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Situational Variables and Sustainability in Multi-Attribute Decision-Making

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SUSTAINABILITY DIMENSIONS, COMPROMISE AND

CONFIDENCE IN PRODUCT CHOICE

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Purpose –The study examines whether consumers possess a triple bottom line understanding of sustainability and addresses the situational influence of confidence and compromise on sustainable product choices.

Design/methodology/approach – Using a choice based conjoint experiment we examined the importance of sustainability, compromise, and confidence to consumers. A *k*-means cluster was employed to segment consumers based on the importance scores.

Findings – Data indicates that the environmental dimension of sustainability is the most influential followed by economic and social. The responses suggest three distinct segments identified as *Self Focused, Trend Motivated, and Reality Driven*, that demonstrate significantly different characteristics in their approach sustainable products.

Research implications – Current research tends to focus on the environmental dimension, while paying little heed to the economic and social dimensions. This research indicates that consumers consider all three dimensions when making sustainable product choices.

Practical implications – Firms must be aware that consumers differ in the importance they place on sustainability. The *reality driven* segment is the most attractive segment as they are highly engaged and are willing to invest time in understanding the complexities of sustainability. The *trend motivated* are more fickle with superficial knowledge, and the *self-focused* are self-serving in their orientations and use price as a key decision variable.

Marketing scholars are increasingly recognizing that the Dominant Social Paradigm (DSP), which equates consumption with progress, well-being, and technological advancement, is not sustainable (Kilbourne et al. 1997; Kilbourne et al. 2009; Prothero et al. 2010). Increasingly the assertion that the primary aim of business should be unfettered growth is being challenged and instead there is a growing awareness that marketing practitioners must consider both the private benefits and the public costs of marketing practice. Sustainable marketing must consider the externalities associated with marketing practice and instead of focusing nearly exclusively on growth, firms must consider the long term impact of this growth both at a micro-level (i.e. will

resources begin to cost more as they are depleted) and at a macro level (i.e. what are the holistic global implications of marketing practice) (Prothero et al. 2010).

While successful companies such as Ben and Jerry's or Patagonia have embraced sustainable business practices as an important core value, such examples of sustainability are rare as they require deep executive commitment to balance social and environmental needs as highly as financial results (Shrivastava and Hart 1995). Sustainable marketing focuses on long-term viability in all three areas: environmental, social, and economic (Costanza and Patten 1995; DesJardins 2007). Described as the *triple bottom line* (Elkington 1997), this approach to marketing practice expands traditional financially focused accountability to include social and environmental dimensions. The social component relates to the firm's impact on society and the well-being of people and communities (Elkington 1997), including social equity, community relations, charitable partnerships, and workplace ethics. The environmental focuses on a firm's activities relative to natural resources (Hart 1995) and the economic component refers to the value creation and enhanced financial performance (Bansal 2005). In other words firms that are operating sustainably are not drawn exclusively by growth and larger profits, but instead they recognize the full implication of marketing practice on the environment, the community, and the economy.

While many firms express a desire to be sustainable in their actions, there are a number of disincentives to firms who wish to implement sustainable marketing practice. Sustainable marketing is inconsistent with the disposable throwaway orientation that is particularly common in the DSP (Cooper 2010; Peattie 2010). Firms who adopt sustainable practices, or who sell sustainable products, may inadvertently encourage less consumption, which could lead to lower revenues. Sustainable business practices, therefore, may been seen as inconsistent with DSP

business models that equate success with revenue growth. Because of this reality, when sustainable practices are implemented, such as hotels asking patrons to re-use towels, they are often motivated by a direct cost savings that accrue to the firms because of the reduced consumption. For many firms, this reflects the tragedy of the commons decision (Hardin 1986): while profits are private, there are public implications of consumption, such as resource depletion, environmental degradation, and labour exploitation. Assuming that most firms are self-serving and driven to maximize return to stockholders, sustainable practices may appear inconsistent with this goal and a firm that imposes costs on its products by accounting for the public implications of resources may place itself at a disadvantage competitively against firms that do not.

Increasingly though, consumers are demanding that firms be transparent about their sustainable practices. Consumers are placing pressure on firms to be more responsible in their actions, as exhibited by de-marketing (Cherrier et al. 2011), consumer demand for green products (Cotte and Trudel 2009), and the perceived importance of environmental claims and labels (Kronrod et al. 2012; Thogersen et al. 2010). Pressure from consumers is becoming a critical driver for firms to implement more sustainable orientations (Rivera-Camino 2007). However, consumers are likely to vary in the importance that they place on sustainable business practices in their consumption decisions. Consumers will range from those who are willing to pay more or compromise in quality for the sake of sustainable initiatives, to those who are indifferent to sustainability and will not be willing to make any compromises. It is critical therefore, that firms understand the response that consumers will have to sustainable marketing programs.

