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# **Factors Impacting One's Self-Classification into One of the Five Categories of a Typology Delineating Green (and not so Green) Consumers**

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## **ABSTRACT**

*A sample of 1,243 adult residents of the United States provided insight into an array of issues germane to sustainability. Upon completing a 65-question survey on sustainability, each respondent placed themselves in an eco-group that they felt best corresponded to their own behavior and attitudes towards the task of keeping the planet green for ourselves, and perhaps more importantly, for our posterity. The five groups ranged from the eco-destroyer to the eco-warrior. Within the survey, each respondent provided their opinions regarding seven multi-item scales that primarily addressed green issues; some scales addressed business behavior while others addressed issues such as their own personal affinity towards nature, their green opinions, and their role as a vocal advocate of green initiatives. One-way ANOVA coupled with the Scheffé Method of Multiple Comparisons identified differences in the mean scores for the seven multi-item scales across the five eco-groups. Discriminant analysis was used to further determine which of the scales played significant roles in the task of differentiating among the five groups.*

## **INTRODUCTION**

Without a doubt, sustainability has become a global buzzword. It is common vernacular among consumers, politicians, and the media alike. Issues such as global warming, recycling, green consumption, and green marketing are common points of discussion among members and between members of these three groups. In this regard, sustainability is truly a global phenomenon, not simply a global buzzword.

Sustainable consumption has been defined as “the use of goods and related products which respond to basic needs and bring a better quality of life, while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations.” (Norwegian Ministry of Environment, 1994). As such, it encompasses pro-environmental behavior (Gamma, Mai, and Looock (2018).

While sustainability is at the forefront of daily conversations, it is far from being universally embraced. In light of this inconsistency, new laws are beginning to mandate more sustainable behavior. Laws prohibiting plastic straws are beginning to appear in countries such as Australia. Composting food waste is mandatory in South Korea. In the United States, new laws are being passed regarding the use of polystyrene (often mistakenly referred to by the prominent brand name of Styrofoam). The United States has even seen the New Green Deal introduced in Congress in an effort to reverse the consequences of global warming with a focus on sustainability (Friedman, 2019). But the bulk of our sustainable behavior, whether from the buyers' or the sellers' perspective, is discretionary. We do what we want to do, especially consumers. And while there are significant variations from one country to another, no single country's population has a homogeneous mindset as to what is right and what is wrong in regard to their own behavior, thus their potential impact on the lack of sustainability-focused behavior in their home country and across the globe. Yet, what has become more apparent is that those consumers who are the most concerned are more vocal and they are becoming more proactive regarding their own sustainability-focused behavior. The members of this group are beyond vocal; they are devoted. Members of this informal, yet passionate, group are commonly referred to as eco-warriors (Christ, 2015). They have also been labeled as activists, hands-on conservationists, radicals, and silent rebels. But several key questions remain unanswered. How prominent is the eco-warrior group in the United States? Are there other so-called green groups that can be identified? What about the so-called brown groups, those who are pretty much unconcerned with the environmental consequences of today's consumption and production decisions? What is it that separates the various groups? It is these questions which provide the focus for the current research.

## LITERATURE REVIEW

When focusing on consumer behavior, researchers often develop typologies predicated upon differences across various segments within the consumer market. Developing a better understanding of the nomenclature associated with the various segments represents the initial focus of this literature review.

### *Segmentation Germane to Sustainability*

At the most fundamental level, the heterogeneous market is classified using a two segment typology. Two recent examples are the delineation of *Green* and *Non-Green* consumers (Barbarossa and De Pelsmacker, 2016; Holmbom *et al.*, 2013). From a similar perspective, Kulshreshtha *et al.* (2017) delineated differences between two segments that they referred to as *greenies* and *brownies*. Using different terminology, a three segment typology of green consumers was identified comprising *the Uncommitted*, *the Green Activists*, and *the Undefined* consumers (Finisterra do Paço, Raposo, and Filho, 2009). Another three-group typology delineated *Translators*, *Exceptors*, and *Selectors* (McDonald *et al.*, 2012). A study of Polish consumers also identified three segments: *True Greens*, *Potential Greens*, and *Browns* (Apaydin and Szczepaniak, 2017) while Csutora (2012) delineated the three segments in her study as *brown*, *average*, and *green*. Moving forward, by focusing on demographic and psychographic considerations, Byus and Deis (2013) developed a four-segment typology based on what they referred to as the four shades of green. These four clusters were: *the Green-Greens*; *the Green-*

