

A STORY ON SUSTAINABILITY: BOTH THE FIRM AND THE EMPLOYEES ARE GREEN*

Bir Sürdürülebilirlik Hikayesi: Hem İşletme Hem Çalışanlar Yeşil

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Abstract

Sensitivity on environment has increased according to the awareness of ecological balance uniqueness. Environmental awareness and sensitivity are all vital both for individuals and organizations. Depletion of natural resources day by day, has forced businesses to develop environment focused strategies in order to minimize the harm they cause

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especially during producing and delivering process. Green supply chain management aims to manage the economic, social and environmental sensitivity of material cycle process. The study aims to focus on the demographic correlates of environmental sensitivity among Barilla's employees aims to find out the, and to make suggestions both to the firm explored and the relative organizations and to the government officials on the basis of sample. The research was conducted with a complete count sampling, face-to-face survey on Barilla employees in Turkey branch. Environmental Sensitivity Scale (Çabuk and Karacaoğlu, 2003) used to assess participants' environmental sensitivity levels with 6 dimensions (air-water-soil pollution, ecological balance practises, participation to environmental activities and participation to environmental trainings). And the hypotheses have been developed to reveal the differences of environmental sensitivity according to the demographic variables (education, age, gender and marital status) of participants and tested with ANOVA and t-test analyses. In the light of analyses, it has been found out that there has been a positive relationship between education variable and environmental sensitivity; and significant difference on 26-35 age group was seen. And also, it has been found out that on marital status variable the single ones differ from married ones on environmental practises. And no significant difference was seen between males and females according to their environmental sensitivity and awareness.

Key words: Green supply chain management, Environmental sensitivity, Environmental awareness, Quantitative research, t-Test, ANOVA, Barilla

Öz

Ekolojik dengenin yeganeliğinin farkındalığı çevre duyarlılığını artırmıştır. Çevre bilinci ve çevre duyarlılığı hem bireyler hem de işletmeler için hayati öneme sahiptir. Doğal kaynakların günden güne tükenmesi işletmeleri, özellikle üretim ve dağıtım süreçleri sebepleriyle neden oldukları zararları en aza indirmeleri için çevre odaklı stratejiler geliştirmeleri yönünde zorlamıştır. Yeşil tedarik zinciri yönetimi, malzeme döngüsün sosyal, ekonomik ve çevresel duyarlılığını yönetmeyi amaçlar. Çalışma, Barilla Türkiye üretim birimi çalışanlarının çevresel duyarlılığın demografik özellikleri ile ilişkilendirilmesine odaklanmayı ve hem araştırılan firmaya hem ilgili organizasyonlara hem de kanun koyuculara örneklem bazında önerilerde bulunmayı amaçlamaktadır. Tam sayım örnekleme çerçevesinde yürütülen araştırmada katılımcıların çevreye duyarlılık seviyeleri altı boyuttan (hava-su-toprak kirlili-

liği, ekolojik denge eğitimlerine katılım, çevresel etkinliklere katılım, çevresel eğitimlere katılım) oluşan Çevresel duyarlılık ölçeği (Çabuk ve Karacaoğlu, 2003) ile belirlenmiştir. Hipotezler, katılımcıların demografik özelliklerine (eğitim, yaş, cinsiyet ve medeni durum) göre çevresel duyarlılık farklılıklarını ortaya koyma amacıyla geliştirilmiştir. Araştırmada Anova ve t-test analizleri uygulanmıştır. Analizler ışığında eğitim değişkeni ile çevresel duyarlılık arasındaki ilişkinin pozitif yönde olduğu; 25-36 yaş aralığında anlamlı fark bulunduğu ve medeni durum değişkeninde bekâr olanların çevresel faaliyetlere daha fazla değer verdikleri; cinsiyet değişkenine göre ise anlamlı bir sonuca ulaşılmadığı ortaya konulmuştur.

Anahtar kelimeler: Yeşil tedarik zinciri yönetimi, Çevresel duyarlılık, Çevresel farkındalık, Nicel araştırma, t-Test, ANOVA, Barilla

INTRODUCTION AND PURPOSE OF THE STUDY

For a habitable and sustainable world both the individual efforts and the sensitivities of the businesses to the issue are crucial. As the environmental problems and the depletion of natural resources increase, the number of conscious individuals and legal regulations around the world has started to increase day by day. And this circumstance has provided businesses to bend on the environmental issues. Business activities' environmental impacts have become an important issue in recent years due to growing public awareness-sensitivity on conservation of environment, increasing need for sustainable development, and regulations of environmental legislations (Lau, 2011:873).

The Barilla G.e.R Fratelli S.p.A. (Barilla), that has international operations and facilities all over the world and has one of the largest pasta production facility located in Turkey, is an exemplary business on sustainability and environment sensitivity subject with its green supply chain management (GSCM) practises, and it has been awarded with many prizes.

The starting point of the study is to elicit the sensitivity of employees of Barilla, which is considered as one of the exemplary busi-

ness in GSCM scope, on sustainability. The purpose of the study is to focus on the demographic correlates of environmental sensitivity among Barilla's employees aims to find out the, and to make suggestions both to the firm explored and the relative organizations and to the government officials on the basis of sample.

CONCEPTUAL FRAMEWORK

About Green Supply Chain Management and Sensitivity on Environment

All over the world, the businesses have questioned and faced with many troubles, difficulties due to environmental problems and matters. Particularly the producers, manufacturers, that are held to be most responsible from environmental matters, try to form new and creative strategies in their production, supply and management processes, which require less energy and raw material usage and compose less waste. Organizations face great responsibilities to decrease their impacts on environment (Shen et al., 2013:171).

