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CREATING ENVIRONMENTALLY RESPONSIBLE CONSUMERS THROUGH RECYCLING: A SEGMENTATION APPROACH

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ABSTRACT

Consumers' contribution to environmental protection becomes one of the major concerns of the 21st century in order to yield environmental, financial, and social returns. It is believed that recycling potential exists in every individual as long as motivations, capabilities, and concerns are understood. In order to induce participation, understanding different target markets, their attitudes and behavior, and developing social marketing campaigns are important. This study's aim is to cluster analyze consumers in an emerging market setting, where industrialization is at a high pace and recycling is a must. The criteria used in the cluster analysis are consumers' attitudes about recycling and their recycle, reuse and reduce behavior. The results show that there are four different groups of consumers in Turkey, namely genuine greens, followers, indolents, and apathetics, who differ from each other based on their recycling attitudes and recycle-reuse-reduce behavior. They are all aware of the importance of recycling and have a positive attitude; however, their participation occurs at different levels. The study proposes different strategies such as social marketing campaigns, face-to-face communication, education, celebrity endorsement, increasing convenience of recycling. This study can be considered as a preliminary study to understand recycling and waste disposition in emerging market settings.

Keywords: *Recycling, Emerging Markets, Segmentation, Cluster Analysis*

INTRODUCTION

As the importance of scarce resources and the delicate equilibrium of the world is realized, governments, organizations as well as consumers' contribution to environmental protection becomes one of the major concerns of the 21st century in order to yield environmental, financial, and social returns in natural resource and energy conservation, pollution prevention, economic expansion, and competitiveness (Dunlap and Scarce, 1991; Fransson and Garling, 1999; Hornik, Cherian, Madansky, and Narayana, 1995). Consumers' contribution may be through encouraging governments and organizations to take part in environmental protection and more importantly through practicing environmentally concerned behavior themselves (Howenstine, 1993). For environmental protection, consumption decision, acquisition of the product, its usage, and lastly getting rid of the product are all important.

For getting rid of the product, the consumer has different alternatives. Disposition encompasses all the behaviors that consumers carry out to divest themselves of undesired goods and services, including reducing consumption, reusing and recycling products, namely 3Rs (Arnould, Price, and Zinkhan, 2004). Environmentally concerned consumers produce less waste by practicing these 3 Rs. The decisions taken related to 3Rs yield different environmental, financial, and social returns to the community. The reduce approach focuses primarily on purchasing and consuming less; reuse focuses on repeated uses of purchased items; and recycling, which is the main focus of this study, refers to the process through which materials previously used are collected, processed, remanufactured, and reused (Ruiz, 1993). It involves breaking a product down into its basic parts and using those parts as if they were raw materials for manufacturing new parts (Salustri, 2005).

Social marketing, the design, implementation, and control of programs to influence the acceptability of social ideas and involving considerations of product planning, pricing, communication, distribution, and marketing

research (Kotler and Zaltman, 1971), may be used to increase recycling behavior of the consumers. It is believed that recycling potential exists in every individual as long as motivations, capabilities, and concerns are understood. In order to induce participation, understanding different target markets, their attitudes and behavior is important. However, recycling strategies usually are not built on this type of understanding, but target the whole community (Bloom and Novelli, 1981; Read, 1999). Hence, the end result of these communication strategies is not very effective after all since they are not coined for any specific market (Jesson, 2009). Market segmentation, on the other hand, may help identify the differences between people and develop more targeted social marketing campaigns to stimulate participation (Howenstine, 1993; Jesson, 2009; Shrum, Lowrey, and McCarty, 1994). There is, however, little attention paid to consumer perspective in recycling and market segmentation (Tabanico and Shultz, 2007; Jesson, 2009). Therefore, the aim of this study is to contribute to application of social marketing to environmentally concerned behavior- more specifically recycling- through segmenting different consumer groups in terms of attitude and behavior. Based on the findings, strategies will be proposed for social marketing to these different groups.