*Must-Wait; the Greenish-With-A-Cough; and the Greenish-Without-A-Cough*. A second four-group typology was deemed to consist of *the Blind Green Consumer; the Individual Green Citizen; the Collective Green Consumer; and the Collective Green Citizen* (Prothero *et al.*, 2010). Yet another four-group typology was reported by Kreidler and Joseph-Matthews (2009); the four segments – from most concerned to least concerned – were designated as *Lohas* (Lifestyles of Health and Sustainability), *Nomadics*, *Centrists*, and *Indifferents*. In addition to this typology, Kreidler and Joseph-Matthews put forth their own somewhat esoteric classification of green consumers; the four categories were the *True-Blue Green*, *Lean Green*, *Surface Green*, and *Craven Green* consumers. Three recent studies have classified consumers based upon their green tendencies into five segments. One was predicated upon their own self-reported sustainable behavior. While that study focused on behavior, it is important to note that the five categories concurrently looked at a set of commonly scrutinized demographic variables. However, an assessment of sustainability was based upon respondents' concerns about energy, waste, water, and food in conjunction with environmentally friendly behaviors and attitudes such as their concern for wildlife (Royne, *et al.*, 2016). Another five-group typology was offered by Martenson (2018) who looked at five segments when considering the purchase of an electric car. The five segments were characterized as: *dark brown*, *light brown*, *grey*, *light green*, and *dark green*. The final five-group typology to be discussed in this review is a recent study by Fullerton, McCullough, and Hershey (2017). In their broad examination of green and non-green consumers, they identified five segments. Specifically, the segments were the *eco-destroyers*, *eco-indifferent*, *eco-conscious*, *eco-worrier*, and *eco-warrior* segments.

The research on segmentation of the green market confirms the reality that it is not a dichotomy that simply comprises two segments – green and non-green consumers. Rather it is a continuum with some consumers greener than others while still acknowledging the reality that the so-called “non-green” segment of consumers does exist. Thus, a multi-segment approach for assessing this aspect of the market is appropriate.

Given the affirmation that a multi-segment strategy is in evidence in regard to sustainability, there is now a need to determine the characteristics that differ among the various segments. What differentiates between green consumers, brown consumers, and those who fall somewhere in between? Answers that address this question represent the second component of the literature review.

### ***Characteristics Differentiating the Identified Segments – Brown, Green and in-between***

Consistent with the current study's objective of using multidimensional scales to assess one's position within the green realm is a study by Marde and Verite-Masserot (2018) that looked at antecedents of green consumption. They found that the key considerations which separate brown from green consumers are: the propensity to consume environmentally-friendly products; barriers to purchase; and one's relationship with a particular product. The authors confirm the existence, thus the viability, of assessing a consumer's green consumption using multiple dimensions that are comprised of unique sets of questions. Furthermore, it has been noted that a similar approach has been shown to be effective in the task of identifying characteristics that lead to brown behavior (Gleim *et al.*, 2013; Gleim and Lawson 2014).

In general, the extant literature indicates that an individual's concern about the environment tends to lead to more positive, that is to say, greener behavior (Bertrandias and Elgaaied-Gambier, 2014). However, it is worth noting that the aforementioned study indicates that there is a social consideration, that others' opinions may well impact one's propensity to behave in an environmentally-responsible manner. The social considerations further imply that reference groups and opinion leaders have a role in leading to a third party's green, or not-so-green, behavior (Green and Peloza, 2014). In fact, peer pressure may lead a comparatively unconcerned consumer to behave in a green manner because of the social considerations associated with conspicuous consumption (Griskevicius, Tybur and Van den Bergh, 2014).

One interesting study found that a point of distinction for those who do purchase green products lies in the primary motive. For browner consumers who buy green, it can be inferred that their motivations are sometimes selfish or altruistic. Within this context, it has been stated that consumers buy benefits, so the purchase of green products may well depend upon the perceived benefit that will accrue to the purchaser (Martenson, 2018). Potential examples include a paperless bank statement, not because of environmental concerns, but because it might save the consumer a small amount of money each month; or the consumer may take public transportation in order to save money, not to save the environment (Trivedi, Patel, and Savalia, 2011). Conversely, the green consumer buys green products out of an environmental concern (Filho, Cardoso, and Barboza, 2019). So while buying organic vegetables may provide no tangible benefit to the consumer, the benefit to society is still meaningful. Thus, it is environmental awareness that establishes one line of demarcation. As a consequence, it has been argued that one motive for green behavior is that of selfishness which is consistent with the idea of an individualistic rather than a collectivist-oriented individual or society.

Another issue is one's trust in the green claims being put forth. This barrier revolves around consumers' perceptions of a marketer's past as it relates to historical norms and social responsibility. Within this context, it is this mistrust that has led to an increase in "green skepticism" (Matthes and Wonneberger (2014). If a claim is believed, then consumers are more likely to purchase a green product than if a green claim is in question (Leonidou and Skarmas, 2017). If not believed, then the consumer may opt to forgo the purchase of what the marketer has characterized as a green alternative. The issue of trust thereby differentiates green from brown consumers. Perhaps it is this trust that leads the green consumer to possess a higher degree of brand loyalty (Yenipazarli and Vakharia, 2017) than does the brown consumer.