As the businesses are accepted as the prior responsible parts that damage the environment, GSCM concept has start to develop (Adriana, 2009:1386). The first clear green concept came along in 1970's and the relationships between economic development and the development of social relationships, environment and natural resources was noticed and defined (Jedliński, 2014:103). As environmental awareness maximizes, businesses learn to purchase products and services from the suppliers that are able to provide with low cost, higher quality, short lead time etc. as well as attending to environmental standards and guideline (Lee et al. 2009). Wisner et al. (2012) have underlined that the businesses with GSCM operations will be able to have cost savings, conserve raw materials, reduce energy and water use, beside these they will have better public image and decrease the accusations for environmental problems. Stolka (2014:303) has pointed out that the businesses seek to provide a sustainable balance on environmental, economic and social goals by operating green and

environment focused activities. And many of them develop environment focused models and management strategies, particularly in the use of natural resources (Jedliński, 2014:104) to minimize the damage given to the environment. However, Dwvedi (2016:244) highlights the fact that there are many executives who are still not aware of the GSCM opportunities that improving environmental performance means lower waste-disposal and training costs, fewer environmental-permitting fees and often, reduced material costs.

Chin et al. (2015:695) have noted GSCM as an environmental innovation; a broad-based innovation that enables businesses to develop win-win strategies and enables them to achieve their profit and market share goals and beside these, GSCM has ability to rise the ecological efficiency and reduce the environmental risks and adverse impact (Zhu et al., 2005; Akkücüük, 2017:204). Shen et al. (2012:178) have taken an attention to supplier part and have determined that a green supplier selection approach in a competitive international and regulatory environment will help to decrease the environmental and legal risks and will increase the competitiveness of a business. Shuwang et al. (2005) have pointed out the supply chain's key features as reducing the source and energy consumption in the chain, adding the recovery process and having a great care about integration of environmental protection process through all business system to be *green*. And the researchers have defined GSCM as an effective way to reduce the environmental impacts of products throughout their life cycles (Shuwang et al., 2005). Srivastava (2007:59) has defined GSCM as a combination of environmental idea and supply chain management that integrates the environmental idea with the stages of serving, manufacturing and after sales serving processes.

Flammer (2013:759) and Chin et al. (2015) have pointed out the positive relation between share values and environmental performances of businesses and Zsidisin and Sifer (2001:63) have defined that GSCM cares for not harming the environment in product design, manufacturing, distribution and recycling stages. Managing the

material cycle with sensitivity in socially, economically and environmentally through the chain is the aim of GSCM. Also it aims to prevent various pollutions that may arise from both in production and post-production stages. In order to maintain the business' sustainable competitive advantage, it should develop environment sensitive strategies and environmentally friendly products and production systems. It is foreseen that the businesses' GSCM applications will positively affect the world eco at macro level and their profitability at micro level.

The employees are the ones who organize, apply and control the GSCM process in businesses. Individuals, employees and the managers are the main decision makers on sustainability and environmental sensitivity and awareness. They all have great importance on businesses' GSCM strategies planning, administration and application processes. In businesses organizations and/ or education activities need to be established to create, develop and sustain environmental performances of employees. The human resources management (HRM) is generally referred as the department that plans and implements such activities in an organization. Jabbour and Santos (2008:2143-2144) have identified the importance of HRM on environmental performances of employees and Young et al. (2015) have emphasized that sustainability and corporate social responsibility projects need to be integrated into core business functions as organizational management structures and HRM.

Beside the priority of HRM, academicians and the professionals stated that the integration of sustainability strategies with all activities of the organizations is a vital issue. Liu et al. (2012:581) have described the theoretical 6Ps integration model including product, promotion, planning, process, people and project, to integrate green marketing and sustainable supply change management. Furthermore, Hoejmose et al. (2012) have determined that the top managers' supports on green process affect GSCM practices positively and the organizational learning has a great effect on green supply chain

applications; they insist on the importance of managers' supports and participations on green process. Many researchers have stated that environmental education and awareness training have a positive impact on environmental performance of businesses (Renwick et al., 2012; Opatha and Arulrajah, 2014:104; Ahmad, 2015:13; Liao, 2017:5436; Law et al., 2017). Shenetal (2013) have determined that training of the employees has a great importance to increase environmental awareness with the other keys factors, which can be summarized as participation of managers in green supply chain workshops, using environment friendly technologies and materials, resource consumption, waste water. Karahan (2017:371) has stated that the managers' attendances to any educational programme related with environment, increase their both environment sensitivity and environment awareness.

The firms' sizes, being small, medium or large enterprises, have also an important effect on GSCM and environmental sensitivity beside the importance of demographic features, managers' attitudes, educations, integrations of environment awareness with all activities. Many researchers have argued that larger firms are more capable to invest on GSCM and environmental activities both in finance and awareness (Murray, 2000:40; Olson, 2008:29, Lau, 2011:880). The larger ones have defined GSCM strategies as a part of their corporate strategies and this perspective supports their sustainable competitive advantage. Ceyhan and Ada (2015:130) has examined in their research that the large sized companies have more awareness and consciousness than small sized ones on environmental sensitivity.

Lau (2011:881) has taken attention to the financial budget and has stated that investment in environmental sensitivity programs may be a heavy economic burden to smaller firms. Birkin et al. (2009) have argued the perspective of environmental awareness in small sized ones and have defined that the small ones generally have no action but only wishes for sustainable development activities and they have added that the small sized firms do not have significant results

but only have interest in sustainable development and environmental awareness.