LITERATURE REVIEW

In the extant literature, there are different studies to understand the consumers who engage in recycling behavior and who do not. A substantial amount of research has been conducted to understand the reasons of recycling or not recycling. Demographic characteristics such as age, gender, education, purchasing power have an effect on recycling (Roberts, 1990; Ottman and Reilly, 1998; Straughan and Roberts, 1999; Getzner and Grabner-Kräuter,2004; Li, 2003). Altruistic motivations such as saving the environment, reducing pollution, conserving resources can be a strong determinant of recycling (De Young, 1989; Vining and Ebreo, 1990; Balch, Leeks, Oh, and Gardiner, 1991). Personal and cultural values have also been related to recycling behavior (Salimando, 1987; Shrum et al., 1994). Likewise, sense of accomplishment, pride, harmony, and self respect are associated with recycling. Collectivist societies also tend to recycle more. Social pressure from the community is yet another strong motivator of recycling behavior (Salimando, 1987). Recycling is positively related to the amount of information the participant has about the issue and types of services available (Vining and Ebreo, 1990; Jesson, 2009) as well as environmental awareness (Banyte, Brazioniene, Gadeikiene, 2010). As the consumers are more knowledgeable, they are more likely to recycle. Finally, collecting and sorting recyclable material requires time, effort, and organization what sometimes deters individuals from the behavior due to convenience reasons (Howenstine, 1993; Jesson, 2009; Harvie and Jaques, 2003; Shrum et al., 1994).

There has also been segmentation research on recycling to identify different groups of consumers according to recycling awareness, attitude, or behavior (e.g.; Howenstine, 1993; Jesson, 2009; Vicente and Reis, 2007; GFK Roper, 2008; Banyte, Brazioniene, Gadeikiene, 2010). The common point in this stream of research is that there is a hierarchy in recycling, ranging from unconscious, incompetent consumers through intermediate levels to the committed recyclers at the highest ranks. This study's aim is to cluster analyze consumers in an emerging market setting to identify different groups according to their attitudes about recycling and recycle, reuse and reduce behavior so that differentiated strategies can be proposed to increase recycling behavior for each group. A developing country context is chosen since there is little research on motivations and determinants of recycling behavior, or market segmentation of consumers based on recycling in these countries (Troschinetz and Mihelcic, 2009). However, given the growing GDP and development in these countries, they increasingly produce waste out of urbanization and industrialization; thus it is worthwhile to study recycling in these countries as a part of environmental protection concern for the future.

The classification criteria of the research considers both attitude towards and actual behavior in recycling since there are contradictory views about the relationship between the two; and on whether attitudes drive behavior in recycling. Some research indicates a positive relationship between the two (McGuiness, Jones, and Cole, 1977; Bagozzi and Dabholkar, 1994; Mainieri, Barnett, Valdero, Unipan, and Oskamp, 1997), while some other research suggests that environmental attitudes may not be particularly powerful predictors of recycling (Arbuthnot, 1977; Humphrey, Bord, Hammonda, and Mann,1977; McGuinness et al., 1977; Oskamp, Harrington, Edwards, Sherwood, Okuda, and Swanson,1991; Samdahl and Robertson, 1989). Hence, both attitudes and behavior were included in the study as clustering variables.

METHODOLOGY

Data was collected in Istanbul with a sample of 337 consumers between April and July 2012. 500 questionnaires were initially sent to participants, out of whom 337 returned with a response rate of 67%. The sample composed of 45.8 % male, and 54.2 % female participants. The average age of the sample was 32. 70.5 % of the sample had undergraduate degree or more, with 53% of them as employed and 63.4% of them as singles. Data collection was carried through the administration of a structured questionnaire, which investigated the recycle-reuse-reduce behavior, attitude towards recycling and demographics.

