in some aspect. However, we still believe that it may contribute to the foundation of further research on the topic Consumption to reduce plastic waste and is a premise for relevant organizations and agencies to offer appropriate solutions and recommendations to limit plastic waste pollution in Vietnam today. The study could be further accomplished by incorporating more variables and expanding sample size nationally and internationally.

## REFERENCES

### Article

1. A.H. Lizawati Aman (2012), "The Influence of Environmental Knowledge and Concern on Green Purchase Intention the Role of Attitude as a Mediating Variable", *British Journal of Arts and Social Sciences* ISSN: 2046-9578, Vol.7 No.II (2012). Retrieved at [https://www.researchgate.net/profile/Amran\\_Harun/publication/297312059\\_The\\_Influence\\_of\\_Environmental\\_Knowledge\\_and\\_Concern\\_on\\_Green\\_Purchase\\_Intention\\_the\\_Role\\_of\\_Attitude\\_as\\_a\\_Mediating\\_Variable/links/56de4e7c08aed4e2a99c6f42/The-Influence-of-Environmental-Knowledge-and-Concern-on-Green-Purchase-Intention-the-Role-of-Attitude-as-a-Mediating-Variable.pdf](https://www.researchgate.net/profile/Amran_Harun/publication/297312059_The_Influence_of_Environmental_Knowledge_and_Concern_on_Green_Purchase_Intention_the_Role_of_Attitude_as_a_Mediating_Variable/links/56de4e7c08aed4e2a99c6f42/The-Influence-of-Environmental-Knowledge-and-Concern-on-Green-Purchase-Intention-the-Role-of-Attitude-as-a-Mediating-Variable.pdf)
2. Ajzen I. (1985), "From Intentions to Actions: A Theory of Planned Behavior", In: *Kuhl J., Beckmann J. (eds) Action Control*. SSSP Springer Series in Social Psychology. Springer, Berlin, Heidelberg. Retrieved at [https://link.springer.com/chapter/10.1007/978-3-642-69746-3\\_2#citeas](https://link.springer.com/chapter/10.1007/978-3-642-69746-3_2#citeas)
3. Ajzen, I., (1991), "The theory of planned behavior", *ORGANIZATIONAL BEHAVIOR AND HUMAN DECISION PROCESSES* 50, 179-211. Retrieved at <https://www.sciencedirect.com/science/article/pii/074959789190020T>
4. Anssi Tarkiainen, Sanna Sundqvist, (2005), "Subjective norms, attitudes and intentions of Finnish consumers in buying organic food", *British Food Journal*, Vol. 107 Iss: 11 pp. 808 – 822. Retrieved at [http://blog.ub.ac.id/septavian/files/2013/01/Subjective\\_norms1.pdf](http://blog.ub.ac.id/septavian/files/2013/01/Subjective_norms1.pdf)
5. Baker, E.W., Al-Gahtani, S.S., Hubona, G.S. (2007) "The effects of gender and age on new technology implementation in a developing country: testing the theory of planned behavior (TPB)", *Information Technology & People* Vol. 20 No. 4, 2007 pp. 352-375 q Emerald Group Publishing Limited 0959-3845 DOI 10.1108/09593840710839798. Retrieved at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.468.6893&rep=rep1&type=pdf>
6. Chan, R.Y. & Lau, L.B. (2001), "Explaining green purchasing behavior: a cross-cultural study on American and Chinese consumers", *Journal of International Consumer Marketing*. Retrieved at [https://www.researchgate.net/profile/Ricky\\_Chan2/publication/295907206\\_Explaining\\_Green\\_Purchasing\\_Behavior\\_A\\_Cross-Cultural\\_Study\\_on\\_American\\_and\\_Chinese\\_Consumers/links/56d004af08ae4d8d64a020db.pdf](https://www.researchgate.net/profile/Ricky_Chan2/publication/295907206_Explaining_Green_Purchasing_Behavior_A_Cross-Cultural_Study_on_American_and_Chinese_Consumers/links/56d004af08ae4d8d64a020db.pdf)
7. Chen, M.-F., Tung, P.-J. (2014) "Developing an extended Theory of Planned Behaviour model to predict consumers' intention to visit green hotels" Retrieved at <https://www.sciencedirect.com/science/article/pii/S0278431913001266>