It is thought that the small sized firms around the world, usually start to take consider on environmental issues and integrate their operations with GSCM practises as they serve for developed markets and/ or having negotiations with large sized firms. Birkin et al. (2009) have revealed a mix research with the sample of 20 Chinese small and medium sized manufacturers which are lack of significant sustainable development activities but appeared to show interest in sustainable development and environmental awareness. And they have identified that rather than reducing costs and/or being green, exporting to Europe is the main goal for educating employees on GSCM, using renewable energy, alternative sustainable materials, closing the gap of supply chain and improving the quality of products.

As seen the cases from literature (Yücel et al. 2015; Kalburan and Haşiloğlu, 2013:980-981) larger Şrms are more capable to invest in the area. And the small sized ones have to modify their activities with environment friendly *environment sensitivity* is an inalienable and non-negligible competitive advantage strategy.

In the light of previous studies and discussions on environmental sensitivity and GSCM, the purpose of the current study is to find out the role of Barilla's employees, who work in Turkey-branch, in green supply chain management system and practices integrity in addition to their individualistic awareness on environmental sensitivity. And to make suggestions both to the case business, to potential organizations and to government officials on the basis of sample.

According to purpose of the study, the research question is;

Do the environmental sensitivities of the employees in the framework of GSCM differ according to their demographic features? (Education level, age, gender, marital status).

Environmental sensitivity and awareness have increased as a result of disruption of the ecological balance. Environmental sensitivity

and awareness are both important for individuals and businesses. As a multinational company Barilla should require to meet individualistic needs and expectations for a sustainable competitive advantage. As many environmental sensitive companies also Barilla implements environmental sensitivity within the framework of GSCM practises. The employees have great effects on achieving businesses' goals and sustainable competitive strategies. And in the current study, Barilla's employees are considered as the essential part that implement, manage, audit and develop the environment-friendly GSCM practises.

In the literature, demographic characteristics such as education level (Özdemir, 1998; Pearce, 2009), age (Erol and Gezer 2006; Ek et al. , 2009), gender (Çabuk and Karacaoğlu,2003;Ankaya et al., 2017; Karahan, 2017), marital status (Erbaşı, 2017) of individuals, employees are stated to be effective on environmental sensitivity. The hypotheses of the current study developed based on the literature;

H₁: Employees' environmental sensitivities differ according to the education level.

H_{1.1}: Employees' sensitivity to air pollution differs according to the education level.

H_{1.2}: Employees' sensitivity to water pollution differs according to the education level.

H_{1.3}: Employees' sensitivity to soil pollution differs according to the education level.

H_{1.4}: Employees' sensitivity to ecological balance practises differs according to the education level.

H_{1.5}: Employees' sensitivity to participation to environmental activities differs according to the education level.

H_{1.6}: Employees' sensitivity to participation to environmental trainings differs according to the education level.

H₂: Employees' environmental sensitivities differ according to their ages.

H_{2.1}: Employees' sensitivity to air pollution differs according to their ages.

H_{2.2}: Employees' sensitivity to water pollution differs according to their ages.

H_{2.3}: Employees' sensitivity to soil pollution differs according to their ages.

H_{2.4}: Employees' sensitivity to ecological balance practises differs according to their ages.

H_{2.5}: Employees' sensitivity to participation to environmental activities differs according to their ages.

H_{2.6}: Employees' sensitivity to participation to environmental trainings differs according to their ages.

H₃: Employees' environmental sensitivities differ according to their genders.

H_{3.1}: Employees' sensitivity to air pollution differs according to their genders.

H_{3.2}: Employees' sensitivity to water pollution differs according to their genders.

H_{3.3}: Employees' sensitivity to soil pollution differs according to their genders.

H_{3.4}: Employees' sensitivity to ecological balance practises differs according to their genders.

H_{3.5}: Employees' sensitivity to participation to environmental activities differs according to their genders.

H_{3.6}: Employees' sensitivity to participation to environmental trainings differs according to their genders.

H₄: Employees' environmental sensitivities differ according to marital status.

H_{4.1}: Employees' sensitivity to air pollution differs according to marital status.

H_{4.2}: Employees' sensitivity to water pollution differs according to marital status.

H_{4.3}: Employees' sensitivity to soil pollution differs according to marital status.

H_{4.4}: Employees' sensitivity to ecological balance practises differs according to marital status.

H_{4.5}: Employees' sensitivity to participation to environmental activities differs according to marital status.

H_{4.6}: Employees' sensitivity to participation to environmental trainings differs according to marital status.

METHOD

Scope of the case company

The vision of Barilla stands on *Good for you good for planet-2016* motto and its competitive strategy is based on *Give people food that you would give your own children - 2017* motto (Barilla G.e.R Fratelli S.p.A, [https://www.barillagroup.com /en/vision-and-strategy](https://www.barillagroup.com/en/vision-and-strategy), 15.01.2018). Every year Barilla performs social responsible projects and also incorporates its employees into these projects in cooperation with United Nations Educational, Scientific and Cultural Organization (UNESCO) and it was awarded on 11th Industrial Plant Award for Energy Efficiency, following a competition organized by the Republic of Turkey Ministry of Energy and Natural Resources Ministry and became the first energy efficient facility in Turkey in 2011. Electricity and natural gas energies have been emphasized in saving projects.

Sample

Cause of taking part in production, one of the biggest pasta producer in the world, having national and international co-operations in environmental sensitive projects and being the first awarded company as a producer in food sector, Barilla's employees in Turkey branch has been identified as the universe, main mass. Barilla has 202 employees in Turkey branch and the study based on a complete count sampling.

Measures

Environmental sensitivity scale (ESS), was developed by Çabuk and Karacaoğlu (2003), has been used to evaluate the environmental sensitivity levels of participants in the research. ESS is made up of 6 sub-dimensions; air pollution (AP), water pollution (WP), soil pollution (SP), ecological balance practises (EBP), participation to environmental activities (PEA) and participation to environmental trainings (PET). ESS is formed in 3 Likert type scale (always, occasionally, never) and has totally 22 items; AP has 3 items, WP has 4, SP has 7, EB has 2, PEA has 2 and PET has 4 items. The current research's Cronbach alpha coefficient is 0, 80 and the survey was conducted in 2016, 06-30 December, as face-to-face survey method.