This research addresses recent calls for investigations into the importance of sustainability and the pressure that consumers may exert on firms to be more sustainable. Kotler (2011, p. 133) notes that major pressure for changing marketing practices may come from consumers themselves. "Consumers are the ultimate power brokers. Marketers have viewed consumers as choosing among brands on the basis of functional (Marketing 1.0) and emotional (Marketing 2.0) criteria. But many of today's consumers are adding a third dimension – namely, how the company meets its social responsibilities (Marketing 3.0)." The *Marketing Science Institute* has also specified in their recent research priorities that "Research is needed on consumer responses to social issues and regulatory changes as well as consumers' expectations regarding corporate behaviour" (Marketing Science Institute 2010, p. 3). If consumers are exerting pressure on marketing to be more sustainable then we need a greater understanding of how consumers perceive sustainability. Importantly, existing literature on marketing sustainability does not offer an adequate examination of consumer perceptions of the three pillars of sustainability. This research addresses this gap by elucidating consumer perceptions of sustainability and examining it in the context of multiple attribute decision-making. In doing so, it develops an understanding about how consumers weigh the importance of sustainability in their decision-making relative to other attributes. Further, it examines the importance placed on each of the individual dimensions of sustainability, extending the traditional single dimension focus of past research.

Understanding how consumers perceive sustainable products and practices is important for a number of reasons. First, a better understanding of consumer perceptions will facilitate the design of research that reflects the consumer viewpoint. Second, for sustainable products and practices to succeed, firms must base marketing strategy on the perceptions held by consumers.

Third, as consumers are increasingly powerful and knowledgeable in the marketplace, the importance they place on multiple dimensions of sustainability may wield a greater influence on corporate practices. Using a choice-based conjoint experiment to elucidate the importance consumers place on the dimensions of sustainability and the situational factors of confidence and compromise, this study finds that all three dimensions of sustainability are distinctively considered when consumers make sustainable product choices. The pattern of responses suggest three distinct segments largely identified by their importance weightings of sustainability and compromise. These segments are subsequently identified as *Self Focused, Trend Motivated, and Reality Driven*, and we discuss the significant differences in how they respond to sustainable product attributes.

LITERATURE REVIEW

Sustainability

A theoretical understanding of sustainability dates back to the United Nations conference on the Human Environment and the resultant report *Our Common Future* (Bridges and Wilhelm 2008; Bruntland 1987). This report defined sustainable development as "development that meets the need of the present without compromising the ability of future generations to meet their own needs" (Bruntland 1987, p. 8). While sustainable practices do not view profit as the sole motive, they are not antithetical to business success; instead, sustainability requires a fundamental shift from a focus on immediate unfettered growth (the aim to get big) towards longer-term development (the aim to get better) (Daly 1996). This is generally accomplished through attention to the triple bottom line : environment, social equity, and economic prosperity (Elkington 1997).

As evidenced by recent special issues in the literature (e.g., Journal of the Academy of Marketing Science 2011; Journal of Macromarketing 2010) researchers in marketing have been developing an increasing interest in sustainability. Much of this interest has focused on cultivating the theoretical relationship between marketing and sustainability. Kilbourne, McDonagh and Prothero (1997) suggest that sustainable consumption is a distinctly macromarketing issue that challenges the dominant social paradigm which perpetuates the consumption ideology in marketing. However, marketing researchers have made significant contributions to sustainability literature at a micro level, addressing issues such as such as marketing strategy (Crittenden et al. 2011), government policy (Thørgersen 2005), supply chain management (Closs, Speier and Meacham 2011) marketing education (Bridges and Wilhelm 2008), and sustainable consumption (Prothero et al. 2011).

While the conceptual development of sustainability in marketing literature is generally grounded in the triple bottom line, much of the existing empirical work focuses on analyzing, encouraging, and cultivating the "green consumer" as a market segment (Hunt 2011), often including only the environmental dimension (Choi and Ng 2011; McDonald and Oates 2006) and failing to integrate the social or economic dimensions of sustainability. Environmentally focused work has consistently lacked explicit clarification that it is in fact 'environmental sustainability' that is being examined (e.g., Ritch, Brennan and MacLeod 2009; McDonald et al. 2009). However, a complete understanding of sustainability requires that we investigate the salience of each of these dimensions to consumers when weighing product decisions.

Sustainability as a Product Attribute

Consumers form attitudes about products as a function of multiple attributes leading to costs and benefits of differential desirability to individuals in the market (Fishbein 1967). Overall these attitudes reflect the net resolution of an individual's cognitions about the degree to which given objects possess certain attributes weighed by the importance of each attribute to the individual (Wilkie and Pessemier 1973). Growing evidence demonstrates that consumers value sustainability as a product attribute (Cotte and Trudel 2009) and ultimately as one of a bundle of attributes that lead to product preference. Theoretically, this preference can be rooted in the notion that consumption serves as a vehicle of self-expression (Aaker, 1996) and that consumers choose products that are consistent with their own self-concept (Sirgy 1982). Sustainability attributes will be particularly relevant to consumers when self-image congruence exists, that is, when there is a cognitive match between consumers' self-concept and product image (Sen and Bahattacharya 2001; Sirgy 1982). Therefore, the incorporation of sustainability attributes will influence buyer behaviour as they provide a positive and meaningful social identity to consumers, thereby adding value to the product (Bhattacharya and Sen 2003; Choi and Ng 2011; Mohr and Webb 2005).

