

RECYCLING IN TURKEY: A COMPARATIVE ANALYSIS OF CONSUMER MOTIVATIONS, ATTITUDES AND BEHAVIOR BETWEEN 2006 AND 2012

**TÜRKİYE'DE GERİ DÖNÜŞÜM: 2006 ve 2012 YILLARI ARASINDA
TÜKETİCİ MOTİVASYONU, TUTUM VE DAVRANIŞLARININ
KARŞILAŞTIRMALI ANALİZİ**

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ABSTRACT

Recycling is one of the pro-environmental behaviors that consumers adapt in order to reduce their deteriorating impact on the environment. Considering that policy changes at the macro level can be enhanced with micro level knowledge, understanding what motivates people to recycle is the first step towards increasing participation to recycling. This study aims to examine the change in Turkish consumers' recycling attitudes and behaviors between 2006 and 2012. The findings reveal that increased awareness about recycling does not translate into participation. Furthermore, expectations have shifted from individual contribution to broader institutions, suggesting the importance of micro and macro level collaboration.

Keywords: *Recycling, environment, consumer attitudes and behavior, Turkey.*

ÖZ

Tüketicilerin, çevreye duyarlı davranışlardan biri de geri dönüşüm alışkanlıklarıdır. Makro seviyedeki davranış değişikliklerinin, mikro seviyeyi anlamaktan geçtiği düşünülürse, tüketicilerin geri dönüşüm motivasyonlarını anlamak, geri dönüşüme katılımı artırmak için ilk adımdır. Bu çalışma, Türk tüketicilerin 2006 ve 2012 yılları arasında, geri dönüşüm tutum ve davranışlarının nasıl değiştiğini incelemektedir. Sonuçlar, geri dönüşüm hakkında bilgi seviyesinin arttığını, ancak bu artışın geri dönüşüm davranışına dönüşmediğini; diğer yanda, bireysel katkıya inancın azalarak beklentinin kurumlara yönlendiğini, dolayısıyla mikro ve makro seviyelerin işbirliğinin önemini göstermektedir.

Anahtar Kelimeler: *Geri dönüşüm, çevre, tüketici tutum ve davranışları, Türkiye.*

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1. INTRODUCTION

The 21st century has been marked by a rising interest in both micro and macro dimensions of sustainability; at the micro level focusing on engagement of individuals and organizations in sustainable practices and at the macro level investigating how nations or the entire world can take large scale steps towards sustainable development. Sustainability has thus been identified as an emerging trend (Lubin and Esty, 2010). The idea of sustainability has also been accompanied by an increasing awareness of environmental problems (Leonidou, Leonidou, and Kvasova, 2010). The growing environmental concerns associated with the inevitable consequences of an ever increasing human population have led both the individuals and the society to engage in efforts to find solutions to these problems. In line with this interest, researchers and practitioners have focused on issues related to green marketing or green consumerism (Ottman, 1992), sustainable consumption (Kilbourne, McDonagh, and Prothero, 1997), environmentally friendly manufacturing (Zimmer, Stafford, and Stafford, 1994), new product development (Dermody and Hanmer-Lloyd, 1995), public policy issues and recycling (Fuller, Allen, and Glaser, 1996), sustainable communication (McDonagh and Clark, 1995), and pro environmental behaviors (Stern, 1997). Consequently, consumers' attitudes and behavior regarding environmental issues have received significant attention (Spangenberg and Lorek, 2002). However, while it was reported that the majority of consumers were highly concerned about environmental problems and green consumerism was on the rise (Bonini and Oppenheim, 2008; Donaton and Fitzgerald, 1992; MacKenzie, 1991; Young, 1991), research also showed that not all positive attitudes and concerns are reflected in actual pro environmental behaviors (Ger, 1999; Mintel, 2008). This discrepancy, referred to as the attitude- behavior gap (Boulstridge and Carrigan, 2000), has led the researchers to explore the consumer motives in engaging in pro environmental behaviors and the reasons behind this low involvement rate (Papaoikonomou, Ryan, and Ginieis, 2011).

Recycling is one of the pro environmental behaviors that consumers adapt in order to reduce their deteriorating impact on the environment. As the human population continues a pattern of exponential growth and increasing material consumption, management of waste, i.e. waste generation, disposal, and recycling, becomes a major concern (Fuller, Allen, and Glaser, 1996; Seacat and Northrup, 2010; Stern, 2000). Despite the increasing awareness regarding recycling, the aforementioned attitude-behavior gap also applies to recycling practices (Barr, Gilg, and Ford, 2005). Therefore, understanding what makes people recycle more and what keeps them away from recycling is of utmost importance. This study aims to contribute to this understanding, as well as taking the literature on this issue

one step further by investigating the changes in recycling motivations, attitudes, and behaviors over years. Thus, it is anticipated to find out if there is in fact an increase in recycling related awareness, attitudes, and behavioral involvement along with the rising trends. With this perspective, results of two studies conducted in 2006 and in 2012 have been compared. The studies have been carried out in Turkey, with the aim of addressing the need for research in developing countries. Whereas most studies on environmental attitudes and behaviors are conducted in developed country settings, there is little research on motivations and determinants of recycling behavior in developing countries (Troschinetz and Mihelcic, 2009). However, development in these countries is accompanied by high levels of consumption (Ger, 1999) and an increasing amount of waste produced out of urbanization and industrialization. Turkey is reported to have a remarkable growth in industrial production capacity (DEIK, 2006). It has been estimated that the national income and population in Turkey will increase by 5.1% and 1.5-2.5 % respectively and the waste produced per person will be increasing geometrically by 2-3%, with total waste approximated to increase from 27 million tons to 34 million tons from 2003 to 2010 and to 52 million tons in 2020 (ENVEST, 2005). Thus, it is an important question whether Turkey as a developing country emphasizes recycling practices as a part of its environmental protection concerns for the future. This paper aims to address this issue and contribute to the lack of recycling studies conducted in Turkey within a comparative framework. Also, considering that policy changes at the macro level are influenced by the micro level knowledge of consumer attitudes and behaviors (Kilbourne and Beckmann, 1998), this paper anticipates serving to the development of more effective strategies to increase individual participation in recycling, and thus contribute to the sustainable development at the macro level.