Data Analyses and Findings

Demographic information is given to provide data regarding research participants. The demographic information of the participants, (Table 1);

Table 1: Demographic Variables

	%	F
Gender Female Male	35,6	72
	64,4	130
Marital status Married	74,8	151
Single	25,2	51
Age18-25	11,4	23
26-35	25,7	52
36-45	49,5	100
46and +	13,4	27
Education Primary	6,4	13
Secondary	3,5	7
High school	37,6	76
College	24,8	50
University and over	27,7	56

To test the hypotheses, which were developed to reveal the differences of environmental sensitivity according to the education, age, gender and marital status of Barilla employees, SPSS 15.00 program has been used.

Within the scope of the study environmental sensitivity dimensions have been determined with factor analyses; t-test analyses and ANOVA have been used to determine whether these factors differ in terms of demographic variables. As there has been difference between the groups, post-hoc has been used. Alpha reliability coefficient (α) was found to be 0,80 and the factor analyse test was used for the construct validity of the sub-factors. As a result, it was determined that all 22 items were suitable for the research. The analyses of the study are given below with the tables 2, 3, 4 and 5.

Table 2 exhibits, whether the environmental sensitivities of Barilla employees toward AP, WP, SP, EBP, PEA and PET dimensions about environment differ according to their education level.

Table 2: Education - Environmental sensitivity

	n	\bar{x}	SD	df	F	P
AP						
Primary school	13	1,5641	,28495			
Secondary school	7	1,6667	0,00000			
High school	76	1,6360	,31822	4	6,351	,000
College	50	1,7467	,29784	197		
University and over	56	1,8988	,37562			
TOTAL	202	1,7327	,34078	201		
WP						
Primary school	13	1,4103	,27735			
Secondary school	7	1,3929	,31810			
High school	76	1,3388	,34328	4	,247	,911
College	50	1,3250	,25380	197		
University and over	56	1,3408	,30661			
TOTAL	202	1,3424	,30574	201		
SP						
Primary school	13	1,3846	,22120			
Secondary school	7	1,6327	,11240			
High school	76	1,3383	,23772	4	2,654	,034
College	50	1,3543	,31383	197		
University and over	56	1,4413	,31567			
TOTAL	202	1,3840	,28238	201		
EBP						
Primary school	13	2,0385	,43116			
Secondary school	7	2,0000	0,00000			
High school	76	1,9013	,51653	4	1,984	,098
College	50	2,1200	,42330	197		
University and over	56	1,9286	,42027			
TOTAL	202	1,9752	,45916	201		
PEA						
Primary school	13	2,0000	,57735			
Secondary school	7	2,7857	,39340			
High school	76	2,0329	,51209	4	4,342	,002
College	50	2,0200	,39071	197		
University and over	56	2,0536	,46396			
TOTAL	202	2,0594	,48759	201		
PET						
Primary school	13	2,0000	,57735			
Secondary school	7	2,7857	,39340			
High school	76	2,0329	,51209	4	4,342	,002
College	50	2,0200	,39071	197		
University and over	56	2,0536	,46396			
TOTAL	202	2,0594	,48759	201		

ANOVA has been conducted to determine the differences between the average values of the participants towards AP, WP, SP, EBP, PEA and PET according to the education variable.

According to ANOVA results, that has been conducted to detect the differences between the average values of the participants towards AP dimension through the educational level variable, has been determined that the values are significant statistically ($F=6,351$; $p<.0.05$). To determine the direction of the difference, Scheffe post-hoc test has been used, it has been found out that, those whom are graduated from university ($\bar{x} = 1,8988$) have higher sensitivity to AP than high school graduates ($\bar{x} = 1,6360$) and primary school graduates ($\bar{x} = 1,5641$).

It has been indicated that values are not significant statistically ($F=0,247$; $p>0.05$) as the result of ANOVA, which has been conducted to determine the differences between the average values of the participants towards WP dimension according to the educational level variable.

To determine the differences of the average values of participants towards SP dimension according to education level variable statistically, it has been indicated with ANOVA that the values are significant statistically ($F=2,654$; $p<0.05$); Scheffe post-hoc test has been used to determine the direction of the difference and those whom are graduated from secondary school ($\bar{x} = 1, 6327$) have been found to have higher sensitivity to SP than high school graduates ($\bar{x} = 1, 3383$).

It has been detected that values are not significant statistically ($F=1,984$; $p>0.05$) as the result of ANOVA, which has been conducted to determine the differences between the average values of the participants towards EBP dimension through the educational level variable.

According to ANOVA results, which has been conducted to determine the differences between the average values of the participants towards PEA dimension according to the educational level variable, it has been indicated that the values are significant statisti-

cally ($F=4,342$; $p<.0.05$) and Scheffe post-hoc test results has been exhibited that, those whom are graduated from secondary school ($\bar{x}=2,7857$) have higher sensitivity to PEA than those of primary school graduates ($\bar{x}=2,00$), high school graduates ($\bar{x}=2,0329$), college graduates ($\bar{x}=2,02$) and university graduates ($\bar{x}=2,0536$).

It has been detected that the values are significant statistically ($F=2,991$; $p>0.05$) as the result of ANOVA, which has been conducted to determine the differences between the average values of the participants towards PET about environment dimension according to the educational level variable. Scheffe post-hoc test results have been exhibited, those whom are graduated from secondary school ($\bar{x}=2,6786$) have higher sensitivity to PET on environment than those of high school graduates ($\bar{x}=1,9079$) and college graduates ($\bar{x}=1,970$).

