

# Assaing The Effect Of Product Innovations On Consumer Satisfaction: A Green Perspective

Hande Begüm BUMIN DOYDUK\* & Cansu AYKAÇ\*\*

## Abstract

*This article is organized around the idea of scrutinizing the effect of product innovations on environmental satisfaction levels of consumers on products change. The green product innovations are focused. The purpose of this study is to analyse the relationship between environmental friendliness of products and consumers' satisfaction level of the green products. Companies need to be aware of how customer's attitudes change and how the customer expectations through product innovations can be managed. The question mostly asked are "Are the customers more aware of the green products?" and "Do the existing green products in the market satisfy the customer expectations?". This study a scale by Suki (2015) was adapted and conducted over 206 respondents. The results was analysed by hierarchical regression. According to the findings, the effect of green product purchase intention on green product satisfaction was significant.*

**Key Words:** Environmental products, Customer Satisfaction, Green Product Satisfaction

## Tüketici Tatmininde Ürün Yeniliklerinin Etkisini Belirleme: Yeşil Perspektif

### Öz

*İlgili makale müşterilerin çevresel tatmin seviyelerinin ürün değişimlerinden nasıl etkilendiğini irdelemektedir. Araştırmada yeşil ürün inovasyonlarına odaklanılmış olup, amacı ise; ürünlerin çevre dostu oluşu ve yeşil ürünler için müşterilerin sahip olduğu memnuniyet seviyeleri arasındaki ilişkiyi analiz etmektir. Şirketler, müşteri tutumlarının nasıl değiştiği ve ürün değişimleri ile, müşteri beklentilerini nasıl tatmin edecekleri hususuna vakıf olmalıdır. Çoğunlukla dile getirilen sorular ise; "Müşterilerin yeşil ürünlere karşı olan farkındalıkları arttı mı? ve "Pazardaki mevcut yeşil ürünler müşteri beklentilerini tatmin edebiliyor mu?" şeklindedir. Araştırmada, toplam 206 kişi ile Suki'nin 2015 yılında çalışma\*\*sında kullandığı ölçekler uygulanarak elde edilen veriler kullanılmıştır. Hiyerarşik regresyon analizi sonuçları, yeşil ürün satın alma niyeti ile müşterilerin çevresel ürün satın alma memnuniyetleri arasında pozitif anlamlı ilişki olduğunu göstermiştir.*

**Anahtar Kelimeler:** Çevresel Ürünler, Müşteri Tatmini, Çevresel Ürün Tatmini

\* Asst.Prof. Hande Begüm Bumin Doyduk, Gelişim University, Faculty of Administrative Sciences.

\*\* Cansu Aykaç, PhDc, Yıldız Technical University, Faculty of Economics and Administrative Sciences

## 1. INTRODUCTION

Change is an 'observation of differences in time on one or more dimensions of an entity'<sup>1</sup>. Organizational change arises when members evolve from certain behaviors and methods of operation to different ones. Thus, it is a transfer mechanism to shift from one state to another different state over time<sup>2</sup>. Organizations may be introduced to changes with environmental pressures or they may make changes through internal choices (e.g. gain competitive advantage or to increase efficiency). The organizational change might be stemmed from the adoption of new elements (such as new services for clients, a new technology, or a new organizational form) or the modification of existing elements (such as the adaptation of existing services to new clients, the upgrade of an operating process or system, or the improvement of a management process or system).

During the last decades, organizations have been introduced to ecological (green) considerations in their product development strategies. As a result of this, organizations have been led to an increasing number of green product innovations. The increased green product innovations may be resulted from a "significant market potential"<sup>3</sup>.

The aim of the study is to determine the effect of green product change on consumer satisfaction. Consequently the relationship between green product purchase intention and environmental satisfaction of the consumers is analyzed.

## 2. LITERATURE REVIEW

Green innovations are vital for future. Innovation and sustainability should be hand in hand it is now a "strategic priority for theory and practice"<sup>4</sup>. Research shows that there is an increasing trend for the environmental issues concern<sup>5</sup>. More and more firms practice environmental sustainability<sup>6</sup>. Environmental protection strategies and environmental management in firms do not stem purely from altruistic goals of the corporations. Other reasons for green innovation are increasing the profitability, conforming to the regulations. Opportunity to reduce costs and to increase sales are the main incentives for businesses to invest in environmentally friendly products and processes.

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1 Andrew H. Van de Ven and Everett M. Rogers, "Innovations and Organizations: Critical Perspectives", *Communication Research* Vol. 15 No. 5, 1988, s. 632-651.

2 Richard L. Daft, "Essentials of Organization Theory & Design" (South Western Education Publishing, 2001).

3 Dorothea Seebode, Sally Jeanrenaud, and John Bessant, "Managing innovation for Sustainability", *R&D Management*, Vol. 42, No.3, 2012, s. 195-206.