2. BACKGROUND OF THE STUDY

Waste management is an important issue that needs effective solutions (Miller, 2000). In the final stage of consumption cycle, consumers make a disposal decision regarding their wastes as to whether to reuse, recycle, or throw away a product. Environmentally conscious consumers produce less waste by practicing three Rs; namely “reducing”, i.e. consuming less, “reusing”, i.e. repeated uses of purchased items, and “recycling”, i.e. sorting waste (Arnould, Price, and Zinkhan, 2004). Recycling refers to the process through which previously used materials are collected, processed, remanufactured, and reused (Ruiz, 1993). It yields environmental, financial, and social returns in natural resource and energy conservation, pollution prevention, economic expansion, and competitiveness (EPA, 1999; Hornik, Cherian, Madansky, and Narayana, 1995). However, while the societal benefits of recycling are evident, recycling also constitutes a social dilemma

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(Wiener and Doescher, 1991; Smeesters Warlop, Vanden Abeele, and Ratneshwar, 1999), where consumers have to choose between defective behavior (e.g. not sorting the waste) that minimizes personal costs like discomfort and time, but harms the society and cooperative recycling behavior that is more costly for oneself but benefits the whole society in the long term, given that the majority of the population cooperates (Dawes, 1980).

Understanding what motivates people to recycle and what discourages them from doing so is the first step towards establishing more effective strategies at the macro level for increasing participation. Previous research examining determinants of recycling has identified two types of variables; namely motivators for the behavior, and facilitators of or barriers to the behavior, both of which can be internal or external (Hornik et al., 1995; Smeesters, Warlop, and Vanden Abeele, 1998). These variables formed four classifications called extrinsic incentives, intrinsic incentives, internal facilitators, and external facilitators.

The first category, extrinsic incentives, may make the recycling option more attractive to consumers, without necessarily appealing to their higher values (Hornik et al., 1995). Monetary reward is an external incentive which is found to be effective for encouraging the individual to recycle (Geller, Winett, and Everett, 1982; Jacobs and Bailey, 1982 - 1983; Reid, Luyben, Rawers, and Bailey, 1976), but ineffective to promote long term behavior changes since the desired behavior lasts only as long as the incentive lasts (De Young, 2000; Gamba and Oskamp, 1994; Oskamp, Harrington, Edwards, Sherwood, Okuda, and Swanson, 1991). Social pressure that arises from the person's concern about the reactions of relevant others, such as family, friends, and neighbors has also been found an effective external incentive (Cook and Berrenberg, 1981, Glenn, 1988; Vining and Ebreo, 1990). However, this effect is dependent upon being visible to the other people (Bryce, Day, and Olney, 1997; Sia, Hungerford, and Tomera, 1985-1986). One final type of external incentive, which is rarely investigated is laws and regulations. These legal requirements and restrictions encourage certain choices such as purchase of environmentally friendly goods or recyclable products (EPA, 1999).

The second category, intrinsic incentives are nonmonetary and intangible rewards obtained for active participation in recycling. Values such as doing the right thing, satisfaction with conservation, frugality in consumption, and preserving self respect are important drivers of recycling (Batson, Bolen, Cross, and Neuringer-Benefiel, 1986; De Young, 1985-1986; Lee and De Young, 1993; McCarty and Schrum, 1993; Oskamp et al., 1991; Swenson and Wells, 1997).

Environmental concern is another major intrinsic incentive for people to sort their waste. Individuals, who value ecological goals and the environment and who perceive environmental problems as a serious threat to their well-being are more likely to engage in environmentally responsible practices and, more specifically, in recycling behavior (Baldassare and Katz, 1992; Vining and Ebreo, 1992). However, environmental concern may not necessarily lead to actual behavior (Barton, Perrin, and Barton, 2001).

Attitudes towards recycling is another important predictor of participation. Fishbein and Ajzen's (1975) Theory of Reasoned Action and Ajzen's (1991) Theory of Planned Behavior have been used in the literature to explain recycling behavior. Accordingly, attitudes are immediate determinants of individual's intention to perform or not to perform a behavior, which then predicts the actual behavior. In the attitude-behavior relationship on recycling, there are contradictory views. One approach holds that there is a positive relationship between the two (Bagozzi and Dabholkar, 1994; Mainieri, Barnett, Valdero, Unipan, and Oskamp, 1997; McGuinness, Jones, and Cole, 1977), while another suggests the gap between attitudes and behavior such that positive environmental attitudes do not necessarily reflect in the actual behavior (Arbuthnot, 1977; Gatersleben, Steg, and Vleg, 2002; Ger, 1999; Humphrey, Bord, Hammonda, and Mann, 1977; Oskamp et al., 1991; Samdahl and Robertson, 1989). There can be many factors that cause this gap. For example, Liska (1984) argued that the performance of a behavior will be constrained by the lack of appropriate opportunities, skills, and resources. According to the ABC model of attitude, behavior, and structural conditions of behavior (Guagnano, Stern, and Dietz, 1995), pro-environmental behavior depends both on attitudes and contextual factors. If the contextual factors are not supportive enough, environmentally friendly behavior is discouraged even if the attitudes are positive. Similarly, Ölander and Thøgersen (1995) proposed that motivation leads to behavior only if the opportunities and ability to exhibit the desired behavior exist, providing the proper infrastructure. Claudy, Peterson, and O'Driscoll (2013) explain this gap by Behavioral Reasoning Theory (Westaby, 2005), stating that people use different psychological processes when making behavioral decisions. Therefore understanding the reasons for and against adoption of environmentally friendly practices is necessary.

The third category, internal facilitators are cognitive variables, which enable an individual to recycle or constitute a barrier for recycling. They are grouped under the headings of knowledge, perceived costs and benefits, and commitment. Knowledge has generally been documented as a strong predictor of recycling behavior (Garces, Lafuente, Pedraja, and Rivera, 2002; Schultz, 2002). Accordingly, the more knowledgeable a person is about

recyclable materials, means to recycle or facilities for sorting the waste, the more likely that the person recycles (Corral-Verdugo, 1996; Gamba and Oskamp, 1994; Lindsay and Strathman, 1997; Vining and Ebreo, 1990). While it is found that lack of information on recycling or pro environmental behaviors is a major barrier for engaging in the behavior, it has also been documented that increased awareness about the issue does not necessarily translate into practice (McCrindle, 2007). Another internal facilitator is perceived costs and benefits of recycling. Perceived costs associated with recycling, concerning the time, mental and physical effort spent may discourage the behavior even if the individual believes in environmentally beneficial outcomes. Perceived inconvenience of recycling due to difficulties related to space and time availability, and distance to containers is the most common reason for not participating (Boldero, 1995; Garces et al., 2002; McCarty and Schrum, 1993). Some other studies referred to the perceived public benefits associated with recycling such as waste reduction, resource conservation, and environmental well being. Finally, commitment techniques have been found to increase participation rates in recycling (Burn and Oskamp, 1986; Katzev and Pardini, 1987-1988). When people make such pledges, their attitudes change to be consistent and continuous with their changed self concept (Cialdini, 1985; Katzev and Pardini, 1987-1988).