To sum up H_1 , it has been accepted that the Barilla employees' environmental sensitivities on AP, SP, PEA and PET about environment differ according to their education levels; $H_{1,1}$, $H_{1,3}$, $H_{1,5}$, $H_{1,6}$ are the accepted ones. But no significant differences have been found on WP and EBP and $H_{1,2}$ and $H_{1,4}$ are refused.

Table 3 exhibits, whether the environmental sensitivities of Barilla employees toward AP, WP, SP, EBP, PEA, and PET about environment differ according to their ages.

Table 3: Age - Environmental sensitivity

	N	\bar{x}	SD	df	F	P
AP						
17-25	23	1,5652	,33986			
26-35	52	1,8782	,37358			
36-45	100	1,7267	,25680	3	6,557	,000
46 and over	27	1,6173	,44051	198		
TOTAL	202	1,7327	,34078	201		
WP						
17-25	23	1,3080	,21236			
26-35	52	1,5096	,32450			
36-45	100	1,2950	,26916	3	4,946	,002
46 and over	27	1,2253	,34961	198		
TOTAL	202	1,3424	,30574	201		
SP						
17-25	23	1,3106	,23455			
26-35	52	1,5082	,34926			
36-45	100	1,3514	,22649	3	4,946	,002
46 and over	27	1,3280	,30386	198		
TOTAL	202	1,3840	,28238	201		
EBP						
17-25	23	1,6739	,46731			
26-35	52	2,0481	,52636			
36-45	100	2,0150	,41715	3	4,222	,006
46 and over	27	1,9444	,37553	198		
TOTAL	202	1,9752	,45916	201		
PEA						
17-25	23	1,8696	,30960			
26-35	52	2,2404	,47989			
36-45	100	2,0550	,49694	3	4,926	,003
46 and over	27	1,8889	,48701	198		
TOTAL	202	2,0594	,48759	201		
PET						
17-25	23	2,0217	,77574			
26-35	52	2,2500	,52394			
36-45	100	1,9550	,60551	3	4,435	,005
46 and over	27	1,7500	,70027	198		
TOTAL	202	2,0111	,63643	201		

ANOVA has been conducted to determine the differences between the average values of the participants towards AP, WP, SP, EBP, PEA and PET dimensions on environment according to the age variable.

According to ANOVA results, which has been conducted to determine the differences between the average values of the participants towards AP dimension according to the age variable, it has been detected that the values are significant statistically ($F=6,557$; $p<.0.05$). Scheffe post-hoc test results have been exhibited that, those whom are at 26-35 ages range ($\bar{x} = 1, 8782$) have higher sensitivity to AP than the ones at 17-25 ages range ($\bar{x} = 1, 5652$), 36-45 ages range ($\bar{x} = 1, 7267$) and 46 years and over ($\bar{x} = 1, 6171$).

ANOVA the results obtained that the values are significant statistically ($F=4,946$, $p<.0.05$) in determining the differences between the average values of the participants towards WP dimension according to the age variable. Those whom are at 26-35 ages range ($\bar{x} = 1, 5096$) have been determined to have higher sensitivity to WP than those of 17-25 ages range ($\bar{x} = 1, 3080$), 36-45 ages range ($\bar{x} = 1, 2950$) and 46 years and over ($\bar{x} = 1, 2253$) according to Scheffe post-hoc test results.

As the result of ANOVA, which has been conducted to determine the differences between the average values of the participants towards SP dimension according to the age variable, it has been indicated that values are significant statistically ($F=4,946$; $p<.0.05$). Scheffe post-hoc test analyses exhibited that, those whom are at 26-35 ages range ($\bar{x} = 1, 5082$) have higher sensitivity to SP than those of 17-25 ages range ($\bar{x} = 1, 3106$), 36-45 ages range ($\bar{x} = 1, 3514$) and 46 years and over ($\bar{x} = 1, 3280$).

ANOVA results obtained that the values are significant statistically ($F=4,222$, $p<.0.05$) in determining the differences between the average values of the participants towards EBP dimension according to the age variable. Those at 26-35 ages range ($\bar{x} = 2, 0481$) have higher sensitivity to EBP than those of 17-25 ages range ($\bar{x} = 1, 6739$),

and 36-45 ages range ($\bar{x} = 2, 0150$) according to Scheffe post-hoc test analyses.

According to the results of ANOVA it has been detected that values are significant statistically ($F=4,926$; $p<.0.05$) in determination of differences between the average values of the participants towards PEA dimension through the age variable. Scheffe post-hoc test analyses has exhibited that, those whom are at 26-35 ages range ($\bar{x} = 2, 2404$) have higher sensitivity to PEA about environment than those of 17-25 ages range ($\bar{x} = 1, 8696$), and 46 years and over ages ($\bar{x} = 1, 889$).

In determining the differences between the average values of the participants towards PET dimension according to the age variable ANOVA was used and it has been indicated that the values are significant statistically ($F=4,435$, $p<.0.05$). Post-hoc test results exhibited that the participants at 26-35 ages range ($\bar{x} = 2, 250$) have higher sensitivity to PET dimension than those of 36-45 ages range ($\bar{x} = 1,9550$), and 46 years and over ages ($\bar{x} = 1, 7500$).

All hypotheses are accepted for H_2 ; Barilla employees' environmental sensitivities on all dimensions differ according to their ages.

Table 4 exhibits, whether the environmental sensitivities of Barilla employees toward AP, WP, SP, EBP, PEA, PET about environment, differ according to their genders.