4 Rosa Maria Dangelico and Pujari Devashish, "Mainstreaming Green Product Innovation: Why and How Companies Integrate Environmental Sustainability", *Journal of Business Ethics*, Vol.95, No. 3, 2010, s. 471-486.

5 Violeta Sima, "Green Behaviour of the Romanian Consumers.", *Economic Insights-Trends & Challenges*, Vol. 66, No.3, 2014, s. 77-89.

6 Kathy Babiak, and Sylvia Trendafilova, "CSR and Environmental Responsibility: Motives and Pressures to Adopt Green Management Practices", *Corporate Social Responsibility and Environmental Management*, Vol. 18, No. 1, 2011, s. 11-24.

As the demand for green products increases it enables ecofriendly firms to differentiate themselves and gain competitive advantage<sup>7,8</sup>. Firms also take advantage from strategies in favor of environmental management in the form of market share increase, potential consumers reach, cost reduction in long term and corporate image amelioration<sup>9</sup>. Companies increase their effort in environmental management applications as the benefits of environmental management strategies are recognized<sup>10</sup>.

Lately consumers have more positive attitudes and preferences towards green products<sup>11</sup>. Companies expect that the consumers' perception of environment friendly, green companies will cause more favorable attitude and higher purchase intention of the consumers<sup>12</sup>. Recently consumers are more enthusiastic about making purchase decisions based on a company's environmental management efforts<sup>13</sup>. Consumers start to care about environment more than before as environmental changes alarm such as the effects of global warming. It is stated that consumers become more responsive in environmental issues as the unusual climate changes can be observed clearly<sup>14</sup>. People become more alert about environment as it starts affecting their welfare and health<sup>15</sup>.

## **Green Marketing**

There are many definitions of green marketing. American Marketing Association (AMA) defines green marketing as "the marketing of products that are presumed to be environmentally safe". In terms of retailing, it is defined as "the development and marketing of products designed to minimize negative effects on the physical environment or to improve its quality", in terms of social marketing as "The efforts by organizations to produce, promote, package, and reclaim products in a manner

- 7 Robert Isaak, "The Making of the Ecopreneur", *Greener Management International*, 2005, s. 13-26.
- 8 Heidi von Weltzien Høivik and Deepthi Shankar, "How can SMEs in a Cluster Respond to Global Demands for Corporate Responsibility", *Journal of Business Ethics*, Vol. 101, No. 2, 2011, s. 175-195.
- 9 Yu-Shan Chen, Shyh-Bao Lai, and Chao-Tung Wen. "The Influence of Green Innovation Performance on Corporate Advantage in Taiwan", *Journal of Business Ethics*, Vol. 67, No. 4, 2006, s. 331-339.
- 10 Yu-Shan Chen, "Towards Green Loyalty: Driving from Green Perceived Value, Green Satisfaction, and Green Trust." *Sustainable Development*, Vol. 21, No. 5, 2013, s. 294-308.
- 11 Emine Sarigöllü, "A Cross-Country Exploration of Environmental Attitudes", *Environment and Behavior*, Vol. 41, No. 3, 2009, s. 365-386.
- 12 Elizabeth H. Creyer, "The Influence of Firm Behavior on Purchase Intention: Do Consumers Really Care About Business Ethics?", *Journal of Consumer Marketing*, Vol. 14, No. 6, 1997, s.421-432.
- 13 Lewis Akenji, "Consumer Scapegoatism and Limits to Green Consumerism.", *Journal of Cleaner Production*, Vol. 63, 2014, s.13-23.
- 14 Patrick Hartmann and Vanessa Apaolaza-Ibáñez, "Consumer Attitude and Purchase Intention toward Green Energy Brands: The Roles of Psychological Benefits and Environmental Concern", *Journal of Business Research*, Vol. 65, No.9, 2012, s. 1254-1263.
- 15 Joseph R. Hopper and Joyce McCarl Nielsen, "Recycling as Altruistic Behavior Normative and Behavioral Strategies to Expand Participation in a Community Recycling Program", *Environment and Behavior*, Vol. 23, No.2, 1991, s. 195-220.

that is sensitive or responsive to ecological concerns.” And in terms of environment<sup>16</sup> as “Green marketing is the activities of the firms for developing and marketing eco-friendly products”<sup>17</sup>.

### Product Change

Changes in product aim to satisfy and in most cases exceed the current and potential needs of consumers as in the form of introducing new products or services and adaptation of the existing ones<sup>18</sup>.