The final category, external facilitators are characteristics of the physical environment that are beyond the control of the consumer. They involve facilitators that ease recycling behavior, e.g. convenience (Domina and Koch, 2002; Hornik et al., 1995) or barriers that impede the behavior e.g. inconvenience or perceived difficulty of recycling, lack of time to recycle, and lack of storage space for recyclables, few or distant containers (Gamba and Oskamp, 1994; McKenzie-Mohr, 2000; Vining and Ebreo, 1990; Werner and Makela, 1998), even if there are other internal or external incentives to recycle. McKenzie-Mohr (2000) argued that the first step in creating socially responsible behavior is to remove the barriers to the targeted behavior. Consequently, some methods to remove these barriers have been suggested as reducing distance to recycling bins, central collection bins (Humphrey et al., 1977; Luyben and Bailey, 1979; Reid et al., 1976), and frequent collection of recyclables (Folz, 1991).

2.1. Recycling and Consumer Profiles in Turkey

Turkey generates more than 30 million tons of waste; so it is an imperative that certain precautions need to be taken for disposal of this waste. Significant progress has been made in the recovery of solid waste and in recycling in Turkey since the 1990s. However, despite the improvement in policies developed regarding waste management and the by-law- general principles imposed in 2008, great majority of solid waste is still not being

disposed in accordance with the legislation (UN, 2010). Municipalities are responsible for providing, collecting, transportation, recycling, and disposal of waste; however, municipalities cannot show the required level of activity in this regard (EEA, 2013). The efforts remain insufficient and dispersed, requiring the need for more cooperation. Metin, Erozturk, and Neyim (2003) estimated the recycling figures for Turkey in year 2000 to be around 30 %. However, most of this activity is stated to be in the hands of private entrepreneurs and street waste collectors. In general, there is an absence or inconsistency of data regarding rates of waste disposal due to poor reporting (EEA, 2013). Moreover, there is a lack of studies on recycling motivations or habits of consumers in Turkey. Some studies have investigated the environmentally concerned behavior of Turkish consumers (e.g. Bodur and Sarigullu, 2005; Gul, 2013). According to Gul (2013), environmental consciousness in Turkey is a relatively less internalized concept to which people are recently beginning to adjust. Ger (1999) and Ger and Fonseca (2010) stated that Turkish society is characterized by an emphasis on consumption, where consumption related life styles are dominant and environmental issues are attached a reduced importance.

There are also a few studies on the recycling practices or consumers' attitudes and behaviors (e.g. Cobanoglu, Eren-Erdogmus, and Bayraktar, 2013). Cobanoglu and colleagues (2013) clustered the consumers in Turkey in four different groups, genuine greens, followers, indolents, and apathetics. These groups differed from each other based on their recycling attitudes and behaviors. While they were all aware of the importance of recycling and had a positive attitude; their participation rate was different. The results were consistent with other clustering studies on recycling (e.g. Howenstine, 1993; Vicente and Reis, 2007), ranking from the highest committed group to the least interested one in recycling. Also, all groups found recycling to be inconvenient, similar to the findings in the US in the early 1990s, where inconvenience was a major barrier for not recycling (Howenstine, 1993).

The current study aims to address the need for studies on recycling in Turkey. Based on the major determinants of recycling identified in the literature, this paper attempts to shed light on the motivations behind recycling practices as well as the barriers inhibiting the behavior. In addition, environmental concern of consumers and their attitudes and behaviors regarding recycling are analyzed from a comparative perspective to see the changes between the years 2006 and 2012. Thus, it is aimed to suggest effective strategies for the government, NGOs, and corporate social responsibility conducts of businesses to increase participation rates in recycling.

3. METHODOLOGY

In order to identify the changes that have taken place between 2006 and 2012, a multiple cross sectional research has been designed. Time 1 data has been collected between January and April 2006. A response rate of 73% has been obtained with 404 questionnaires out of 550. However due to the excess missing responses, 4 surveys have been excluded, leaving a sample size of 400. Time 2 data has been collected between April and July 2012. The response rate on Time 2 was 67% with 337 questionnaires returned out of 500. Both self-administered questionnaires and face to face surveys have been conducted. Target population of the study consisted of males and females above the age of 15, living in Istanbul, Turkey. In order to make sure that demographic characteristics of the respondents in Time 1 and Time 2 were equivalent, cross tabulation (Chi square analyses) were conducted to see if there were any significant differences across the two demographic profiles. In terms of demographics, the respondents' gender, age, education level, marital status, number of children, and employment status were analyzed. The results showed that there was no significant difference between the demographic characteristics of the respondents across the two time periods, confirming that the two data sets were comparable and equivalent in that sense. The demographic characteristics of the samples for Time 1 and Time 2 are displayed in Table 1.

Table 1: Demographic Characteristics

	2006	2012
Gender (%)		
Male	50	45.8
Female	50	54.2
Age (average)	30.4	32.4
Education (%)		
University degree and higher	64.2	70.5
Less than university degree	35.8	29.5
Marital status (%)		
Single	66.3	63.4
Married	33.7	36.6
Children (%)		
Yes	30.5	29.2
No	69.5	70.8
Employment (%)		
Full time	52.3	53.1
Part time	11.3	13.4
Not employed	31.2	29.5
Retired	5.2	4.0

*No significant difference was found between the demographic characteristics of two samples

3.1. Measures

The measures included both continuous and categorical variables regarding environmental concern and recycling attitudes, motives, and behaviors of the consumers. The continuous measures involved perceived environmental threat, ecological views, reduce, reuse and recycling behavior, and attitudes toward recycling. The categorical variables included information regarding the consumers' expectations about organizations' priority areas of social responsibility, the materials that the consumers recycled, and their motives, barriers, and opportunities for improved recycling behavior. The scales used for the continuous variables have been specified below.