Another factor that may differentiate brown from green is the individual's financial capacity. A consumer tradeoff might include paying more to purchase an environmentally-friendly product made from post-consumer recycled materials or an electric automobile. Overt behavior is often influenced by one's *willingness to pay (WTP)* (Hartmann, Apaolaza, and D'Souza, 2018; Martenson, 2018; Ham, 2009); thus, there is often an ethical tradeoff associated with green consumption (Longo, Shankar, and Nuttall, 2019). Also problematic is the reality that it may not be willingness-to-pay that separates green from brown consumers; rather it may be the *ability-to-pay (ATP)* where concerned consumers' weaker financial positions may lead them to consummate less desirable brown purchases (Bonan, Pareglio, and Massimo, 2017).

Next, there is a need to address the issue of environmental responsibility. It has been shown to be an important determinant of one's propensity to purchase green products (Gupta and Agrawal, 2018; Kumar and Bhimrao, 2015). While noting demographic differences between green and brown consumers, Ham (2009) was an early advocate extolling the impact that one's perceived role in the task of protecting the environment is in differentiating between green and brown consumers. This logical outcome has been supported by many subsequent studies. Among them is the aforementioned study by Barbarossa and De Pelsmacker (2016) that indicated green consumers tend to see environmentally-friendly behavior as a moral obligation whereas brown consumers are more likely to view it as a personal inconvenience. Consider the following quote to get a better understanding of the problems that stare green marketers squarely in the face: "for both green and non-green consumers, consuming responsibly is seen as a time-consuming activity that is economically disadvantageous and stressful" (Barbarossa and De Pelsmacker, 2016, p. 242.) So being green is not necessarily easy – either for the consumer or the marketer. But, better distinguishing between green and brown consumers represents a tremendous opportunity for today's and tomorrow's marketers.

### ***An Overview of the Literature Review***

In light of the above, it is subsequently evident that multi-segment approaches to classify consumers based on their environmental predisposition and behavior are commonplace. While there is no agreement as to what these segments should be called, the colors green and brown are the most common terms used in the typologies. Also apparent is the broad belief that there are varying levels of green and brown consumers. In other words, not all green consumers are the same; neither are all brown consumers. The use of multi-item scales in an effort to classify consumers is also apparent. The issues that appear most frequently are one's green attitudes, their personal behavior, the way they view themselves as a spokesperson, and their willingness to pay (WTP) the extra cost that is commonly associated with green products. But numerous other antecedents to green behavior have been identified as well (For example see Perera, Auger, and Klein 2018; Mutlu, and Yilmaz, 2017; Yenipazarli and Vakharia, 2017). Hence, there is a need to develop a better typology that is characterized by homogeneous segments that are more easily identified without an abundance of demographic information. All of the characteristics denoted in this paragraph are consistent with the objectives relevant to the current study.

## **OBJECTIVES**

The primary objectives of this study are straight-forward and fourfold. They focus on the desire to determine the nature of the five-group eco-typology as specified by Fullerton, McCullough, and Hershey (2017) in their study of university students. Specifically, the research objectives are to:

- ✓ determine the composition, that is to say the size, of the five groups,
- ✓ assure the reliability of the seven multi-item scales used as independent variables,
- ✓ assess differences among the five groups across the seven independent variables, and
- ✓ develop a model for predicting one's eco-group membership.

## METHODOLOGY

The initial version of the survey was developed by the lead author. The primary focus was on attitudes and behaviors regarding sustainability. It was printed and distributed to students across a number of majors who were enrolled in Principles of Marketing classes. The pretest involved a sample of 208 students. Based on the feedback and analyses, several changes were made. A revised version of the survey was then sent to six colleagues in five countries (Australia, New Zealand, South Africa, South Korea, and the United States) seeking their input regarding any adjustments to the survey. Based on the original pretest and the feedback of the lead researcher's colleagues, several changes were made to the revised questionnaire. The most significant changes involved the order in which some questions were asked and the number of response categories in one set of measurement scales (the set of behavioral questions was changed from five to six points so as to be consistent with the six-point Likert scales that were used to assess the respondents' opinions). Furthermore, a set of seven multi-item scales comprised of 23 individual items germane to nature and sustainability were added. The final instrument included pertinent demographic items, questions regarding their own green behavior, outcomes associated with green consumption, attitudes regarding green marketing initiatives, questions regarding environmental issues such as global warming, and opinions regarding seven multi-item scales related to sustainability. The survey concluded by asking the respondent to place themselves into one of five categories based upon their personal assessment of themselves from a green – or not so green – perspective. The final survey was converted to HTML by ResearchNow, and then placed online in a protected format so as to facilitate the authors' access and personal assessment regarding the survey itself along with other technical aspects such as transition, color, and timing prior to distributing invitations to prospective respondents. The finalized survey was then approved for distribution to the prospective respondents.