### Green Product Development

A green product is “a product that was manufactured and packaged to have a smaller impact on the environment or to contain less harmful ingredients”<sup>19</sup>. It stated that green products “strive to protect or enhance the natural environment by conserving energy and/or resources and reducing or eliminating use of toxic agents, pollution and waste”<sup>20</sup>

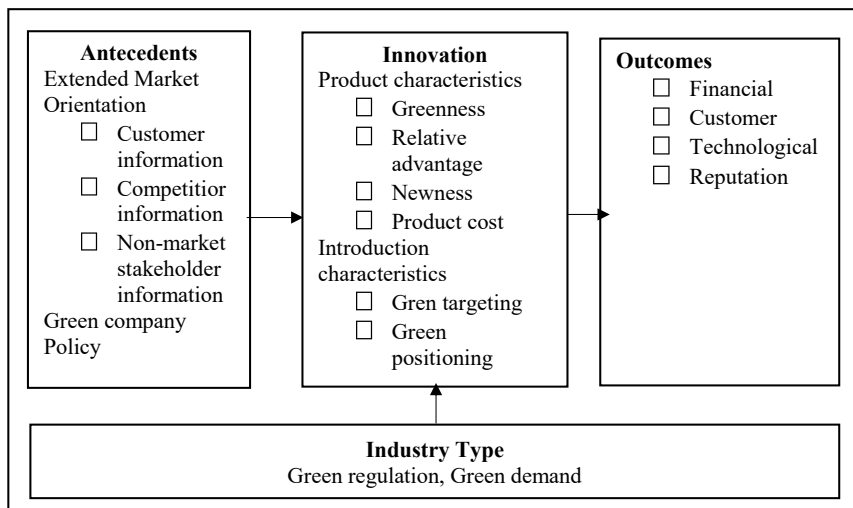


Figure 1: Integrative Framework for Green New Product Development <sup>20</sup>

16 <https://www.ama.org/resources/Pages/Dictionary.aspx?dLetter=G>  
 17 Aparna Choudhary, and Samir Gokarn, “Green Marketing: A Means for Sustainable Development”, *Journal of Arts, Science and Commerce*, Vol. 4, No. 1, 2013, s. 26-32.  
 18 Fariborz Damanpour and Deepa Aravind, “Product and Process Innovations: A Review of Organizational and Environmental Determinants”, *Innovation, Science, and Industrial Change: A Research Handbook*, 2006, s.38-66.  
 19 S. Choi and Y. Cho, “Exploring the Effects of Customer Attitude and Purchase Intention on Green Products: Implications for Corporate Environment Strategies and Public Policy”, *Journal of Marketing Thought*, 2015, s. 20-31  
 20 Paul H. Driessen, Bas Hillebrand, R. Kok and T.M. Verhallen, “Green New Product Development: The Pivotal Role of Product Greenness”, *Transactions on Engineering Management*, Vol.60, No. 2, 2013, s. 315-326

Green product development (GPD) activities started in late 1980s as environment issues such as global warming, rise of CO<sub>2</sub> in the atmosphere, decrease in natural resources. Green product development was defined by Pujari as a “new product development process wherein companies explicitly undertake activities to achieve higher environmental (green) performance as well as commercial performance”<sup>21</sup>.

As stated in the definition, there are two main aims of green product innovation. One of them is as the adjective green implies environmental management and the other one is being profitable. Thus it is also very important for the firms to acquire the consumers’ appreciation through their green innovations in order to increase customer satisfaction, loyalty, and consequently profitability and market share.

“Consumers who are aware and interested in environmental issues are called green consumers”<sup>22</sup>. Green product innovation is a multi-faceted process having three main environmental focus; material, energy, and pollution. Products have environmental impact during their life cycle; manufacturing process, product use, and disposal.

Dangelico and Pujari<sup>23</sup> suggested a framework for describing the green product innovation process (See Fig 2).