Perceived environmental threat: The measure was adopted from Bloom's (1995) measures regarding the perceived seriousness of the threat posed by environmental issues. On a 5-point scale, respondents declared their opinions regarding to what extent the specified environmental problems impose a threat (5= serious threat; 1= no threat at all). The environmental problems measured included ozone depletion, deforestation, air pollution, contamination of drinking water, sea pollution, greenhouse effect, genetically modified food, and loss of species.

Ecological view: New Environmental Paradigm (NEP) scale adapted from Dunlap and Van Liere (1978) was used for measuring respondents' ecological view and pro environmental attitudes. the. Due to language interpretation reasons, 10 of the 12 items in the original scale was used in this study. Agreement with the statements was measured on a 5-point scale, ranging from 5 (totally agree) to 1 (totally disagree).

Reduce- Reuse- Recycle behavior: Adopted from DeYoung (1985-1986), this scale measured the respondents' position at different stages of the recycling process and whether they used reduce, reuse, and recycling methods. Respondents were asked how frequently they used each of the specified methods for reducing their garbage in daily life on a 5 point scale (5=always, 1= never).

Attitudes towards recycling: Respondents' attitudes towards recycling were assessed via a scale developed by the researcher, using the well-established scales in literature. Items in the measure involved statements related to perceived importance of recycling, perceived knowledge about recycling, perceived environmental benefits of recycling, costs associated with not recycling, recycling as a social duty, expectations and support of public and private sectors regarding recycling, convenience of recycling, preference of recyclable products, perceived image of companies investing on recycling

projects, and preference for their products. Agreements with the statements were measured on a 5-point scale (5=totally agree, 1= totally disagree).

3.2. Data Analysis

In order to see if there were any significant group differences between 2006 and 2012, independent sample t tests (for continuous variables) and cross tabulation analyses followed by Chi square analyses for assessing the statistical significance and strength of cross tabulated variables (for categorical variables) were conducted. The findings of the analysis are presented in the next section.

4. FINDINGS

The findings of the study have been explained under two broad categories; namely environmental concern, consisting of expected areas of social responsibility, perceived environmental threat, and ecological views, and specific recycling attitudes, motives, and behavior.

4.1. Environmental Concern

Preferred Areas of Social Responsibility Conduct

Respondents were asked the top three prior areas they thought that organizations should conduct social responsibility projects. The results (Table 2) show that there are differences between 2006 and 2012 for the education, health and environment areas. Although organizations are expected to invest primarily in the education area, the number of respondents choosing this priority has significantly decreased from 84% to 70.6 % in 2012. Priority of health issues among social responsibility projects of organizations has also decreased in this time period. On the other hand, there has been a significant increase from 2006 to 2012 regarding the expectation that organizations should invest on environment related issues as a part of their social responsibility investments, escalating the ranking of the environment to the second order, implying that more proactive action is expected from the organizations on environmental problems.

Table 2: Prior Areas Expected from Organizations to Conduct Social Responsibility Projects

	2006 (%)	2012 (%)	Direction of change
education	84	70.6	(-)*
health	51.4	41.2	(-)*
environment	42.6	56.7	(+)*
social areas	41.6	44.2	(+)
art and culture	30.6	29.1	(-)
consumer rights	18.5	21.7	(+)
ethical and moral values	16.5	20.8	(+)
sports	10.8	13.4	(+)

* p<0.05

Perceived Environmental Threat

Perceived environmental threat for all of the specified problems were at high levels with mean scores above 4.00 both in Time 1 and Time 2 (Table 3). In 2006, the highest environmental threat was perceived to be imposed by ozone depletion, deforestation, and air pollution with mean scores of 4.89, 4.88, and 4.83 respectively. The ranking of the top three mean scores in 2012 changed to contamination of drinking water, followed by air pollution and deforestation with mean scores of 4.82, 4.79, and 4.74 respectively. When the results of 2006 and 2012 were compared, it was seen that the mean scores for ozone depletion, deforestation, sea pollution, and greenhouse effect were significantly lower in 2012, showing a decreasing trend concerning the perceived threat of these environmental issues.

Table 3: Perceived Environmental Threat

	2006	2012	Direction of change
ozone depletion	4.89	4.68	(-)*
deforestation	4.88	4.74	(-)*
air pollution	4.83	4.79	(-)
contamination of drinking water	4.81	4.82	(+)
sea pollution	4.75	4.64	(-)*
greenhouse effect	4.69	4.55	(-)*
genetically modified food	4.58	4.65	(+)
loss of species	4.39	4.32	(-)

* p<0.05

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Ecological View

As presented in Table 4, the comparing 2006 and 2012, there has been a significant decrease in agreement with the statements “humans are severely abusing the environment” and “humans do not have the right to modify the natural environment to suit their needs”. On the other hand there has been a significant increase in the mean scores of the statements “there should be limits to industrialization”, “when humans interfere with nature it often produces disastrous consequences”, and “we are approaching the limit of the number of people the earth can support”.

Table 4: Ecological View

	2006	2012	Direction of change
Humans are severely abusing the environment	4.67	4.50	(-)*
Humans must live in harmony with nature in order to survive	4.59	4.50	(-)
There should be limits to industrialization	4.18	4.22	(+)*
Humans have the right to modify the natural environment to suit their needs (R)	4.08	3.84	(-)*
The balance of nature is very delicate and easily upset	4.02	4.02	...
The earth is like a spaceship with very limited room and resources	3.88	4.05	(+)
Humans were meant to rule over the rest of nature (R)	3.87	3.80	(-)
When humans interfere with nature it often produces disastrous consequences	3.74	3.96	(+)*
We are approaching the limit of the number of people the earth can support	3.57	3.75	(+)*
Plants and animals exist primarily to be used by humans (R)	3.34	3.16	(-)

* $p<0.05$; (R): item reverse coded

4.2. Recycling

Reduce- Reuse- Recycle Behavior

Respondents were asked how frequently they used reduce, reuse or recycling methods in their daily lives. The statements “I recycle the packaging, box, bottle, etc. of the product when the product is finished” and “I throw away my waste separately” were used to distinguish recyclers from non- recyclers.