A sample of 1,243 adult (age  $\geq 18$ ) residents of the United States was drawn from a panel of consumers maintained by ResearchNow. Prospective respondents were sent an email seeking their participation in a study that was characterized as focusing on societal principles. By clicking on a link, they were taken to the survey on the ResearchNow Website. It is essential to note that the survey was not accessible to anyone who did not receive an email invitation. By controlling the invitation process over the seven-day data collection period, a representative sample of residents based on location, age, and educational attainment was drawn by not sending out new invitations to prospects who fell within a demographic category for which the targeted number of respondents had already been attained. Respondents were compensated for completing a survey or partially compensated if they did not qualify to answer (e.g. a member of an age group had all needed respondents). Based on operational considerations, there was no item nonresponse; each of the 1,243 respondents answered every question (although some demographic questions (such as age and income) provided an opportunity to not answer them).

For the current study at hand, analyses were performed using the seven multi-item scales and the self-classification question. The seven scales used were: feedback to organizations; advocacy of green initiatives; tolerance of green transgressions; emotional affinity towards nature; green consumption values; general green attitudes; and social influence specific to green issues. The initial step was to determine the frequency, thus the percentage, associated with each of the five

eco-groups. The second objective focused on the seven multi-item scales. Cronbach's coefficient alpha was calculated for each of the seven scales to assure each scale's reliability (Cronbach, 1951). Given the acceptable alpha level for each multi-item scale, an additive process was used to reduce the set of independent variables to seven, with each variable representing the aggregate measure of the items in each scale for each respondent. The focus then shifted to relationships. The single dependent variable used was the self-classification question. Respondents portrayed themselves as: eco-destroyers, eco-indifferent, eco-conscious, eco-worriers, or eco-warriors. Coding reflects an ordinal scale with each progressive number (1-5) representing a presumed higher level of eco-concern. To achieve the third objective, One Way Analysis of Variance (ANOVA) was used to test for differences in the mean scores for the seven independent variables across the five eco-groups. To compare the groups two at-a-time, the Scheffé Method of Multiple Comparisons was used. For both the ANOVA and the Scheffé analyses, the measure of significance of .05 was used as the benchmark for identifying statistically significant differences which resulted in the null hypothesis of equal means being rejected. For the fourth and final research objective, that of determining which independent variables had the greatest impact in one's self-determination of their eco-status, stepwise multiple discriminant analysis was used. The majority of the respondents (993) were used to develop the discriminant model while 250 were withheld so as to evaluate the capability of the model to correctly predict an individual's eco-group designation. This measure was achieved by determining how accurate the model was based on the hit rate in the post hoc task of classifying the 250 respondents whose answers were not used in the model development procedure.

## **RESULTS**

The initial objective focused on the determination of the distribution of the respondents across the five separate eco-groups as initially delineated by Fullerton, McCullough, and Hershey (2017). With 2.01 percent classifying themselves as eco-destroyers, this dark brown group was far and away the smallest of the five segments. Eco-destroyers are the least likely to exhibit any real regard for the environment, thus they are less likely to engage in any proactive behavior undertaken with the objective of fostering sustainability. Ironically, the next smallest group is the antithesis of the eco-destroyer. At the opposite end of the continuum, the eco-warriors are those consumers who exhibit the highest level of concern about the environment, thus they are considerably more prone to engage in green behavior regarding the consumption and the disposal of products that they purchase and use. In this regard, it is not just their opinions that come into play as these ultra-green eco-warriors are willing to make a stand and fight for the ideas in which they believe (Roy, 2015). The most populous segment is the centrist group that has been labeled as the eco-conscious. While they are aware of potential problems and have modest concerns about the future, they only engage in what would be deemed to be environmentally-friendly behavior on a limited basis. This eco-conscious segment comprises just over 65 percent of the respondents. Table 1 provides an overview of the size of the five segments in this typology. As such, the initial research objective has been achieved.

**Table 1. Composition of the Five Eco-Group Typology**

Group	Number	Percentage
Eco-Destroyer	25	2.01
Eco-Indifferent	149	11.99
Eco-Conscious	809	65.08
Eco-Worrier	145	11.67
Eco-Warrior	115	9.25

The second research objective was to evaluate the reliability of the seven multi-item scales. This evaluation is critically important since the items within each scale will be summed to create a metric to be used in subsequent analyses. Cronbach's alpha statistic provided the means of assessing the reliability of each scale. As can be seen in Table 2, the alpha coefficients, with a single exception, are exceedingly high. Six of the seven scales were deemed to be highly reliable. The value for coefficient alpha for these six scales ranged from a low of .844 to a high of .922 with four of the six scales exhibiting a value that exceeds .900. These six scales all greatly exceed the .70 value stated by Nunnally (1978) as the requisite measure of reliability for use in follow-up multivariate analysis. The outlier scale, specifically tolerance for green transgressions, exhibited an acceptable alpha of .704 thereby still exceeding the established benchmark for subsequent analyses. As such, there is little question that the scales are reliable, that the items within each scale address a singular phenomenon, and that they are appropriate for subsequent analysis. Given these results, it can be stated that the second research objective has been achieved. Table 2 provides a summary of the results specific to the assessment of the reliability of the seven scales.