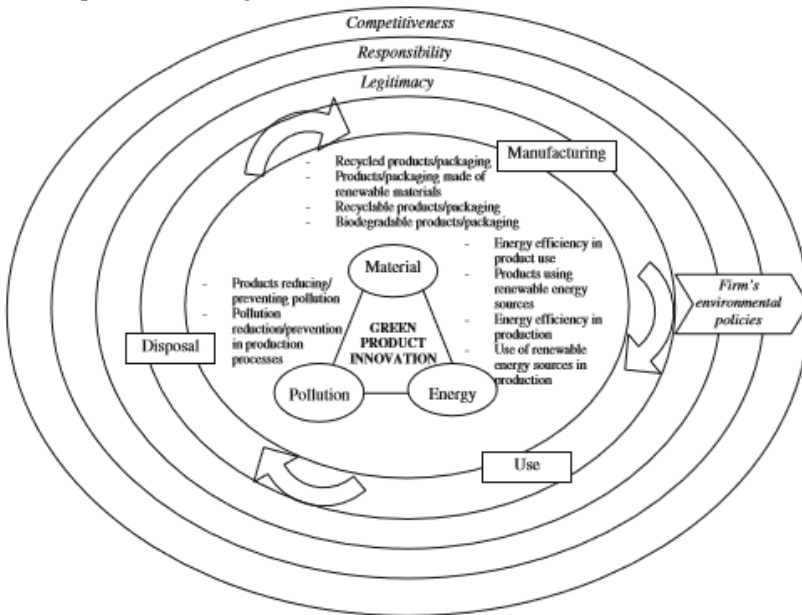


Figure 2: Green Product Innovation Process

- 21 Devashish Pujari, “Eco-innovation and New Product Development: Understanding the Influences on Market Performance”, *Technovation*, Vol. 26, No. 1, 2006, s. 76-85.
- 22 Violeta Sima, “Green Behaviour of the Romanian Consumers”, *Economic Insights-Trends & Challenges*, Vol. 66, No.3, 2014, s. 77-89
- 23 Rosa Maria Dangelico and Pujari Devashish, “Mainstreaming Green Product Innovation: Why and How Companies Integrate Environmental Sustainability”, *Journal of Business Ethics*, Vol.95, No. 3, 2010, s. 471-486.

Green innovations aim to reduce environmental impact in different stages such as manufacturing, use or disposal by focusing on material selection, use of energy and pollution. Green innovations necessitate corporate social responsibility view and environmental policy employment. It is stated that green innovations, green new product introductions improve the brand attitude of the customers<sup>24</sup>. Not only customer appreciation but also green product innovation enables increase in growth, environmental sustainability and quality of life<sup>25</sup>.

Among thousands of new products only few manage to be a long term success. Apart from the technological superiority and advanced product features what makes a difference for successful ones is the perception of consumers and further consumer satisfaction. If a product is perceived as not good enough or if it fails to satisfy the consumer expectations no matter how advanced the product eventually it cannot be a successful product launch. Product innovations should be realized and appreciated by target consumer groups in order to be successful. The same case also applies for environmental product innovations<sup>26</sup>. Green products which are perceived as having consumer environmental benefits create consumer demand<sup>27 28</sup>.

### **Green Innovation in Turkey**

2010 Community Innovation Survey conducted by Eurostat studied firms in 25 European countries, asking whether environmental impact was a highly important objective for innovation. Turkey ranked second (See Table 1). For Turkish companies reduction of environmental impact is very important. However Turkey ranked 77<sup>th</sup> in The Environmental Performance Index (EPI). EPI "ranks countries" performance on high-priority environmental issues in two areas: protection of human health and protection of ecosystems."<sup>29</sup>

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24 Mitchell C. Olsen Rebecca J. Slotegraaf, and Sandeep R. Chandukala, "Green Claims and Message Frames: How Green New Products Change Brand Attitude", *Journal of Marketing*, Vol. 78, No. 5, 2014, s. 119-137.

25 Rosa Maria Dangelico and Pujari Devashish, "Mainstreaming Green Product Innovation: Why and How Companies Integrate Environmental Sustainability", *Journal of Business Ethics*, Vol.95, No. 3, 2010, s. 471-486.

26 Thomas Cleff and Klaus Rennings, "Determinants of Environmental Product and Process Innovation." *Environmental Policy And Governance*, Vol. 9, No. 5, 1999, s. 191-201.

27 Jacqueline Ottman, *Green Marketing: Opportunity for Innovation*, (NTC: Lincolnwood, Illinois 1998)

28 Rosa Maria Dangelico, and Devashish Pujari, "Mainstreaming Green Product Innovation: Why and How Companies Integrate Environmental Sustainability", *Journal of Business Ethics*, Vol. 95, No.3, 2010, s.471-486.

29 <http://epi.yale.edu/>

**Table 1:** Proportion of Companies Claiming Reduction of Environmental Impact as a Highly Important Objective<sup>30</sup>

Country	Total %	10-49 Employees %	50-249 Employees %	250+ Employees %	Chi-sq	P<
Norway	38	40	30	47	33	.001
Turkey	38	38	37	44	2+	.001
Cyprus	37	35	42	43	3	.285
Hungary	35	30	39	51	63	.001
Slovenia	33	31	34	44	10	.006
Romania	30	24	35	49	120	.001
Latvia	27	22	32	38	11	.003
Croatia	26	26	27	37	7	.025
Lithuania	26	27	21	41	18	.001
Portugal	26	25	28	39	40	.001
Slovakia	24	23	21	36	20	.001
Luxembourg	24	21	26	34	6	.048
Ireland	23	23	23	27	2	.366
Poland	22	19	22	29	51	.001
France	21	19	24	32	225	.001
Bulgaria	21	18	24	31	30	.001
Austria	20	19	18	33	71	.001
Serbia	20	17	23	29	25	.001
Spain	19	18	21	29	115	.001
Sweden	18	17	20	30	59	.001
Malta	18	16	18	32	3	.222
Italy	17	16	21	26	251	.001
Belgium	16	13	20	31	110	.001
Czech Republic	15	13	15	28	99	.001
Estonia	13	10	15	35	40	.001

<sup>30</sup> Sherry Robinson and Hans Anton Stubberud, "Green Innovation and Environmental Impact in Europe", *Journal of International Business Research*, Vol. 14, No.1, 2015, 127-138.