Respondents, who mentioned that they never engaged in these behaviors, were categorized as non-recyclers and the other responses on the 5-point scale categorized the respondent as a recycler. The results in Table 5 show that recycling behavior had a mean score around 3.00. Majority of the responses concerning reduce, reuse or recycling behaviors did not change from 2006 to 2012 except that buying products that can be used for other purposes decreased significantly from a mean score of 3.89 to 3.74 and reducing the amount of consumption increased from a mean score of 2.62 to 2.88.

Table 5: Reduce- Reuse- Recycle Behavior

	2006	2012	Direction of change
I buy products that I can reuse for other purposes	3.89	3.74	(-)*
I use products that are durable for long time	3.86	3.73	(-)
While buying a product I don't want it to be packaged unnecessarily	3.81	3.65	(-)
I repair the product that is out-of-order before buying a new one	3.70	3.73	(+)
I buy products with packages that are soluble in nature	3.10	3.09	(-)
I throw away my waste separately	3.01	3.10	(+)
I recycle the packaging, box, bottle of the product when the product is finished	3.00	3.08	(+)
I pay attention to the recyclable symbol on the package while buying a product	2.78	2.77	(-)
I reduce my amount of consumption	2.62	2.88	(+)*

* $p < 0.05$

Recycled Materials

The respondents, who mentioned that they were engaged in recycling behavior, were asked to identify the materials they recycled. The results in Table 6 showed that the most frequently cited recycled materials in 2006 were glass (67.7%), newspaper (65.4%), white paper (47.6%), and batteries (39.1%); whereas the ranking in 2012 was slightly changed to glass (63.9%), newspaper (55.2%), batteries (54.6%), and plastic bottles (54%). Comparing the results of 2006 and 2012, there was a significant difference in the consumers' recycling newspaper, batteries, and plastic bottles; newspaper being selected significantly by a less number of respondents in 2012 and recycling batteries and plastic bottles showing a significant increase from 2006 to 2012.

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Table 6: Recycled Materials

	2006 (%)	2012 (%)	Direction of change
glass	67.7	63.9	(-)
newspaper	65.4	55.2	(-)*
white paper	47.6	44.8	(-)
batteries	39.1	54.6	(+)*
books	36.8	30.9	(-)
cardboard boxes	25.1	29.6	(+)
plastic bottles	36.1	54.0	(+)*
polished paper- brochures- magazines	31.1	32.1	(+)
plastic bags	25.8	30.6	(+)
paper bags	36.6	36.4	(-)
metal – aluminum	21.6	23.1	(+)
wood	14.0	10.2	(-)
car batteries	5.3	5.2	(-)
used motor oil	3.3	4.9	(+)

* p<0.05

Attitudes towards Recycling

As displayed in Table 7, self-declared knowledge level of consumers regarding recycling was found to increase significantly from a mean score of 3.07 to 3.30 between the years 2006 and 2012. In addition, recycled products are associated significantly less with low quality when compared mean scores for 2006 (3.65) and 2012 (3.41) supporting the finding that the consumers have gotten more knowledgeable about this issue. On the other hand, the mean score of the statement that “people with sufficient knowledge about recycling are expected to participate in recycling more” has also decreased significantly from 4.3 to 4.15, implying that compared to 2012, respondents think that knowledge may not necessarily lead to recycling behavior. While knowledge about recycling increased, the perceived importance score of recycling, despite having the highest mean score both in 2006 and 2012, was found to decrease significantly from 4.76 to 4.57. The attitude statements regarding the contribution of recycling to environmental protection and its perception as a social duty have the highest mean scores, following the importance of recycling, for both 2006 and 2012. However, although they have high mean scores, their means have significantly decreased from 2006 to 2012. This shows that consumers agree less with the benefits of recycling for preserving the nature, the costs associated with not recycling, and with the perspective that recycling should be a social duty. Furthermore, perceived support from other institutions such as the government and firms have significantly increased from 2006 to 2012, which shows that consumers think that macro level precautions are

being taken for the environment beyond individual contributions. Finally, separating wastes for recycling are perceived to be significantly more troublesome when compared to 2006, showing that convenience has gained more importance for consumers.

Table 7: Attitudes towards Recycling

	2006	2012	Direction of change
I think recycling is an important issue.	4.76	4.57	(-)*
Plastic bottles and nylon bags that are used and thrown away cause pollution	4.74	4.61	(-)*
Recycling preserves the nature	4.69	4.56	(-)*
Participation in recycling is everyone's societal duty	4.54	4.41	(-)*
While shopping, rather than nylon bags, recyclable materials such as paper bags should be used	4.51	4.41	(-)
People who have sufficient knowledge about recycling participate in recycling more	4.30	4.15	(-)*
Firms should invest on recycling campaigns as a part of their social responsibility activities	4.24	4.21	(-)
If both have the same price, I'd prefer recyclable materials to non-recyclable ones	4.20	4.12	(-)
I prefer to buy the service/product of a firm that supports recycling campaigns	3.82	3.80	(-)
A firm which supports recycling campaigns have	3.80	3.74	(-)
A recycled product has low quality (R)	3.65	3.41	(-)*
Firms support recycling campaigns	3.27	3.55	(+)*
Government supports recycling campaigns	3.13	3.40	(+)*
I'm knowledgeable about recycling.	3.07	3.30	(+)*
It's troublesome to separate my waste for recycling (R)	3.03	2.85	(-)*
Recyclable wastes should be collected from my house in order for me to recycle more (R)	2.19	2.07	(-)

* $p < 0.05$; (R): item reverse coded

Motivation for Recycling

Respondents, who mentioned that they were engaged in recycling behavior, were asked their reasons for recycling. As illustrated in Table 8, for both Time 1 and Time 2, the mostly cited three motives for recycling were environmental protection, perceiving recycling as the right thing to do, and feeling good by doing something for the environment. Comparing the results of 2006 and 2012, although mentioned among the top three motives, recycling being perceived as the right thing to do was cited by a significantly

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less number of respondents. Wanting to be seen as an environmentally conscious person has also significantly decreased from being cited by 14% of the respondents to 9.3%. On the other hand, feeling good when doing something good for the environment and perceiving recycling as an easy task were stated by significantly more number of respondents as their reasons for recycling.