**Table 2. Results of Reliability Assessments**

Scale	# of Items	Cronbach's alpha
Feedback to organizations	3	.880
Advocacy of green initiatives	3	.919
Tolerance of green transgressions	3	.704
Emotional affinity towards nature	5	.922
Green consumption values	3	.844
General green attitudes	3	.902
Social influence specific to green issues	3	.902

With the issue of reliability resolved, the third objective focused on the identification of differences across the five eco-groups based upon the additive metric for each of the seven scales. This objective was achieved by applying two analytical procedures. One-way Analysis of Variance was used to determine those scales for which significant differences were in evidence for the five groups. Then, the Scheffé Method of Multiple Comparisons was used to compare the contrasts of each pair of groups so as to specifically determine where the differences in the means exist. A significance value of .05 was again used as the benchmark for rejecting the null hypothesis of equal means. The initial ANOVA indicates that there are differences across the five groups for all seven of the scales. These results are documented in Table 3.

**Table 3. Initial ANOVA Results**

<u>Scale</u>	<u>F*</u>	<u>Significance</u>
Feedback to organizations	39.720	.000
Advocacy of green initiatives	52.812	.000
Tolerance of green transgressions	3.107	.015
Emotional affinity towards nature	32.600	.000
Green consumption values	89.407	.000
General green attitudes	61.720	.000
Social influence specific to green issues	36.147	.000

\* Note: All F calculations involved 4, 1,238 degrees of freedom

The results summarized in Table 3 provide one overarching conclusion. For each of the seven multi-item scales, the mean results for all five groups were not equal. While stating this, it is apparent that an inherent weakness of the ANOVA results is that they simply indicate that differences across the five groups exist; however, they fail to identify specific groups that are statistically different from each other. To address this deficiency and determine where the significant differences exist, the Scheffé Method of Multiple Comparisons was applied. The descriptive statistics, primarily the group means, provided insight as to how the groups differ.

For the Scheffé portion of the analysis, there are ten bi-group comparisons associated with each scale (1-2; 1-3; 1-4; 1-5; 2-3; 2-4; 2-5; 3-4; 3-5; and 4-5). Given that there are seven scales, there are a total of 70 post-hoc comparisons. Of the 70 comparisons involving the five eco-groups, fully 46 statistically significant differences were documented. Not surprisingly, the scale that produced the fewest differences was the scale that exhibited the lowest level of reliability (tolerance for green transgressions). The lower level of reliability simply inferred that the effort to measure a single phenomenon was not as precise as with the other six scales. This modest level of heterogeneity associated with the tolerance of green transgressions scale indicates that it was perhaps too diverse to produce a consistent measure. It should also be recalled that, as noted in Table 3, the tolerance scale had the weakest F and significance statistics in the ANOVA procedure. A broad overview of the Scheffé results is presented in Table 4.

**Table 4. Broad Overview of the Scheffé Method of Multiple Comparisons**

<u>Scale</u>	<u># of sig. Δ out of 10 group comparisons</u>
Feedback to organizations	7
Advocacy of green initiatives	7
Tolerance of green transgressions	1
Emotional affinity towards nature	7
Green consumption values	9
General green attitudes	8
Social influence specific to green issues	7

The focus now shifts to the five eco-groups with an assessment of which groups tend to exhibit more differences in comparison to the other four groups based on the aggregate mean score for each of the seven scales. Table 5 provides an overview of the group-based differences. Recall that there were 46 identified differences; therefore, the total number of differences delineated in Table 5 is 92. It is twice the original number reported because each significant difference is designated twice in the table, once for each group within a given comparison. In order to properly interpret the findings shown in Table 5, it is essential to recall that the five groups represented, in order, are the eco-destroyers, the eco-indifferent, the eco-conscious, the eco-worrier, and the eco-warrior.