**Table 2:** Reduction of Material and Energy Cost per Unit as a Highly Important Objective Compared to Reduced Environmental Impact as a Highly Important Objective

Country	Total %	10-49 Employees %	50-249 Employees %	250+ Employees %
Turkey	49%(-11%)	48%(-10%)	52%(-15%)	54%(-10%)
Slovenia	37(-4)	34(-3)	37(-3)	59(-15)
Cyprus	36(+1)	33(+2)	44(-2)	53(-10)
Hungary	35(0)	30(0)	39(-1)	46(+5)
Ireland	35(-12)	33(-10)	38(-15)	38(-11)
Norway	34(+4)	35(+5)	30(0)	42(+5)
Latvia	31(-4)	30(-8)	31(+1)	42(-4)
Romania	30(0)	25(-1)	37(-2)	46(+3)
Slovakia	29(-5)	23(0)	34(-13)	41(-5)
Lithuania	27(-1)	27(0)	23(-2)	45(-4)
Portugal	27(-1)	25(0)	33(-5)	42(-3)
Croatia	24(+2)	21(+4)	29(-2)	32(+2)
Poland	21(+1)	19(0)	23(-1)	27(+2)
Bulgaria	21(0)	17(+1)	27(-3)	29(+3)
Austria	21(-1)	18(+1)	24(-6)	38(-5)
Malta	20(-2)	14(+2)	31(-13)	32(0)
Czech Republic	19(-4)	16(-3)	22(-7)	32(-4)
Estonia	19(-6)	16(-6)	21(-6)	41(-6)
Spain	18(+1)	17(+1)	20(+1)	26(+3)
Sweden	18(0)	17(0)	19 (+1)	30(0)
France	18(+3)	17(+2)	20(+4)	26(+6)
Serbia	17(+3)	15(+2)	21(+2)	22(+7)
Luxembourg	17(+7)	13(+8)	22(+4)	24(-10)
Belguim	15(+1)	11(+2)	20(0)	30(+1)
Italy	14(+3)	13(+3)	17(+4)	25(+1)

38% of firms in Turkey reported that reducing environmental impact is an important objective while 49% firms confirmed that materials and energy savings is very important. The difference (-11%) points out that for most firms reducing materials and energy use is more important compared to reducing environmental impact. As stated before green innovations do not always aim solely environmental amelioration.

### Customer satisfaction

Customer satisfaction is a judgmental reaction to the perception of a consumption experience. “Customers want to associate themselves with companies and products that are eco-friendly”<sup>31</sup>. Customer satisfaction is very important for customer behavior. Studies suggested a positive association between customer satisfaction and purchase intentions<sup>32</sup>.

31 Rashad Yazdanifard and Igbazua Erdoo Mercy, “The Impact of Green Marketing on Customer Satisfaction and Environmental Safety”, 2011 International Conference on Computer Communication and Management, Vol. 5, 2011.

32 Vikas Mittal and Wagner A. Kamakura, “Satisfaction, Repurchase Intent, and Repurchase Behavior: Investigating the Moderating Effect of Customer Characteristics”, Journal of Marketing



Studies demonstrated that consumers are willing to pay more for green products<sup>33, 34</sup>. 83% of Brazilians, 93% of Thai, and 53% of American consumers stated that they are willing to pay more for green products<sup>35</sup>. Purchase of comparatively expensive green products necessitates giving up their own interest for green satisfaction<sup>36</sup>.

In line with literature, the proposed research model is;

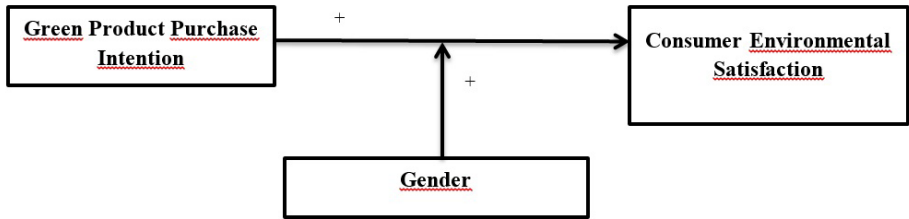


Figure 3: Proposed Research Model

**H1:** There is a significant relationship between Green Product Purchase Intention and Consumer Green Product Satisfaction

**H2:** There is a moderating effect of gender on the relationship between customer's green product intention and environmental satisfaction of the consumer.

### 3. METHODOLOGY

The target population of this study is consumers in Turkey. The data collection period started in March 2016 and ended in April 2016. In this study, convenience sampling method was used. A total of 226 questionnaires were collected, however 20 surveys were incomplete and discarded from research. This study was conducted with 206 people. Thus, the response rate of study is 91%. In the original article, the study conducted among 200 university students<sup>37</sup>.