Table 4: Gender - Environmental sensitivity

	n	\bar{x}	SD	t	Df	P
AP						
Female	72	1,6852	,26174	-1,478	200	,141
Male	130	1,7590	,37588			
WP						
Female	72	1,3414	,26945	-,034	200	,973
Male	130	1,3429	,32510			
SP						
Female	72	1,3591	,23369	-,932	200	,352
Male	130	1,3978	,30602			
EBP						
Female	72	1,9306	,46197	-,932	200	,352
Male	130	2,0000	,45750			
PEA						
Female	72	2,0417	,44996	-,384	200	,701
Male	130	2,0692	,50866			
PET						
Female	72	2,0938	,5651888	1,376	200	,170
Male	130	1,9654	,67035			

t-test has been conducted to determine the difference between the average values of the participants toward AP, WP, SP, EBP, PEA, PET according to the gender variable.

It has been detected that values are not significant statistically ($t = -1,478$; $p > 0.05$) according to t-test which has been conducted to determine the differences between the average values of the participants towards AP according to the gender variable. Through the t-test results for WP dimension to gender variable, either the analyses have been indicated that the values are not significant statistically ($t = -0,034$; $p > 0.05$). Either the values are not significant statistically ($t = -0,932$; $p > 0.05$) for SP according to the gender variable. The values are not significant statistically ($t = -0,932$; $p > 0.05$) either for EBP and the values are not significant statistically ($t = -0,384$, $p > 0.05$) either for PEA and the values are not significant statistically ($t = 1,376$, $p > 0.05$)

for PET according to the gender variable. H_3 and its all sub-hypotheses ($H_{3.1}$, $H_{3.2}$, $H_{3.3}$, $H_{3.4}$, $H_{3.5}$ and $H_{3.6}$) have been refused.

Table 5: Marital status - Environmental sensitivity

	n	\bar{x}	SD	t	Df	P
AP						
Single	51	1,7124	,05364	-,490	200	,625
Married	151	1,7395	,02656	-,		
WP						
Single	51	1,3791	,04038	,991	200	,323
Married	151	1,3300	,02534			
SP						
Single	51	1,4286	,03961	1,306	200	,193
Married	151	1,3690	,02291			
EBP						
Single	51	1,9510	,07828	-,436	200	,664
Married	151	1,9834	,03434			
PEA						
Single	51	2,0686	,07004	,156	200	,876
Married	151	2,0563	,03946			
PET						
Single	51	2,2059	,08931	2,562	200	,011
Married	151	1,9454	,05082			

Table 5 exhibits, whether the environmental sensitivities of Barilla employees toward the 6 dimensions on environment differ according to marital status.

t-test analyses have been performed to determine the differences between the average values of the participants towards AP dimension according to the marital status variable, and the values are not significant statistically ($t= -0,490$, $p>0.05$). Either, differences between the average values of the participants towards WP dimension according to the marital status variable values are not significant statistically ($t= 0,991$, $p>0.05$). Values are not significant statistically ($t=1,306$, $p>0.05$) for SP dimension according to the marital status variable.

The values are not significant statistically ($t = -0,436$, $p > 0,05$) either for EBP dimension according to marital status variable and the values are not significant statistically ($t = 0,156$, $p > 0,05$) either for PEA. For PET dimension according to the marital status variable, the values are significant statistically ($t = 2,562$, $p < 0,05$). t- Test results exhibited that those whom are single ($\bar{x} = 2,2059$) have higher sensitivity to PET on environment than those of married ones ($\bar{x} = 1,9454$). For H_4 ; it has been accepted that Barilla employees' environmental sensitivities on PET about environment differ according to marital status. However, no significant differences have been found on AP, WP, SP, EBP, and PET dimensions. Refused ones are; $H_{4.1}$, $H_{4.2}$, $H_{4.3}$, $H_{4.4}$, $H_{4.5}$, and $H_{4.6}$ is accepted.

CONCLUSION AND SUGGESTIONS

The current study, in the case of Barilla employees, exhibits that there is a positive relation between environmental sensitivity and the education level variable. Also, a positive relationship between the age variable and environmental sensitivity is identified and all hypotheses have been accepted in this context.

Significant differences have been found in favour of the 26-35 age groups. Those whom are at 26-35 ages range have higher sensitivity to air-water-soil pollution; have higher sensitivity to ecological balance practices, participation to practices on environment and participation to trainings on environment. As found on the current research, participants' attitudes toward environmental issues were found to be differed regarding to age variable in other researches such as Erol and Gezer (2006) and Yalın and Kurban (2013) as well in Turkey.

According to the gender variable of employees, the mean values of the sensitivity to air, water and soil pollution, ecological balance practises, participation to environmental activities and participation to trainings about environment have not been found to be statistically significant statistically. It is possible to say there is no gender difference to feel sensitive on environment. Sensitivity to environment is

thought to be a mission for all humankind and all humankind living on the earth is thought to be obliged to take care of on these issues.

According to the marital statue variable, the average values of sensitivity to air, water and soil pollution, ecological balance practises, participation to environmental activities have not been found to be statistically significant. But only participation to trainings about environment dimension has been found as significant. The single ones have higher sensitivity to PET on environment than those of married ones. This finding is thought to be related with the sample because on the some other researches, married ones were found to have higher sensitivity to environment related issues (Laroche et al., 2001:511; Kükreer, 2012:4520).

Environmental social programmes like conferences, panels, seminars, workshops etc. should be organized for the attendance of employees. Environmentally hazardous chemicals, environmental benefits of public transportations, classification of garbage, recycling bins subjects etc. should be included in these programs. It is necessary to focus on the necessity of providing environmental trainings in all process during lifetime (Özdemir et al., 2004; Ek et al., 2009; Liao, 2017; Law et al., 2017).