The scale to measure *Reduce- Reuse- Recycle behavior* was adopted from DeYoung (1985-1986); this scale measured the respondents' place 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 (ranging from 5=always to 1= never). The scale to measure a*ttitudes towards recycling* was developed by the researchers through assessing a variety of personal and societal issues such as perceived importance of recycling, perceived knowledge about recycling, perceived environmental benefits of recycling and 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 firms investing on recycling projects and preference for their products. A 5-point Likert type scaling was utilized to measure respondents' agreements with the statements ranging from 5 (I totally agree) to 1 (I totally disagree).

FINDINGS

An exploratory factor analysis (with varimax rotation) was conducted on both scales measuring recycle-reuse-reduce behavior, and recycling attitude respectively. The factor analysis results yielded two factors (recycle and reuse-reduce) for the recycle-reuse-reduce behavior; and four factors (attitudes related to personal contribution to recycling, firms' contribution to recycling, firm and government support to recycling, and inconvenience of recycling) for the recycling attitude. The factor analysis results for both scales with factor names, loadings, explained variance, reliability (Cronbach's Alpha) and Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) scores are presented in Table 1 and Table 2 respectively.

Table 1. Factor analysis results for recycle-reuse-reduce behavior scale

Scale: Recycle-Reuse-Reduce Behavior			
Factor Name/ Mean Score	**Loadings**	**Explained Variance**	**Reliability**
Factor 1: Recycle (Mean: 3.01)		0.31	0.85
I recycle the packaging, box, bottle of the product when the product is finished	.868		
I throw away my waste separately	.842		
I pay attention to the recyclable symbol on the package while buying a product	.794		
I buy products with packages that are soluble in nature	.666		
Factor 2: Reuse / Reduce (Mean: 3.54)		0.28	0.73
I repair the product that is out-of-order before buying a new one	.764		
I use products that are durable for long time	.733		
I buy products that I can reuse for other purposes	.715		
While buying a product I don't want it to be packaged unnecessarily	.593		
I reduce my amount of consumption	.509		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) = .812			
Bartlett Test of Sphericity = 1190.506 **Significance** = .000			

Table 2. Factor analysis results for recycling attitude scale

Scale: Recycling Attitude			
Factor Name/ Mean Score	**Loadings**	**Explained Variance**	**Reliability**
Factor 1: Personal Contribution to Recycling (Mean:4.38)		0.21	0.75
Plastic bottles and nylon bags that are used and thrown away cause pollution	.796		
While shopping, rather than nylon bags, recyclable materials such as paper bags should be used	.748		
Recycling preserves the nature	.668		
Participation in recycling is everyone's societal duty	.626		
People who have sufficient knowledge about recycling participate in recycling more	.487		
If both have the same price, I'd prefer recyclable materials to non-recyclable ones	.445		
Factor 2: Firm's Contribution to Recycling (Mean: 3.91)		0.16	0.80
I prefer to buy the service/product of a firm that supports recycling campaigns	.879		
A firm which supports recycling campaigns have high prestige for me	.828		
Firms should invest on recycling campaigns as a part of their social responsibility activities	.594		
Factor 3: Firm and Government Support to Recycling (Mean: 3.48)		0.13	0.80
Government supports recycling campaigns	.905		
Firms support recycling campaigns	.897		
Factor 4: Inconvenience of Recycling (Mean: 2.46)		0.11	0.60
Recyclable wastes should be collected from my house in order for me to recycle more (reverse)	.758		
It's troublesome to separate my waste for recycling (reverse)	.754		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) = .794			
Bartlett Test of Sphericity = 1381.647 **Significance** = .000			

Following the factor analysis, these six factors were used for the cluster analysis. In this analysis, the Ward's method as the amalgamation rule and the squared Euclidean distance as metric were used to establish clusters. In order to determine the optimum number of clusters, stopping rule, which allows determining the appropriate number of clusters based on changes in agglomeration coefficients (Hair, Black, Babin, and Anderson, 2010) was implemented. According to the agglomeration schedule for the cluster sample, the largest increase (32%) showed a two cluster solution. However, according to stopping rule, two cluster solutions always showed the largest increase, and the researchers had to examine other stages to make the decision. The second largest jump was between the stages 333 and 334, which was approximately 14 % (962.610-841.529/ 841.529= 0.143). Four-cluster solution deemed appropriate for the purposes of our study, and did not deviate from previous studies. After determination of the cluster sizes, K-Means cluster analysis was applied to the sample. Table 3 indicates the average means of the pre-determined factors for each cluster.