As denoted in Table 5, with the exception of the eco-destroyer group, the number of significant differences ranges from 19 to 21. This finding is important given that the maximum number of differences which could exist is 28. A conceivable reason why the eco-destroyers exhibit only 12 statistically significant differences is the small sample size for that segment of consumers. While there is certainly anecdotal evidence of differences in comparison to the other four groups, the fact that the eco-destroyer group comprises only 25 members makes it more difficult to prove that a statistically significant difference exists. Despite this shortcoming, based on the results delineated in Table 5, it is apparent that the five groups are different in meaningful ways and that the seven scales used in the study were appropriately selected as bases for the delineation of five comparatively homogeneous segments drawn from an extremely heterogeneous population.

**Table 5. Overview of Differences across the Five Eco-groups**

Scale	# of significant $\Delta$ for the 7 multi-item scales					
	Des	Ind	Con	Wor	War	Total
Feedback to organizations	1	3	3	3	4	14
Advocacy of green initiatives	2	3	3	3	3	14
Tolerance of green transgressions	0	0	1	0	1	2
Emotional affinity towards nature	2	3	3	3	3	14
Green consumption values	1	4	3	3	3	14
General green attitudes	3	4	3	4	4	18
Social influence specific to green issues	3	4	3	3	3	16
<b>ECO-GROUP TOTAL</b>	<b>12</b>	<b>21</b>	<b>19</b>	<b>19</b>	<b>21</b>	<b>92</b>

So, differences have been shown to exist. But to achieve the penultimate research objective, there is a need to determine the nature of the differences rather than simply their mere presence. Therefore, there is a need to examine the descriptive statistics, specifically the means, for those scales where one or more statistically significant differences were documented in the Scheffé approach to examining the means for each conceivable pair of groups. Table 6 provides a broad overview of these results. It delineates the groups with the highest and lowest means for those situations where group means have been shown to differ.

Not surprisingly, the eco-warrior group exhibited the highest mean for each of the seven scales. This outcome reflects their concern for the environment and the extent to which they are outspoken critics of so-called brown behavior on the part of both the corporation and the

consumer. However, perhaps somewhat surprisingly, they also possess the greatest tolerance for green transgressions. They do not forgive the perpetrator, but they seek progress. Thus, they are patient as long as they see a positive outcome in the future. Another surprising outcome is that the eco-conscious group tends to be the least accepting of green transgressions, with an even less tolerant perspective than the two browner groups, the eco-indifferent and the eco-destroyer. This finding is supported by the empirical evidence. Of note is the fact that the eco-destroyer group tends to adopt a slightly less destructive perspective than does the eco-indifferent group across all seven scales. In saying this, it should be noted that this statement is put forth based primarily on anecdotal data given the general absence of statistically significant differences when comparing the eco-destroyer group to the other four groups. Still, the eco-destroyers were not at the bottom of the hierarchy for the five groups on any of the seven scales (although the most common position was fourth on the list). With the differences identified, it can be stated that the third research objective has been achieved.

**Table 6. Overview of Specific Differences among the Five Eco Groups**

Scale	Group Position	
	Highest	Lowest
Feedback to organizations	Eco-Warrior	Eco-Indifferent
Advocacy of green initiatives	Eco-Warrior	Eco-Indifferent
Tolerance of green transgressions	Eco-Warrior	Eco-Conscious
Emotional affinity towards nature	Eco-Warrior	Eco-Indifferent
Green consumption values	Eco-Warrior	Eco-Indifferent
General green attitudes	Eco-Warrior	Eco-Indifferent
Social influence specific to green issues	Eco-Warrior	Eco-Indifferent

The final objective revolves around the desire to use the seven scales to predict the group to which an individual is likely to belong. Given the reliability of the scales and the differences identified across the five groups, it was anticipated that the Discriminant Analysis would produce a model with a relatively high capacity for correctly placing respondents in their self-selected group of consumers. The resultant model should be consistent with what was found in the Analysis of Variance and the Scheffé Method of Multiple Comparisons relative to the differences across groups. By using the stepwise model, the independent variables which contribute the greatest level of understanding the differences among the five groups will be entered. Those variables not contributing to the process of differentiating among the five groups are not entered into the final discriminant function. But another issue of interest is the hit rate for each of the five groups. Is membership in one group more predictable than membership in another group?

Three of the seven scales were entered in the stepwise procedure as the bases for predicting the eco-group to which each of the 993 members of the test group belonged. The relevant scales were (in order of entry): green consumption values, general green attitudes, and social influence specific to green issues. Far and away, the most important variable in this process was the scale reflecting one's green consumption values. The contribution of the other two scales was minimal. The hit rate for the 993 members of the test group was a credible 67.2 percent. For the

test group of 250 respondents, the hit rate dropped slightly to 65.2 percent. A drop in the hit rate is a common phenomenon, but the drop in this case was smaller than anticipated. The reality, however, is that by simply placing every member in the eco-conscious group, the accuracy of that prediction would have been 65.1 percent. Therefore, the discriminant model only contributed a gain of 0.1 percent in the researchers' predictive accuracy. Of particular note is the fact that the two extreme groups, the eco-warriors and the eco-destroyers, were the most difficult to compartmentalize into homogeneous groups. In other words, the discriminant model tended to push everyone towards the center of the eco-group typology. The model was most efficient in predicting which respondents had placed themselves in the eco-conscious category.