Table 8: Motivation for Recycling

	2006 (%)	2012 (%)	Direction of change
Environmental reasons	70.4	70.4	
It is the right thing to do	66.7	59.9	(-)**
I feel good when I do something for the environment	47.9	55.6	(+)*
Facilities are available (containers...)	36.1	42.6	(+)
“Recyclable” symbol on the product	15.3	13.6	(-)
I want to be seen as an environmentally conscious person	14.0	9.3	(-)*
Other people’s influence	4.3	5.2	(+)
I sell it- economic reasons	3.8	2.8	(-)
It is easy	3.5	9.0	(+)*

* p<0.05; **p<0.10

Barriers to Recycling

The results (Table 9) showed that the main barriers that inhibited recycling were mentioned as inadequate or distant containers. However, it was also seen that the number of respondents who cited these barriers decreased significantly from 2006 to 2012. Therefore, although still being at the top of the list, the problem of inadequacy or distance of containers were perceived to be a declining problem throughout years. When 2006 and 2012 results were compared, it was also seen that not being able to distinguish recyclable materials as a barrier inhibiting recycling was cited by a significantly less number of consumers (24.7% to 18.2%). This finding shows that consumers are more knowledgeable about recyclable materials and not being able to distinguish materials is less of a barrier compared to 2006. Among the other barriers cited, not being used to recycling has also been mentioned significantly less by decreasing from 20.7% to 14.5% of the respondents. Perceiving recycling as a complicated and difficult activity has significantly increased in 2012. Although the consumers do not cite inadequate and distant containers as much as they used to cite as a barrier in 2006, they still refrain from recycling by mentioning the difficulty of it. Finally, the number of respondents who believe that recycling will not create a difference has significantly increased from 1.5% to 4% from 2006 to 2012.

Table 9: Barriers to Recycling

	2006 (%)	2012 (%)	Direction of change
There aren't enough containers	76.5	65.4	(-)*
Recycling containers are far away	62.1	54.3	(-)*
I can't distinguish the recyclable materials	24.7	18.2	(-)*
It's easier to throw away the recyclable materials	21.2	21.0	(-)
I'm not used to doing it	20.7	14.5	(-)*
It's difficult	15.7	22.2	(+)*
It's troublesome to separate recyclable materials	14.6	13.6	(-)
I have difficulty finding printed information	13.9	13.0	(-)
Lack of time	13.9	10.2	(-)
Information is not comprehensible	10.4	10.2	(-)
I don't want to carry the materials to recycling containers	10.1	11.1	(+)
It's complicated	6.8	13.0	(+)*
Bad weather conditions	5.6	7.1	(+)
I'm not interested	4.0	6.5	(+)
I can't find enough information on the Internet	3.5	5.9	(+)
It's a waste of time	3.3	3.4	(+)
I don't believe it will create a difference for the environment	1.5	4.0	(+)*

* $p < 0.05$

Opportunities to Improved Recycling Behavior

The responses illustrated in Table 10 indicate that the top three ways mentioned to improve consumers' recycling behavior could be nearly located containers, more number of containers, and collection of the recyclables from their houses. However, when 2006 and 2012 results were compared, nearly located recycling containers, more recycling containers, and separate containers for each material were cited significantly less, showing that these were not expected to improve recycling behavior as much as they used to in 2006. More information on the recycling procedure has also been mentioned significantly less by being stated by 33.3% of the respondents in 2012 compared to 44% of the respondents in 2006. On the other hand, two possible ways to improve recycling behavior that have been stated significantly more are collection of recyclable materials from the consumers' houses and being paid for it.

Table 10: Opportunities to Improved Recycling Behavior

	2006 (%)	2012 (%)	Direction of change
Nearly located recycling containers	73.2	66.4	(-)*
More recycling containers	71.9	61.1	(-)*
Collection of recyclables from my house	63.2	70.1	(+)*
More information on the recycling procedure	44.4	33.0	(-)*
Separate containers for each material	41.4	35.2	(-)**
Correct labels on recycling containers	40.6	44.4	(+)
Bigger recycling containers	39.8	40.4	(+)
Being paid for it	16.3	23.8	(+)*

* $p < 0.05$, ** $p < 0.10$

5. DISCUSSION

This multi cross sectional study aimed to portray the changing consumer motivations, attitudes, and behaviors concerning recycling as well as broader environmental issues between the years 2006 and 2012. The comparative findings yielded important results that have practical implications for corporations and public policy makers who want to understand the changing consumer profiles on these issues.

The changing ecological values between 2006 and 2012 show that perceived environmental threat posed by environmental issues of ozone depletion, deforestation, sea pollution, and greenhouse effect have significantly decreased, implying that these problems are not perceived to be as serious as they were perceived in 2006. Interestingly, this perception of decreasing threat contradicts with the facts about the worsening of these environmental problems in the recent years. According to the GEO 5, UN's most comprehensive environmental assessment report (UNEP, 2012), there is more regression than progress towards sustainability targets in the most important environmental goals in terms of atmosphere, land, water, biodiversity, marine pollution, chemicals, and waste. While the facts illustrate a deteriorating picture of the overall world problems of environmental issues, individuals in Turkey seem not to adequately comprehend the seriousness of the threat posed or ignore these issues. This can also imply that consumers perceive higher threats from issues which have short term and immediate impact on them, rather than macro issues in environmental problems which have impact in the long term such as ozone depletion, and deforestation. Short-term orientation of perceived benefit versus harm may have led the individual to care less about long term consequences of environmental problems. This can be explained by the cultural context of Turkey. According to the results of the GLOBE study

(House, Hanges, Javidan, Dorfman, and Gupta, 2004; Kabasakal and Bodur, 2002), Turkey scores low on future orientation. Countries with high future orientation put emphasis on long term results and planning, whereas the societies that are low in future orientation tend to focus on short term results and the present time. Short term orientation of Turkey supports the findings that individuals focus on the short term outcomes of their behaviors. Leonidou and colleagues (2010) also suggested that long-term oriented people tend to develop attitudes for protection of the environment, because they want to preserve the environment, in order to maintain sustainable conditions for future generations. These findings about the environment are consistent with the results of Anatomy of Civil Societies Research Project (Devinney, Auger, and DeSailly, 2012), which is a study conducted in Australia, Germany, the UK, and the United States. According to the report, it was found that in 2007, environmental sustainability was 4th out of 16 issues in terms of level of concern, whereas in 2011, it was 8th out of 16 issues. This significant decrease in environmental concern is explained by proximity such that people prioritize and care more about issues that are closely linked to and directly affect their lives. Environmental sustainability is among the low priority issues, especially when it is perceived as global rather than local (Scannell and Gifford, 2013). It is also documented that unless people face a true crisis or a real need for action, they do not perceive the long term threat of the situation and focus on short term priorities (Antil, 1984).