Data collection instrument consists of three parts: Green product purchase intention, environmental satisfaction of consumer scales and demographic questions.

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Research, Vol. 38, No.1, 2001, s.131-142.

- 33 Heesup Han, et al. "Are Lodging Customers Ready To Go Green? An examination Of Attitudes, Demographics, and Eco-Friendly Intentions", *International Journal of Hospitality Management*, Vol. 30, No. 2, 2011, s. 345-355.
- 34 Michel Laroche, Jasmin Bergeron, and Guido Barbaro-Forleo, "Targeting Consumers Who are willing to Pay More for Environmentally Friendly Products", *Journal of Consumer Marketing*, Vol. 18, No.6, 2001, s. 503-520.
- 35 Aris YC Lam, Mei Mei Lau, and Ronnie Cheung, "Modelling the Relationship among Green Perceived Value, Green Trust, Satisfaction, and Repurchase Intention of Green Products", *Contemporary Management Research*, Vol. 12, No. 1, 2016, s. 47-59.
- 36 Jing Jian Xiao and Haifeng Li, "Sustainable Consumption and Life Satisfaction", *Social Indicators Research*, Vol. 104, No.2, 2011, S. 323-329.
- 37 Norazah Mohd Suki, "Customer Environmental Satisfaction and Loyalty in the Consumption Of Green Products", *International Journal of Sustainable Development & World Ecology*, Vol.22, No.4, 2015, s.292-301

Part one and part two of the questionnaire measured the respondents' green product purchase intentions. Green product purchase intention questionnaire was adapted from Abdul-Muhmin<sup>38</sup>, Chen et al.<sup>39</sup> and consists of 4 items. Section 2 of the questionnaire was about environmental satisfaction of the consumers which was adapted from Bansal<sup>40</sup>; Barnet<sup>41</sup>. This variable was measured with 4 questions. All questionnaires used in this study were measured by various items on 5-point Likert-type scale (1 = Completely disagree to 5 = Completely agree). SPSS 20.0 program was used to perform descriptive statistics, factor and reliability analysis, and regression analysis. Education level and age were used as control variables.

#### 4. RESULTS

In this study, 59,2% of the respondents were women and the rest of them were male consumers. Age variable is quantitative variable and average age of the respondents is 29 years old. Education level of the respondents, 29,1% of the respondents had high school degree, 51,5% had university degree and 19,4 had master or higher degree.

To analyze the data of current study, cross-tabulation, factor, reliability and regression analysis were used. To be able to identify variables, we conducted principle component analysis and created new components. In order to measure the internal consistencies of these components, we conducted reliability analysis. Moreover, to find the trends of following environmental products we made cross-tabulation analysis.

In addition, by asking an extra question, the consumer's following new green products has been measured. This new variable is branded as "*following up green product innovations*". To analyze this trend, we conducted a cross-tabulation analysis to find out the difference in awareness by gender and education levels.

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38 Alhassan G. Abdul-Muhmin, "Effects of Suppliers' Marketing Program Variables on Industrial Buyers' Relationship Satisfaction and Commitment", *Journal of Business & Industrial Marketing*, Vol. 17, No. 7, 2002, s.637-651.

39 Yu-Shan Chen, Shyh-Bao Lai, and Chao-Tung Wen, "The influence of Green Innovation Performance on Corporate Advantage in Taiwan", *Journal Of Business Ethics*, Vol. 67, No. 4, 2006, s. 331-339.

40 Pratima Bansal, "Evolving Sustainably: A Longitudinal Study of Corporate Sustainable Development", *Strategic Management Journal*, Vol. 26, No.3, 2005, s. 197-218.

41 ML Barnet, "Stakeholder Influence Capacity and the Variability of Financial Returns to Corporate Social Responsibility", *Academic Management Review*, Vol. 33, No. 3, 2007, s. 794-816

**Table 3:** Cross Table for Gender and Following up Green Product Innovations

			Following up Green Product Innovations		
			No	Sometimes	Yes
Gender	Female	Count	22	25	75
		%	<b>53,7%</b>	<b>53,2%</b>	<b>63,6%</b>
	Male	Count	19	22	43
		%	<b>46,3%</b>	<b>46,8%</b>	<b>36,4%</b>
Total	Count	41	47	118	
	%	100,0%	100,0%	100,0%	

Table 3 shows the result of cross-tabulation analysis for gender. According to the results, there is a difference between male and female in their green products following trends. The female consumer follows more green products than the male consumers.

**Table 4:** Cross Table for Education and Following up Green Product Innovations

			Following up Green Product Innovations		
			No	Sometimes	Yes
Education	Highschool	Count	16	18	26
		%	<b>39,0%</b>	<b>38,3%</b>	<b>22,0%</b>
	University	Count	18	23	65
		%	<b>43,9%</b>	<b>48,9%</b>	<b>55,1%</b>
Higher Degree	Count	7	6	27	
	%	<b>17,1%</b>	<b>12,8%</b>	<b>22,9%</b>	
Total	Count	41	47	118	
	%	100,0%	100,0%	100,0%	

Table 4 shows the distribution of the following eco-friendly products by educational level. Consumers of university graduates follow environmentalist products more than other education levels.