## DISCUSSION

The five eco-groups were far from being equally populated. At just over two percent, the self-proclaimed eco-destroyers are by far the smallest segment. But when combined with the 12 percent comprising the eco-indifferent segment, the reality is that some 14 percent of the respondents expressed little or no concern as to sustainability and the future of our planet. The aggregation of these groups provides an overview of America's brown consumers. This finding will undoubtedly disappoint a number of individuals as well as the advocacy groups that encourage greener behavior. At the other end of the spectrum are the green consumers. With only 9.25 percent of the respondents classifying themselves accordingly, the eco-warriors are the second smallest group. By combining the eco-worriers at 11.67 percent with the eco-warriors, just under 21 percent of the respondents can be characterized as green consumers. As was the case with the *large* size of the brown segment, the same individuals and groups will express their dismay given what they likely consider a *small* segment of green consumer (despite the comparative numbers). With these concerns set aside, the centrist group represents a tremendous opportunity. Over 65 percent of the respondents placed themselves in the eco-conscious group. Thus, they are aware of the issues specific to sustainability. The question then is a simple one: can an eco-conscious consumer be converted into a green consumer? Thinking back to the hierarchy of effects paradigm (AIDA), it is understood that awareness is the initial step that will hopefully lead to action. The eco-conscious group possesses the awareness that environmental advocates seek to establish. Next is the task of creating interest then desire as a prelude to encouraging action. Thus, even for a cause such as encouraging sustainability, marketers must recognize the importance of designating a target market while concurrently developing a marketing mix with a focus on integrated marketing communications that will resonate with that target market and move them in a greener direction.

ANOVA identified the existence of unequal means for the five eco-groups for all seven of the scales used in the current study. While inequality has been documented, the initial results do not provide answers to the question regarding how the five groups differ. The Scheffé Method of Multiple Comparisons rectified this shortcoming. Of the 70 two-group comparisons, 46 (65.71%) resulted in the rejection of the null hypothesis of equal group means. Of note is the fact that the least compelling differences involved the tolerance scale. In only one comparison (out of 10) was a difference between two groups documented. Not surprisingly, the eco-warrior was found to be less tolerant of green breaches than was the eco-conscious consumer. The inability to document additional pairwise differences *may* well be attributed to the comparatively lower level of

reliability associated with the tolerance scale. For the other six scales, significant differences were documented for between 14 and 18 of the 20 comparisons. Taking the tolerance scale out of consideration, fully 75 percent of the comparisons of two groups were characterized as having statistically significant differences. Clearly, there are managerial implications to these differences. Most notably, a question of interest is how do members of the eco-conscious group differ from those in the eco-worrier group? Then, how do eco-worriers differ from eco-warriors?

The presence of 46 significant differences is important when assessing the seven scales; however, the true value of the ANOVA analysis is derived from the ability to identify differences across the five eco-groups. In this regard, an entirely surprising outcome surfaced. From an anecdotal perspective, the eco-destroyer exhibited a greener disposition than did the eco-indifferent for six of the seven scales. Only the tolerance scale (where only one total difference was documented) did not produce this unanticipated result. The means of the tolerance scale for the five eco-groups were closely bunched ranging from 11.67 to 12.62 (on the range of potential outcomes falling between 3 and 18). Again, a plausible explanation is the comparatively lower level of reliability associated with the tolerance scale. Another conceivable explanation is that there may actually be relative homogeneity because brown consumers do not care whereas green consumers are in fact tolerant as they have hopes, not for today, but for the future. Additional research on the tolerance criterion may well be in order.

Analyses of the eco-destroyer group produced 12 (out of 28 possible) significant differences. With only 25 members (2.01%), the small size of the segment made statistically significant differences more difficult to attain. However, from an anecdotal perspective, the relationship in comparison to the eco-conscious, eco-worrier, and eco-warrior groups was in the anticipated direction. That is to say eco-destroyers appear to be browner than the three aforementioned groups, but the small sample size precludes the ability to state unequivocally that such a relationship does indeed exist. Given this reality, it is evident that additional research on the eco-destroyers would be beneficial. Another alternative is to combine the eco-destroyers with the eco-indifferent group into a single brown group thereby converting the typology into one that features four eco-groups rather than five.