On reusing, reducing, and recycling behavior, the results of the present study showed that these behaviors stayed at the same levels from 2006 to 2012. While recycling scores were at the mediocre levels, there was no worsening or improvement of the behavior. On the other hand, reducing consumption was found to increase significantly, which may be related to economic reasons due to willingness to spend less, as well as environmental reasons of energy conservation (Prothero, McDonagh, and Dobscha, 2010). Furthermore, concerning recycled materials, it is seen that, when compared to 2006, consumers recycled newspapers less, which can be attributed to the shift towards online newspaper reading habits, which also leads to less purchases of printed newspapers. On the other hand, consumers recycled plastic bottles and batteries more in 2012. The significant increase in recycling plastic bottles may be due to a social responsibility campaign that has been very popular in the recent years (<http://www.kapaktoplama.com>). While the campaign involves recycling plastic bottle lids to help disabled individuals, respondents may have interpreted recycling lids as a category of plastic bottles. Increase in battery recycling may be attributed to the increased knowledge and consciousness about its importance (TAP, 2010).

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While the frequency of self-reported recycling behavior has remained at the same level, the perceived importance of recycling has decreased. On the other hand, an interesting and contradictory finding shows that self-declared level of knowledge regarding recycling has increased. Thus, while consumers are more knowledgeable about recycling, its perceived importance has decreased and also recycling behavior has not improved in line with the increased knowledge. This finding is consistent with the previous studies that suggest that awareness and information on their own are insufficient to change the behavior towards more sustainable practices (Carrete, Castano, Felix, Centeno, and Gonzales, 2012; Ger and Fonseca, 2012). Moreover, more information on the recycling procedure is no longer perceived as a way to improve recycling behavior, probably since consumers perceive themselves knowledgeable enough about recycling. Decrease in perception of recycling as a social duty or its perceived benefits regarding protecting the environment also support its reduced perceived importance.

Interpreting the changing attitudes, motives and barriers for recycling between 2006 and 2012, convenience emerges as a key issue such that consumers still ask for more convenience and they do not want to put much effort into recycling. Consistently, collection of recyclable materials from the consumers' houses is perceived as a possible way to improve recycling behavior. The increasing emphasis on convenience may be due to the fast tempo and busy work conditions associated with changing life styles in the big cities. Time becomes a valuable possession in city life. Consistently, individuals may be more focused on their interests rather than the interest of the society (Hardin, 1968). Considering that the sample of this study is relatively young with an average age of 30, this can also be explained by the shifting value orientations of the urban Turkish youth towards individualism, competition, achievement orientation, and promotion of self-interest (Aycan and Fikret-Pasa, 2003; Cileli, 2000; Karakitapoglu-Aygun, Arslan, and Guney, 2008). In line with the perspective that recycling constitutes a social dilemma between the choice of cooperation by recycling and the choice of not cooperating, perceived costs associated with the desired behavior such as the time and effort required may be overweighing the benefits of protecting the environment. Considering this emphasis, removing the barrier of inconvenience by making sure of less time and effort put into the process should be among the priorities of public and private institutions that want to encourage recycling behavior. On the other hand, regarding the external incentives, monetary incentives are appreciated more whereas social pressure is attached less importance.

Another interesting finding shows that individuals believe that the government and private institutions support recycling campaigns. Therefore, while individuals do not want to contribute much to recycling, they expect macro level support from institutions rather than dealing with the problem by taking micro precautions. The finding that consumers expect organizations to invest more on environmental problems as a part of their socially responsible conduct is also consistent with this result. Similarly, the belief that a single individual on one's own cannot create a difference for the environment has increased from 2006 to 2012. Individuals' contribution is expected to be complemented by macro support. The issue of the perceived or actual individual impact on beneficial societal outcomes has often been raised in the literature. It has been found that ethical consumers feel that their effort does not make a real effect (Carrigan and Attalla, 2001; Carrigan, Szmigin and Wright, 2004; Mohr, Webb, and Harris, 2001). Therefore individuals do not want to contribute much effort and they do not want to make self-sacrifice for environmental protection. Consumers assess the outcomes of their decisions based on the expected benefits and costs associated with the behavior. However, green consumer behavior involving pro environmental behaviors such as recycling are unlikely to deliver instant visible personal benefits, but rather future oriented outcomes that often benefits the society rather than the individual (McCarty and Shrum, 2001). When this is coupled with the belief that individuals alone cannot make a difference, people may tend to engage in recycling behavior less. Believing that they alone cannot create a difference, they put more responsibility on the government, thinking that the government should act as the control mechanism by imposing legal sanctions and should educate the society on environmental issues. This result goes hand in hand with the Environment in Turkey study (Carkoglu and Kalaycioglu, 2010). According to that study, 40% of the respondents mentioned that they didn't have the power to do something for climate change. Also, nearly 64% of the respondents believed that the government should pass laws for the protection of the environment and force certain standards to regulate individual and corporate contribution in environmental protection. Furthermore, state control is expected to change individual habits, whereas people do not want to make changes in their personal life styles for environmental protection. The results of the Turkey Values Survey (Esmer, 2012) declared that the trust for the government in general has increased from 29% in 2001 to 62% in 2012, which can also justify the expectation from the government.

Summing up these findings, it can be said that the state of the art for the environmental issues and specifically for recycling has followed a declining trend between 2006 and 2012. The contradiction lies in the fact that corporate social responsibility has become a part of many businesses. Consumers' knowledge has also increased. However, while these issues are

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communicated even more as a part of marketing strategies as well as governmental policies, the increased knowledge does not necessarily lead to improved attitudes towards recycling and actualization of the behavior. The belief that individuals cannot create a difference on their own and the perceived costs associated with inconvenient aspects of recycling has further reduced individual level contribution and has shifted the expectation to macro level contribution from the government and firms. No matter how serious the environmental issues are, if there is no direct relevancy of the problem on one's life, long term impact is being neglected and does not lead to immediate action. As documented by the report of Environment in Turkey (Carkoglu and Kalaycioglu, 2010), individuals do not want to lower their life standards nor do they want to pay more taxes for environmental protection, meaning no willingness for self sacrifice.