Table 3. Average cluster means for recycle-reuse-reduce behavior and recycling attitude

	Cluster 1 Genuine Greens	Cluster 2 Followers	Cluster 3 Indolents	Cluster 4 Apathetics
Recycle Behavior	4.15	3.34	2.52	1.79
Reuse / Reduce Behavior	4.12	3.73	3.44	2.62
Personal Contribution to Recycling	4.63	4.52	4.39	3.78
Firm's Contribution to Recycling	4.43	3.99	3.97	2.99
Firm and Government Support to Recycling	4.19	2.55	4.14	2.94
Inconvenience of Recycling	3.13	2.61	2.09	1.97

Below are the short profiles of each cluster based on recycle-reuse-reduce behavior, recycling attitude, matched with their demographic profiles, which is presented in Table 4.

Genuine greens: They truly believe in recycling and actively recycle-reuse-reduce. They are the group with the highest mean scores on recycle-reuse-reduce behavior and recycling attitude. However, they think that more can be done to make recycling more convenient. This group is 68 % female, highly educated and employed.

Followers: They are very much similar to genuine greens, closely following them on recycle-reuse-reduce behavior and recycling attitude. However, they find recycling inconvenient. They believe in individual contribution in recycling rather than institutional support from firms or the government on recycling campaigns. This is their major deviation from the genuine greens. This group is also highly educated and most of them are employed.

Indolents: They are aware of environmental threats and have a positive attitude towards personal, firm-based recycling but they do not engage in actual recycling behavior themselves even though they reuse-reduce to some extent. They also believe in firm and government support to recycling campaigns. However, they find recycling to be inconvenient.

Apathetics: They are aware of the threat to the environment and carry a positive attitude towards personal recycling. However, they are not engaged in recycling or reuse-reduce behavior themselves. They find recycling to be inconvenient. They also do not have a positive attitude towards firm contribution in recycling or firm and government support to recycling events. Nearly 57% of this group is between the ages 15 to 25. They also have somewhat lower education than the rest of the groups probably due to their younger age.

Table 4. Demographic profiles of the clusters

	Genuine Greens	Followers	Indolents	Apathetics
Gender				
Female	68%	56%	47%	45%
Male	32%	44%	53%	55%
Age Interval				
15-25	32%	32%	40%	57%
26-35	37%	38%	38%	17%
36-50	20%	22%	18%	12%
51-65	11%	6%	4%	11%
66-80	0,00%	2%	0,00%	3%
Age average	32.9	32.75	27.76	31.6
Education				
Undergraduate degree and above	78%	72%	73%	53%
Less than undergraduate degree	22%	28%	27%	47%
Employment				
Employed	69%	70%	66%	57%
Unemployed	31%	30%	34%	43%
Marital Status				
Single	60%	61%	61%	76%
Married	40%	39%	39%	24%

DISCUSSION AND CONCLUSION

Environmental protection is a responsibility to be shared by everyone involved in the society, including institutions such as firms and governments, as well as individuals themselves. As the world is getting more industrialized and urbanized, the amount of waste in the environment is increasing, which leads to looking for solutions for disposing waste, preserving natural resources and life in general. This study focuses on the recycling attitudes and recycle-reuse-reduce behavior of the individuals in an emerging market context, namely, Turkey since these nations have increasing GDP and are catching up with industrialized nations in production, urbanization, and waste creation. Therefore, it is timely and necessary to study recycling, understand individual differences and motivations on the subject. The aim of the study is to groups consumers in Turkey into market segments based on their recycling attitudes and recycle-reuse-reduce behavior so that implications may be drawn for social marketing campaigns for increasing recycling.