8. Dean, M., Raats, M.M., Shepherd, R. (2012) "The role of self-identity, past behaviour and their interaction in predicting intention to purchase fresh and processed organic food", *Journal of Applied Social Psychology*, 42: 669–688. Retrieved at <http://epubs.surrey.ac.uk/763166/1/Dean%20et%20al%20%282012%29%20The%20role%20of%20self-Identity%2C%20past%20behavior%2C%20and%20their%20interaction%20in%20predicting%20intention%20to%20urchase%20fresh%20and%20processed%20organic%20food.pdf>
9. D'Souza, C., Taghian, M., and Lamb, P. (2006), "An Empirical Study On The Influence Of Environmental Labels On Consumers", *Corporate Communications: An International Journal*, 11(2), 162-173. Retrieved at <http://dro.deakin.edu.au/eserv/DU:30008944/taghian-empiricalstudy-post-2006.pdf>
10. Fryxell, G. & Lo, C. (2003), "The influence of environmental knowledge and values on managerial behaviors on behalf of the environment: an empirical examination of managers in China.", *Journal of Business Ethics*, 46, 45–59. Retrieved at [https://www.researchgate.net/profile/Carlos\\_Lo/publication/268255926\\_THE\\_INFLUENCE\\_OF\\_ENVIRONMENTAL\\_KNOWLEDGE\\_AND\\_VALUES\\_ON\\_MANAGERIAL\\_BEHAVIOR\\_IN\\_CHINA\\_A\\_COMPARISON\\_OF MANAGERS\\_IN\\_GUANGZHOU\\_AND\\_BEIJING/links/54bb931d0cf24e50e940406b.pdf](https://www.researchgate.net/profile/Carlos_Lo/publication/268255926_THE_INFLUENCE_OF_ENVIRONMENTAL_KNOWLEDGE_AND_VALUES_ON_MANAGERIAL_BEHAVIOR_IN_CHINA_A_COMPARISON_OF MANAGERS_IN_GUANGZHOU_AND_BEIJING/links/54bb931d0cf24e50e940406b.pdf)
11. Han, H., Hsu, L.-T., Sheu, C. (2010), "Application of the Theory of Planned Behaviour to green hotel choice: testing the effect of environmental friendly activities". Retrieved at <https://www.sciencedirect.com/science/article/pii/S0261517709000557>
12. Hee Yeon Kim & Jae-Eun Chung (2011), "Consumer purchase intention for organic personal care products", *Journal of Consumer Marketing*. Retrieved at [https://s3.amazonaws.com/academia.edu.documents/36922435/MAIN\\_BASE.pdf?AWSAccessKeyId=AKIAIWOWY YGZ2Y53UL3A&Expires=1556854352&Signature=JAhmowOPTFBtq1favDKfaj7PDeE%3D&response-content-disposition=inline%3B%20filename%3DConsumer\\_purchase\\_intention\\_for\\_organic.pdf](https://s3.amazonaws.com/academia.edu.documents/36922435/MAIN_BASE.pdf?AWSAccessKeyId=AKIAIWOWY YGZ2Y53UL3A&Expires=1556854352&Signature=JAhmowOPTFBtq1favDKfaj7PDeE%3D&response-content-disposition=inline%3B%20filename%3DConsumer_purchase_intention_for_organic.pdf)
13. Hee, S.P. (2000), "Relationships among attitudes and subjective norm: testing the theory of reasoned action across cultures.", *Journal Communication Studies Volume 51, 2000 - Issue 2*. Retrieved at <https://search.proquest.com/openview/126eda7a63938f2b9cc1396cd25eab3b/1?pq-origsite=gscholar&cbl=36627>
14. Hong-Youl Ha, Swinder Janda, (2012) "Predicting consumer intentions to purchase energy-efficient products", *Journal of Consumer Marketing*, Vol. 29 Issue: 7, pp.461-469. Retrieved at <https://www.emeraldinsight.com/doi/abs/10.1108/07363761211274974?journalCode=jcm>
15. Kaiser, F.G., & Gutscher, H. (2003), "The proposition of a general version of the theory of planned behavior: Predicting ecological behavior", *Journal of Applied Social Psychology*. Retrieved at <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1559-1816.2003.tb01914.x>
16. Kim and Chung (2011), "Consumer purchase intention for organic personal care products", *Journal of Consumer Marketing* 28(1):40-47. Retrieved at [https://s3.amazonaws.com/academia.edu.documents/36922435/MAIN\\_BASE.pdf?AWSAccessKeyId=AKIAIWOWY YGZ2Y53UL3A&Expires=1556854537&Signature=LEluppRUK7KxVDcbpc%2BCTf0gus%3D&response-content-disposition=inline%3B%20filename%3DConsumer\\_purchase\\_intention\\_for\\_organic.pdf](https://s3.amazonaws.com/academia.edu.documents/36922435/MAIN_BASE.pdf?AWSAccessKeyId=AKIAIWOWY YGZ2Y53UL3A&Expires=1556854537&Signature=LEluppRUK7KxVDcbpc%2BCTf0gus%3D&response-content-disposition=inline%3B%20filename%3DConsumer_purchase_intention_for_organic.pdf)