According to Nunnally<sup>42</sup>, acceptable Cronbach Alpha should be at least 0.7. Also, in the original article, Cronbach's alpha values are higher than 0.70 and factor loadings are higher than 0.50<sup>43</sup>. The scale of green product purchase intention's KMO value is 0.791 (%Explained Variation: 66,928) and Bartlett sig.is significant with 0.000. There was only a single factor with Cronbach alpha 0.835. The scale of consumer environmental satisfaction's KMO value is 0.778 (%Explained Variation: 68,934) and Bartlett sig.is significant with 0.000. There was only a single factor with Cronbach alpha 0.847 similarly in the originally study. Instruments' KMO and Bartlett's test results were found to be admissible, that means the data used in the analysis was collected homogeneously and there were significant correlations between items. The reliability analysis of the two instruments' Cronbach Alpha was acceptable. Thus,

42 J. C. Nunnally, *Psychometric Theory* (2nd ed.), (New York: McGraw-Hill,1978).

43 Norazah Mohd Suki, "Customer Environmental Satisfaction and Loyalty in the Consumption Of Green Products", *International Journal of Sustainable Development & World Ecology*, Vol.22, No.4, 2015, s.292-301

Green product purchase intention and customer green product satisfaction components had an internal consistency.

Hierarchical linear regression was performed to test hypotheses 1 and 2 on green product purchase intention towards customer green product satisfaction (dependent variable). The result of this regression was shown in following tables.

**Table 5:** Customer Green Product Satisfaction and Green Product Purchase Intention Correlation Matrix

		1	2
1	Customer Green Product Satisfaction		,726**
2	Green Product Purchase Intention	,726**	

\*\* Correlation is significant at the 0.01 level (2-tailed).

Table 5 indicates that the strength of association between the variables is high (r = 0.726), and that the correlation coefficient is significant (p < 0.05).

**Table 6:** Hierarchical Regression Results

	Standardized Coefficient s Beta	t	Sig.	VIF	Adj. R <sup>2</sup>	R <sup>2</sup> Change	F Change	Sig. F Change
<b>Model 1</b>								
(Constant)		5,601	,000		,533	,542	59,204	,000
Green Product Purchase Intention	,706	14,324	,000	1,060				
Education Level	-,007	-,142	,887	1,166				
Age	,011	,220	,826	1,173				
Gender	-,126	-2,586	,010	1,030				
<b>Model 2</b>								
(Constant)		2,671	,008		,532	,000	,055	,814
Green Product Purchase Intention	,716	10,862	,000	1,889				
Education Level	-,009	-,168	,867	1,181				
Age	,012	,225	,822	1,174				
Gender	-,078	-,376	,707	1,872				
Purchase Intention*Gender	-,048	-,235	,814	1,840				
					<b>Durbin-Watson: 1,987</b>			
<i>D.V.: Customer Green Product Satisfaction</i>								

Table 6 summarizes the hierarchical regression analysis results. As shown in the Table 6, when independent variable (Green Product Purchase Intention), age and

two control variables (Education level and age) were entered into the regression model in the first step. Adjusted  $R^2$  was found to be 0,533 indicating that 53,3% of customer green product satisfaction is explained by these variables. In the second step, we added our moderator variable (gender), no change in adj.  $R^2$  was observed and model was insignificant. Gender has no moderator role on the relationship between customer's green product intention and consumer environmental satisfaction. H2 was rejected.

The standardized coefficient for green product purchase intention is positive (0,706) and significant at the 0,05 level. There is a positive significant relationship between green product purchase intention and customer green product satisfaction. H1 was supported.

## DISCUSSION AND CONCLUSION

In this study, the relationship between green product purchase intention and environmental satisfaction in using green products was considered to a valuable knowledge for the customers' green product purchase motivations. Consumers are demanding products which are less polluting, minimizing waste and more recycling<sup>44</sup>. The study has also looked at the impact of gender as a moderator variable to see further. The moderator effect may lead us to find the differences on purchase intention according to the consumers' sociodemographic differences. Moreover, the studied model is expected to contribute to green product literature and consumers' purchasing habits in developing countries.

As a result, the cross tabulation analysis determined the valuable contributions of customers' green product follow ups with consumer's gender and education level. Especially, gender has an effect on the green product follow-ups. The result may be due to the fact that female consumers are generally shopping for home rather than men. In addition, female customers may be more sensitive about product changes and the effect of products on environmental changes. The conditional definition of gender effect may vary according to the gender perspective on environmental issues and actions<sup>45</sup>. Moreover, people who have graduated from university, follow up green products rather than people with lower or higher education degrees. The findings concluded that female consumers seek to green products.