The results show that there are four different groups of consumers in Turkey, namely genuine greens, followers, indolents, and apathetics, who differ from each other based on their recycling attitudes and recycle-reuse-reduce behavior. The study results resemble similar cluster analysis studies on recycling in the developed countries (Howenstine, 1993; Jesson, 2009; Vicente and Reis, 2007; GFK Roper, 2008; Banyte, Brazioniene, Gadeikiene, 2010), with a hierarchical ranking starting with committed at the highest rank and ending with non-interested group at the lowest rank of recycling.

According to the research results, all of the groups have a positive attitude towards personal contribution to recycling, what implies that an environmental awareness is achieved; consumers are aware of their environmental responsibilities. However, even though they have a positive attitude, there are two segments, indolents and apathetics, who do not practice recycling actively. These two groups may need some motivation or information on how and why to recycle. A motivating campaign, including an incentive to recycle, may be helpful to persuade these reluctant consumers to participate in recycling. There might,

however, be a problem related to the fact that promotional incentives have proven to be ineffective (Shrum et al., 1994); when the promotion is terminated, the consumers stop recycling. Still, promotional incentives can be used for trial participation or from time to time as a reminder. A more permanent incentive method, payback centers, may help by giving economic incentives to those individuals who are reluctant to recycle or encourage those who want to earn additional income. The real focus, however, should be on lifting people's recycling competence, making them learn, and motivating them. Knowledge can help with recycling compliance. The positive environmental, financial, and social returns in natural resource and energy conservation, pollution prevention, economic expansion, and competitiveness due to recycling should be shared with the consumers more often so that they can experience the results of their recycling activities. Interactive social marketing campaigns (Read, 1999) can also be a good strategy. Consumers may be educated via social media campaigns, or through videos, or motivated face-to-face in their residences by voluntary greens. Finally, most consumers also believe in government and firm support to recycling. Therefore, effective public relations of recycling campaigns and their promoters may work as a motivating factor to those consumers who feel encouraged when government officials or firms are backing up recycling.

All of these groups are also finding recycling inconvenient to practice. This is similar to the findings in the US society in the early 1990s, when inconvenience was an issue for not recycling (Howenstine, 1993). The government and NGOs have to overcome this problem and work for making recycling more convenient. The citizens are not motivated to recycle when they have to do extra work. Therefore, the institutions should work to motivate the consumers, while at the same time make recycling more convenient and easy to do. For example, in order to overcome inconvenience, a commingled system (where several materials are collected in the same container), which requires little from the resident might be a viable strategy. The number of collection points may also be increased so that the recyclers can reach these points without much effort.

The most reluctant group in the research was the apathetics, who were aware of their responsibilities, but did not contribute at any level. This group had the youngest consumers. Previous research also shows that young adults are less environmentally active than older residents (Jesson, 2009). This indifferent behavior of young people can be reduced by transmitting a sense of pride and accomplishment with recycling participation (Vicente and Reis, 2007). Recycling behavior requires motivation, information, and overcoming inconvenience. Educating younger generations at early ages can be a good starting point for socially marketing the idea of recycling. However, education should not only involve idea marketing, but also actively engage younger generations in behavior so that they get accustomed to recycling from early ages. Group belonging and opinion leadership may also work well with young people. It might be of use to find opinion leaders, young people that have a say and influence over their peers and convince them in recycling participation, which would influence the rest of the group. Another good method would be to create a promotional campaign whereby a celebrity role model informs and demonstrates recycling.

This study can be considered as a preliminary study to understand recycling and waste disposition in emerging market settings. The study results cannot be generalized to all developing nations since a single country setting is used and the sampling method is convenience. The next steps should be to understand the drivers of recycling attitude and recycle-reuse-reduce behavior in emerging markets. An important factor that should be considered is the attitude and behavior of the younger generations. The question lies whether the "young consumers" in general are reluctant to recycle or this generation in Turkey is reluctant. This is an issue to be considered for further research. Future studies can also incorporate comparative studies between emerging market nations so that a larger understanding can be achieved on recycling in these rapidly industrializing nations of the world.

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