The firms should organize forestation activities and they should have contacts with voluntary and environmentally friendly institutions and organizations in this context. Moreover, environmental trainings, which are not existence in the educational curriculum in Turkey, should be included in the formal education programs starting from the primary education level and environment friendly educations should keep on all lifetime.

Environmental sensitivity and environmental awareness should be expanded by means of mass media as social media, tv, radio etc. Environment friendly goods consuming should be encouraged and this should be supported among all community.

In public area and private sector, the employees' and managers' awareness on environment should be provided. The environment friendly projects should be supported. Especially the projects that will support the environmental awareness- environmental sensitivity are vital.

Introducing the employees with non-governmental organizations related to environmental awareness and sensitivity, providing them to take part in environmental activities and training programs and providing them to follow up the publications on environmental awareness and sensitivity issues will not only take attention to the subject, these practises will also important for the expansion of practise focused workshops, projects, systems etc.

The modern marketing approach keeps everyone responsible to provide sustainability. As in the case of Barilla, although the responsibility of businesses achieving modern marketing and consumer perspective are evolving within the framework of the business vision, environment is a vital issue not to be left to the initiative of businesses. Many researchers have argued that larger firms are more capable to invest on GSCM and environmental activities both in finance and awareness (Murray, 2000; Olson, 2008, Lau, 2011). At this point, government incentives and rewards should be presented to create opportunities for small sized businesses. The large companies have defined GSCM strategies as part of their corporate strategies and this perspective support them to gain sustainable competitive advantage. The small sized businesses should adopt this as a competitive advantage too. Although small sized businesses are conscious to environmental sensitivity, they lack financial resources to adopt environmental strategies. This subject is supported by the literature too.

The dissemination of GSCM practises should be done in all businesses at local, national and international level. The establishment of laws and standards related to the subject should be executed immediately. There are limited numbers of studies in literature that examine the environmental sensitivity of employees. It is thought that

the study will contribute to both the academy and other producers and legislators in terms of environmental awareness and managing human resources and to develop strategies on environmental issues.

References

- Ahmad, Shoeb (2015). Green human resource management: policies and practices. *Cogent Business & Management*, 2 (1), 1-15.
- Adriana, Budeanu (2009),“Environmental supply chain management in tourism: thecase of large tour operators”, *Journal of CleanerProduction*, 17(16),1385–1392.
- Akküçük, Ulaş (2017), Ethics and Sustainability in Global Supply Chain Management, Hersey PA, USA:IGI Global, ISSN:2327-350X
- Ankaya, Funda, Aslan, Bahriye Gülgün and Tahta, Bahar Türkyılmaz (2017). Çevre duyarlılığı düzeyinin belirlenmesi üzerine bir araştırma: İzmir ili örneği. *Ege Üniversitesi Ziraat Fakültesi Dergisi*, 54(4):419-427.
- BarillaG.e.RFratelliS.p.A, <https://www.barillagroup.com/en/vision-and-strategy>, 15.01.2018)
- Birkin, F,Cashman, A., Koh, S. C. L. &Liu, Z. (2009). New sustainable businessmodels in China. *Business Strategy and the Environment*, 18, 64–77.
- Ceyhan, Sümeyra and Ada, Serkan (2015). İşletme fonksiyonları açısından çevreye duyarlı işletmecilik. *Uluslararası Yönetim İktisat ve İşletme Dergisi*, 11(26), 115-138.
- Chin, ThooAi, Tat, HuamHom&Sulaiman, Zuraidah. (2015). Greensupply-chainmanagement, environmental collaboration and sustainabilityperformance. 2th *Global Conference on Sustainable Manufacturing*, 26, 695–699.
- Çabuk, Burcu and Karacaoğlu, Cem (2003). Üniversite Öğrencilerinin Çevre Duyarlılıklarının İncelenmesi. *Ankara Üniversitesi Eğitim Fakültesi Dergisi*, 36(1), 190-197.
- DwivediAshish (2016), Innovativesolutionsforimplementing global supplychains in emergingmarkets, Hersey PA, USA:IGI Global, ISBN:9781466697959
- Ek, Nurcan Hayriye, Kılıç, Nimet, Ögdüm, Perihan, Düzgün, Gülergün. and Şeker, Sibel (2009). Adnan Menderes Üniversitesi'nin farklı akademik alanlarında öğrenim gören ilk ve son sınıf öğrencilerinin çevre sorunlarına yönelik tutumları ve duyarlılıkları. *Kastamonu EducationJournal*, January, 17 (1): 125-136.

- Erbaşı, Ali (2017). The investigation of hotel employees' green organisational-behaviour tendencies in terms of some demographic variables. *Tourism in Southern and Eastern Europe*, 4, 159-168,
- Erol, Gül Hanım and Gezer, Kutret (2006). Prospective of elementary school teachers' attitudes toward environment and environmental problems. *International Journal of Environmental and Science Education*, 1(1), 65-77.
- Flammer, Caroline (2013). Corporate social responsibility and shareholder reaction: the environmental awareness of investors. *Academy of Management Journal*, 56 (3), 758-781.
- Hoejmose, Stefan, Brammer, Stephen and Millington, Andrew (2012). Green supply chain management: The role of trust and top management in B2B and B2C markets. *Industrial Marketing Management*, 41, 609-620.
- Jabbour, Charbel José Chiappetta and Santos, Fernando César Almada, (2008). The central role of human resource management in the search for sustainable organizations. *The International Journal of Human Resource Management*, 19 (12), 2133-2154.
- Jedliński, Mariusz. (2014). "The position of green logistics in sustainable development of a smart green city". *1st International Conference Green Cities 2014 – Green Logistics for Greener Cities*, 102-111.
- Kalburan, Çetin and Haşiloğlu, Burak Selçuk (2013). Ekolojik çevreye duyarlı işletmecilik yaklaşımı: Unilever örneği. *International Conference on Eurasian Economies*, 65(5), 976-982.
- Karahan, Mehmet (2017). İşletme yöneticilerinin çevre duyarlılığı ve farkındalık düzeylerinin belirlenmesi. *Manas Sosyal Araştırmalar Dergisi*, 6 (4), 359-374.
- Kükreker, Özlem (2012). Tüketicilerin çevresel sorumluluklarının yeşil reklamlara yönelik tutumlarına etkisi: Eskişehir örneği. *Journal of Yaşar University*, 26 (7), 4505-4525.
- Laroche, Micheal, Bergenon, Jasmin and Barboro-Forleo Guido (2001). Targeting consumers who are willing to pay more for environmentally friendly products. *Journal of Consumer Marketing*, 18 (6), 503-520.