Furthermore, the main effect of green product purchase intention on customer green product satisfaction, the study showed there is a positive significant relationship. However, the relationship cannot be moderated by gender. On the other

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44 G. Erbaşlar., "Yeşil Pazarlama ", *Mesleki Bilimler Dergisi (MBD)*, Vol. 1, No. 2, 2012, s. 94-101.

45 Won-Moo Hur, Jeong Woo, and Yeonshin Kim, "The Role of Consumer Values and Socio-Demographics in Green Product Satisfaction: The Case of Hybrid Cars", *Psychological Reports*, Vol. 117, No. 2, 2015, s. 406-427.

hand, previous studies (e.g. (Moutinho & Goode<sup>46</sup>; Oumlil & Erdem<sup>47</sup>) found gender moderates the relationship. Hur and et.al. mentioned that the environmental concerns may affect female buyers' attention toward green products or gender is an important element for purchase decision that mirrors on the satisfaction. A study carried out with 600 people in Turkey, gender, marital status, age, education and income were significant correlation between the green purchase behaviors. It has also been observed that more women are buying green products<sup>48</sup>. In another study, it was found regional disparities in the choice of environmentally friendly products in Turkey<sup>49</sup>. Çabuk and Nabıkoğlu<sup>50</sup> found that there is a relationship between consumers' environmental sensitivities and purchasing behaviors. According to the results, consumers with high environmental awareness have a high level of environmental purchasing behavior. Compared to the previous studies, we could not find any significant moderator effect of gender. Culture and national economic activity may have an important impact to conclude in a same way. Our study investigates this relationship in a developing country, Turkey. Due to that, consumers' purchase intention might be different in developing and developed countries. As the environment gets worse, it has become an insistent public interest in the developed countries and green movement also started to wake up in developing countries<sup>51</sup>. For these reasons, the intention towards the environmental products in the developing countries is more recent than the developed countries.

### Implications of the study

The study suggests several implication and addresses to contribute to the development of the relation between purchase intention and consumer satisfaction from a green product perspective. The results of the study points out that companies should develop strategies from a green perspective in order to adapt to the changing consumers' need. Also, by making environmental policy adjustments, governments should encourage companies to produce environmental friendly products. Second, companies should focus on environmental issues. Companies are not only responsible for the environment but also responsible for the consumers. The green product innovation figures on customer purchase intention and satisfaction. Thus, marke-

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46 Luiz Moutinho and Mark Goode, "Gender Effects to the Formation of Overall Product Satisfaction: A Multivariate Approach", *Journal of International Consumer Marketing*, Vol. 8, No.1, 1995, s. 71-92.

47 A. Ben Oumlil and Orhan Erdem, "Self-Concept by Gender: A Focus on Male-Female Consumer", *Journal of Marketing Theory and Practice*, Vol.5, No. 1, 1997, s. 7-14.

48 Serap Çabuk, Burak Nakiboğlu and Ceyda Keleş, , "Tüketicilerin Yeşil Ürün Satın Alma Davranışlarının Sosyo Demografik Değişkenler Açısından İncelenmesi", *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, Vol. 17, No. 1, 2008.

49 Elif Çolakoğlu, Türk, B., Başar, E. E., and Gül, O., "Kişisel Değerler ve Çevre Bilincinin Çevreci Ürünlerin Tercih Edilmesindeki Etkileri: Karşılaştırmalı Bir Araştırma", *Ulusal Pazarlama Kongresi, Kars/Türkiye*, 2013

50 Çabuk Serap, and Nakiboğlu Burak, "Çevreci pazarlama ve Tüketicilerin Çevreci Tutumlarının Satın Alma Davranışlarına Etkileri ile İlgili Bir Uygulama", *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, Vol. 12, No. 12, 2003.

51 Chen Tan Booi, and Lau Teck Chai, "Attitude towards the Environment and Green Products: Consumers' Perspective", *Management Science and Engineering*, Vol. 4, No. 2, 2010, s. 27.

ters should stress on environmental products in order to increase consumers' green product satisfaction. Third, green market is growing expeditiously. Companies that see green as an opportunity, generate competitive advantage with product changes through satisfied customers. In the long run, green production will allow companies to maximize their profits and achieve sustainable development through efficient usage of raw materials, energy and pollution reduction.

### **Limitations of this study**

In illustrating the result of current study, some limitation should be considered. Firstly, some mediating variables, such as product features or price perception can be added to the model. Future researchers should evaluate the results by considering the impact of mediating variables. Second, the study focuses on consumers' perspective without considering different industries. Thus, future studies need to compare the results according to the different industry perspectives. The size of the research population is our last limitation. The limitation of the target population may cause socio-demographic biases. The target population should be enlarged in future studies.

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