17. Kotchen, M., Reiling, S. (2000), "Environmental attitudes, motivations, and contingent valuation of nonuse values: a case study involving endangered species", *Ecological Economics* 32 (2000) 93–107. Retrieved at <https://pdfs.semanticscholar.org/39be/312d54b20c6cee08ce6d285b8c1750e91c20.pdf>
18. Kumar, B. (2012) "Theory of Planned Behaviour Approach to Understand the Purchasing Behaviour for Environmentally Sustainable Products", *IIMA Working Papers WP2012-12-08*, Indian Institute of Management Ahmedabad, Research and Publication Department. Retrieved at <http://vsir.iima.ac.in:8080/jspui/bitstream/11718/11429/1/2012-12-08Bipul.pdf>
19. Leonard, M., Graham, S., Bonacum, D. (2004), The human factor: the critical importance of effective teamwork and communication in providing safe care, *Qual Saf Health Care* 2004;13(Suppl 1):i85–i90. doi: 10.1136/qshc.2004.010033 Retrieved at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1765783/pdf/v013p00i85.pdf>
20. Maloney, M. P., & Ward, M. P. (1973). "Ecology: Let's hear from the people: An objective scale for the measurement of ecological attitudes and knowledge.", *American Psychologist*, 583 – 586. <https://psycnet.apa.org/record/1974-05007-001>
21. Mohamed M. Mostafa (2007), "Gender differences in Egyptian consumers' green purchase behaviour: the effects of environmental knowledge, concern and attitude", *International Journal of Consumer Studies* Vol 31- Issue 3. Retrieved at <http://www.academia.edu/download/50267428/j.1470-6431.2006.00523.x20161112-29909-17a8n5c.pdf>
22. Paul, Modi & Patel (2016), Predicting green product consumption using theory of planned behavior and reasoned action, *Journal of Retailing and Consumer Services*. Retrieved at [https://www.academia.edu/19545868/Predicting\\_green\\_product\\_consumption\\_using\\_theory\\_of\\_planned\\_behavior\\_and\\_reasoned\\_action](https://www.academia.edu/19545868/Predicting_green_product_consumption_using_theory_of_planned_behavior_and_reasoned_action)
23. Stavros P. Kalafatis, Michael Pollard, Robert East, Markos H. Tsogas , "Green marketing and Ajzen's theory of planned behaviour: a cross-market examination", *JOURNAL OF CONSUMER MARKETING*, VOL. 16 NO. 5 1999, pp. 441-460, # MCB UNIVERSITY PRESS, 0736-3761. Retrieved at: [https://www.researchgate.net/profile/Robert\\_East2/publication/242341728\\_Green\\_marketing\\_and\\_Ajzen%27s\\_theory\\_of\\_planned\\_behaviour\\_A\\_cross-market\\_examination/links/560424f708aeb5718fcee04c.pdf](https://www.researchgate.net/profile/Robert_East2/publication/242341728_Green_marketing_and_Ajzen%27s_theory_of_planned_behaviour_A_cross-market_examination/links/560424f708aeb5718fcee04c.pdf)
24. Tanner, C., & Kast S. W. (2003), Promoting Sustainable Consumption: Determinants of green purchases by Swiss consumers, *Psychology & Marketing*. Retrieved at [https://www.researchgate.net/profile/Carmen\\_Tanner/publication/227662554\\_Promoting\\_Sustainable\\_Consumption\\_Determinants\\_of\\_Green\\_Purchases\\_by\\_Swiss\\_Consumers/links/5a10048e458515cc5aa6aed9/Promoting-Sustainable-Consumption-Determinants-of-Green-Purchases-by-Swiss-Consumers.pdf](https://www.researchgate.net/profile/Carmen_Tanner/publication/227662554_Promoting_Sustainable_Consumption_Determinants_of_Green_Purchases_by_Swiss_Consumers/links/5a10048e458515cc5aa6aed9/Promoting-Sustainable-Consumption-Determinants-of-Green-Purchases-by-Swiss-Consumers.pdf)
25. Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research*, 6, 144-176. Retrieved at <http://home.business.utah.edu/actme/7410/TaylorTodd.pdf>
26. United Nation (2018), "#BeatPlasticsPollution This World Environment Day, it's time for a change". Retrieved at <https://www.unenvironment.org/interactive/beat-plastic-pollution/>

#### Book

1. Ellen MacArthur Foundation (2016), "The new plastics economy – Rethinking the future of plastics". Retrieved at [http://www3.weforum.org/docs/WEF\\_The\\_New\\_Plastics\\_Economy.pdf](http://www3.weforum.org/docs/WEF_The_New_Plastics_Economy.pdf)
2. Ocean Conservancy (2015), Stemming the Tide: Land-based strategies for a plastic - free ocean" Retrieved at <https://oceanconservancy.org/wp-content/uploads/2017/04/full-report-stemming-the.pdf>
3. UNEP (2018), "SINGLE-USE PLASTICS: A Roadmap for Sustainability "United Nations Environment Programme". Retrieved at [https://wedocs.unep.org/bitstream/handle/20.500.11822/25496/singleUsePlastic\\_sustainability.pdf?isAllowed=y&sequence=1](https://wedocs.unep.org/bitstream/handle/20.500.11822/25496/singleUsePlastic_sustainability.pdf?isAllowed=y&sequence=1)

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