The Analysis of Variance assessments were insightful as differences among the five groups were both common and generally in the anticipated direction. Given the array of identified differences, it was anticipated that the Discriminant Analysis would produce a model that would effectively differentiate among the five groups. The original function was generated using a test sample of 993 of the sample respondents. The remaining 250 respondents were withheld so as to apply the predictive model and measure its predictive capabilities. At first blush, hit rates of 67.2 percent with the test sample and 65.2 percent of the hold-out sample are credible. Yet it is disappointing in some regards. While it was efficient in correctly classifying the eco-indifferent and the eco-conscious respondents, it proved to be ineffective in the task of correctly predicting the two groups of green consumers. Furthermore, it was only moderately capable of identifying the eco-destroyers. The most common misclassifications resulted in members of the two green groups and the two brown groups being predicted to be members of the eco-conscious group. Despite these shortcomings, the final composition of the model merits our attention.

The final model included three of the seven scales that represent the independent variables in this procedure. Two of the three variables, in order of insertion, were the green consumption values scale and the general green attitudes scale. This result is not surprising; it is the consumers' green predisposition that has the greatest impact when differentiating among groups of green, indifferent, and brown consumers. The third variable entered was somewhat surprising; it was the respondents' beliefs and actions regarding their role as a social influencer. However, upon further consideration, it should be recalled that each question in this scale specifically addressed the respondent's role germane to green issues. It also implies that there is a verbal component to sustainability. It is not sufficient to simply act on your own, it is essential to espouse the ramifications of brown behavior as well as the benefits of behaving in a green manner. So, perhaps it should not be so surprising that it was entered as part of the discriminant function. Still, it should be noted that the three-variable model is only marginally improved over one that simply utilizes the green consumption values scale. Therefore, it should be reemphasized that one's own green consumption behavior (and attitudes) represents the most effective way to identify the various groups of eco-consumers.

The most disappointing aspect of the model was the inability to correctly identify the two extreme groups – the eco-destroyers and the eco-warriors. It seems that these consumers should be the easiest to identify. Perhaps rather than having respondents self-classify themselves, there should have been no *a priori* designation. Then a technique such as Cluster Analysis would be effective in identifying the various groups. Given that differences among the groups have been documented, there is a need to identify other variables which will allow for better statistical differentiation. A follow-up study that looks at the 23 individual items used to create each scale may prove more effective. Furthermore, there are a number of additional questions in this database that were not used in this component of the current study. There are 33 additional questions regarding personal green behavior (not their attitudes), opinions of other consumers' green behavior, organizational green behavior, and attitudes about issues germane to sustainability (such as one's concern regarding global warming) that were part of the study. A second follow-up study, one using existing data that looks at these variables' ability to help differentiate among the five eco-groups may well improve our predictive capabilities.

## CONCLUSIONS

A multi-group typology of consumers who have different predispositions in regard to sustainability is supported. The current study identified five segments ranging from the eco-destroyer to the eco-warrior. Still, it is the centrist group (the eco-conscious) which is both the largest segment and the segment that represents the greatest conversion opportunity. This group of consumers falls in between brown and green. Effective strategic initiatives have the potential to encourage a transition to the greener side of the spectrum. These initiatives may be implemented by marketers, consumer advocacy groups, and political entities among others.

Even though the multi-group typology is supported, the two brown groups appear to have as much in common as they have differences that distinguish between them. Perhaps they should be combined into a single group, or perhaps different terminology would allow respondents to more comfortably place themselves in the brownest of the five categories. Furthermore, at 65.1

percent, the sheer size of the eco-conscious group indicates that the assessment may well be improved by breaking it into two groups, thereby potentially creating a six-group typology.

Of the seven scales used in the current study, the respondents' attitudes regarding their own green consumption mindset is the most effective in the task of discriminating among the five eco-groups. In light of this finding, subsequent research will take a stronger look at one's overt behavior within the green (or brown) realm. The existing database of 1,243 American consumers includes responses to 11 specific questions concerning behavior that has the potential of fostering sustainability. Questions such as the frequency of recycling, purchasing of environmentally-friendly products, and the propensity to engage in composting may allow for even more effective discrimination among the five eco-groups.

While the Discriminant Analysis pointed to the importance of the consumers' green values, their roles as social influencers cannot be overlooked. It is this position, as a perceived leader within a social framework, which creates a tremendous opportunity. Word-of-mouth has long been an important phenomenon for marketers – so have opinion leaders and reference groups. To take advantage of these three phenomena, it is important to recognize that social media devoted to sustainability can be an important way of distributing information which can be redistributed in a viral manner among members' other social networks. The key problem with social media is that of reaching the brown, or even the centrist group of consumers. Still, it is essential to recognize that green advocates are vocal. Those entities devoted to sustainability should take advantage of these opportunities.

The current project has provided meaningful insight into the issue of sustainability. All four of the research objectives have been achieved, but there are still questions to be answered. Future research should continue to focus on consumers with the objective of better understanding specific strategies which will move consumers from the brown side of the spectrum to the green side. That way posterity can live long and prosper.

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