This change in attitudes towards less environmentally responsible consumers, more self-indulgence, and more expectation from other institutions should have implications for nonprofit organizations, governmental policy makers, and private companies. For example, communication should focus on the difference that each and every individual can create for the environment. It is found that the more people feel empowered and believe they can make a change, the more they are likely to perform environmentally concerned behaviors (Ger and Fonseca, 2012; Roberts, 1996). Therefore, to be more persuasive, the impact of taking individual steps in creating change should be communicated by messages based on concrete facts. In addition, messages that emphasize local consequences and personal relevance and those that frame the issue as an immediate problem and focus on a course of action are suggested (Scannell and Gifford, 2013). Furthermore, increasing convenience of recycling should be a priority to eliminate logistic barriers. While municipalities or private corporations in Turkey organize recycling campaigns, these efforts are rather dispersed and discontinuous. There must be a coherent recycling program adopted on a large scale and continuous basis. In these campaigns, incentives such as monetary rewards or commitment techniques may also be integrated to initiate participation. By all means, it is necessary that different institutions, involving NGOs, private organizations, and the government collaborate to improve their efforts on recycling and emphasize long term results over short term profits. Consumers also need to be aware of their purchasing power such that their demand for environmentally concerned practices can shape the operation of businesses.

Furthermore, a solution is proposed to lie at the larger scale. Firat (1991) asserts that marketing is the institution that facilitates and creates the consumption oriented postmodern culture. In a society, where consumption has become the means for producing one's self-image, marketing can be

used as a tool to produce the desired consumer image, making it possible to market “living sustainably” as a desired image. Similarly, Ger (1999) suggests that emphasis on environment cannot compete with the consumption orientation of the society. Therefore promotion of environmentally friendly practices on the basis of goodness of being environmentally concerned may not be successful. Instead, it is proposed that such environmental practices should be associated with a “good and modern” life style in order to make it a desirable life style option. Since Turkey is a developing country where consumption oriented life styles are dominant, living sustainably can be packaged to fit the “fun, pleasurable, cool, fashionable” life styles. This is proposed be a more effective strategy to change behaviors than the macro level alarms for ecological threats (Ger and Fonseca, 2012).

Finally, a parallel solution goes one step further and takes a holistic and global approach. It is asserted that micro marketing strategies which serve to increase consumption (e.g. via segmenting green markets) remain inadequate to change the individuals’ behaviors towards a more sustainable way; rather a macro marketing approach should be adopted (Kilbourne, McDonagh, and Prothero, 1997; Prothero, McDonagh, and Dobscha, 2010). According to this approach, the dominant social paradigm (DSP), which constitutes a society’s belief structure that organizes the way people perceive the functioning of the world around them, needs to change. Only then, the consumption emphasis of the society may change by identifying the deficiencies of institutions and their negative influence on the ecology and the system may be restructured incorporating political, economic, and technological dimensions. In other words, constructing new playgrounds can provide a better solution towards sustainable development rather than trying to change behavior in the same playground (Firat and Dholakia, 1998).

6. CONCLUSION

As sustainability continues to become a major concern, awareness and involvement of the consumers, businesses, and governments in socially responsible practices also seem to be on the rise. However, considering the gap between environmentally friendly attitudes and actual contribution to environmental protection, there is a lack of research on longitudinal studies investigating whether this rising trend in sustainability or more specifically on environmental protection is really following a similar trend and a positive change in consumer motivations, attitudes, and behaviors. This study contributes to this gap in the literature by providing a comparative portrayal of changing consumer motives, attitudes, and behavior on environmental issues and specifically recycling. Whereas most studies have been conducted in developed countries, this research aims to contribute to the lack of

research in developing countries, where management of waste becomes an important issue. In addition, whereas most research provides a snapshot of the current situation, this study provides a comparative perspective of changes in attitudes and behavior. On the other hand, this study has several limitations. First of all, the sample of the study is biased towards a more educated profile rather than being representative of low education levels in rural areas of Turkey. The second limitation of the study is based on the self-report data. Further studies can compare the actual behavior rather than self-reported behavior of the respondents.

Clearly, recycling is a viable method for solving one of the major economic and environmental problems; therefore it deserves attention from public policy makers, NGOs, and marketing practitioners. The findings can be used to have a better comprehension of changing consumer motivations, attitudes, and behavior in order to customize effective marketing strategies on social responsibility as well as developing more effective public policies. The findings reveal not only an important awareness as to “where we were” and “where do we go”, but also challenges all parties to question the situation from a perspective of “where did we go wrong?”. While this study presents the state of the art in changing recycling habits, further studies may examine the reasons behind this picture by adopting qualitative studies which provide in depth and rich data regarding the situation.

Finally, it would be noteworthy to emphasize that this study was conducted before the Occupy Gezi movement, a protest against the Turkish government’s construction project of a shopping mall by destroying Gezi Park that took place in the summer of 2013. Within the Gezi movement, environmental sensitivity and criticism of capitalism became intertwined (Gole, 2013). The protests carried more meaning than environmental protectionism over consumption symbolized by the shopping mall; they were against the authoritarian approach and intrusion of the government in the open space, freedom and democracy of citizens. This movement aroused a new critical consciousness (Gole, 2013). As Kaya and Marchetti (2014) put it, the demonstrators of Gezi Park showed the capacity of the people to govern themselves and their engagement as active citizens as opposed to the previously discouraged and apathetic youth in Turkey that had been prevalent since the 1980s. They demonstrated their concern for and connection with other people as well as believing that things can be done altruistically for the good of people or the country. As a wide spread event, there is a date ‘before’ and ‘after’ Gezi (Gole, 2013). Before and after this protest can be significantly different, as people acquired a sense of the power of individual. They believed in themselves for being active, unifying and changing things for themselves and the common good of the society rather than relying on the broader institutions such as the government.

Therefore, we encourage further studies to examine the attitudes and perceptions of individuals after this event regarding their expectations from the government or other institutions versus the belief in their individual impact and voice.

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