- Lau, KwokHung (2011), "Benchmarking green logistics performance with a composite index". *Benchmarking: An International Journal*, 18 (6), 873 – 896.
- Law, Michelle Man Suet, Hills Peter, and HangHau, BillyChi (2017). Engaging employees in sustainable development – a case study of environmental education and awareness training in Hong Kong. *Business Strategy and the Environment*, 26, 84–97.
- Lee Amy H.I., Kang He-Yau, Chang-Fu Hsu, Hung, Hsiao-Chu (2009). A green supplier selection model for high-tech industry. *Expert System with Applications*, 36, 7917-7927.
- Liao, Wei-Wan (2017). A study on the correlations among environmental education, environment-friendly product development and green innovation capability in an enterprise. *EURASIA Journal of Mathematics Science and Technology Education*, 13(8), 5435–5444.
- Liu, Shaofeng, Kasturiratne, Dulekha and Moizer, Jonathan (2012). Hub-and-spoke model for multi-dimensional integration of green marketing and sustainable supply chain management. *Industrial Marketing Management*, 41, 581–588.
- Murray, Gordon (2000). Effects of a green purchasing strategy: the case of Belfast City Council. *Supply Chain Management: An International Journal*, 5(1), 37-44.
- Olson, Eric G. (2008). Creating an enterprise-level 'green' strategy. *Journal of Business Strategy*, 29(2), 22-30.
- Opatha, H.H.D.N.P and Arulrajah, Anton A. (2014). Green human resource management: simplified general reflections. *International Business Research*, 7(8), 101-112.
- Özdemir, Oya, Yıldız, Ayşe, Ocaktan, Esin and Sarışen, Özlem (2004). Tıp fakültesi öğrencilerinin çevre sorunları konusundaki farkındalık ve duyarlılıkları. *Ankara Üniversitesi Tıp Fakültesi Mecmuası*, 57(3):117-127.
- Pearce, Fred (2009). *Nehirler Kuruyunca*. Çev: Füsün Doruker, Altın Kitaplar Yayınevi:134, 1.Baskı, İstanbul.

- Renwick, Douglas Redman, Tom and Maguire, Stuart (2012). Green human resource management: A review and research agenda. *International Journal of Management Reviews*, 15 (1), 1-14.
- Shen, Lixin, Olfat, Laya., Govindan, Kannan, Khodaverdi, Roohollah & Diabat, Ali (2013). A fuzzy multicriteria approach for evaluating green supplier's performance in green supply chain with linguistic preferences. *Resources, Conservation and Recycling*, 74, May 2013, 170-179.
- Shuwang Wang, Zhang Lei, Zhifeng Liu and Guangfu Liu (2005), Study on the performance assessment of green supply chain. *Systems, Man and Cybernetics, IEEE International Conference*, DOI: 10.1109/ICSMC.2005.1571267, 10-12 October, 1, 942-947.
- Srivastava, Samir K. (2007). Green supply chain management: a state-of-the-art literature review. *International Journal of Management Reviews*, 9 (1), 53-80.
- Stolka, Oksana Seroka (2014). The development of green logistics for implementation sustainable development strategy in companies. *1st International Conference Green Cities 2014 – Green Logistics for Greener Cities. Procedia - Social and Behavioral Sciences*, 151 (2014), 302-309.
- Wisner, Joel D., Tan, Keah-Choon & Leong, Keong G. (2012). *Principles of supply chain management: a balanced approach*. Canada: South-Western Cengage Learning, Third edition, USA.
- Yalım, Funda and Kurban, Simge (2013). Kentlerde çevre bilincinin oluşturulması sürecinde bir halkla ilişkiler aracı olarak festivallerden yararlanılması: İstanbul Ecofest'e katılanlar üzerine bir araştırma. *Selçuk Üniversitesi İletişim Fakültesi Akademik Dergisi*, 7 (4), 80-93.
- Young William, Davis Matthew, McNeill Ilona M., Malhotra Bindu, Russell Sally, Unsworth Kerrie, Clegg Chris (2015). Changing behaviour: successful environmental programmes in the workplace. *Business Strategy and the Environment*, 24 (8), 689-703.
- Yücel, Serkan, Yıldız, Selami Mehmet and Yazgan, Halil İbrahim (2015). Sanayi işletmelerinde çevreye duyarlı üretim uygulamaları: bir üretim işletmesinde örnek olay çalışması. *Uluslararası Sosyal Araştırmalar Dergisi*, June, 8 (38), 636-646.

Zhu, Qinghua, Sarkis, Joseph, & Geng, Yong. (2005). Green supply chain management in China: Pressures, practices and performance. *International Journal of Operations & Production Management*, 25(5-6): 449-468.

Zsidisin, George & Siferd, Sue P. (2001). Environmental purchasing: a framework for theory development. *European Journal of Purchasing & Supply Management*, 7 (1), 61-73.