Incorporating sustainability as a product attribute is of interest to consumers, marketers, and policy makers alike. Current marketing research identifies that one in three consumers say they don't know how to tell if sustainable product claims are true, and thus many consumers are now seeking to verify claims by reading packaging and turning to research (Green Seal 2009). Firms are unsure about how to address consumer demand for sustainable products, as the potential for damaging reputations increases with the concern that consumers will perceive sustainability claims as exaggerated or not credible (Ottman 1992). The current research

examines the importance of multiple dimensions of sustainability to consumers, and highlights the different priorities of consumer segments when multiple attributes are considered in a product context.

Compromise and Confidence

While sustainability and 'green' consumer literature has addressed the individual differences between consumers, there is much less research that addresses the situational conditions under which consumers make sustainable product purchase decisions. Most consumers identify themselves as 'green consumers', that is, when they are faced with a choice between two products that are identical in all other respects, they would choose the environmentally superior one (Kardash 1974). In other words, when sustainable options require little effort on the part of consumers, most recognize the value in making these positive contributions. However, most consumers perceive that sustainable product options require some sort of compromise, either in time, quality, effort, or durability. For example, when a recycling bin and a garbage bin are side by side, consumers will generally recycle their bottles. However, if recycling requires the consumer to hold on to the bottle for an extended period and seek out a recycling bin, many consumers will simply throw away the bottle. While most consumers identify themselves as green, in practice, consumers' willingness to engage in sustainable choices will be affected by situational factors external to the individual (Peattie 2001). Therefore, instead of trying to understand the consumption of sustainable products solely by understanding the purchaser, we must also put the purchaser in context and understand the purchase situation. We present two situational variables associated with the purchase situation that are expected to

impact consumer's willingness to make sustainable product choices: the *compromise* required and the level of *confidence* that the action will make a difference (Peattie 2001).

The compromise construct suggests that consumers must often give something up with sustainable products (Peattie 2001) and this compromise may be financial, performance, or convenience. Confidence represents the certainty for the decision maker that their action will make a difference in one of three ways: the product addresses a real problem, the company's offering has improved sustainability performance; or purchasing the product will make some sort of material difference. McDonald and Oates (2006) and Peattie (2001) suggest that the levels of both compromise and confidence that consumers experience in the purchase situation help elucidate consumers' purchase behaviour with sustainable products. Therefore we propose that compromise and confidence will be central factors when consumers are in a sustainable product context, and the value placed on these situational factors will give rise to different consumer segments.

This research seeks to provide evidence that consumers understand, and operationalize sustainability as a multi-dimensional concept. We propose that each of the three dimensions (environmental, social, and financial) will influence consumer decision-making. We also expect that the extent to which consumers consider the confidence and compromise in the purchase context will be significant factors in determining distinguishable consumer segments in response to sustainable product decisions.

METHOD

A sample of 161 undergraduate marketing students (43% female; 93% aged 18-24) participated in the study in return for partial course credit. Undergraduate students were

considered appropriate for this study for three reasons. First, undergraduate students are relatively unencumbered by family and life obligations; therefore they are one of the most likely groups to have an interest in travel. Second, students belong to the millennial generation that is particularly interested in, and thoughtful about, sustainable practices (Euro RSCG Worldwide 2011). Third, the sample's homogeneity with respect to age is desirable because respondents were more likely to demonstrate similar interest and involvement with the product category. Participants completed the study on computers in a lab based experiment setting; with the stimuli choices randomized using Sawtooth Software. In the scenario, participants were told that a park system was reviewing its transportation options. They completed 15 choice tasks, choosing the transportation scenario they preferred most from each choice set. Demographic data was collected and participants completed New Ecological Paradigm (NEP) scale as a measure of environmental attitudes (Dunlap et al. 2000).

Research Design

A choice-based conjoint methodology was selected for this study to allow participants to weigh the relative importance of sustainability, compromise and confidence attributes in a purchase context, and conclude which attribute levels are most/least desirable (Green and Srinivasan 1990; Carroll and Green 1995). Conjoint experiments examine the structure of consumer preferences, such that when a consumer is forced to trade-off between attributes the consumer's choices can be broken down into a combination of part-worth utilities provided by the different attributes of the products (Raghavarao, Wiley and Chitturi 2011).

The conjoint choice sets were established using a computer-generated design that accounts for orthogonality, minimal overlap, and level balance (Huber and Zwerina 1996). A

balanced-orthogonal approach was used to maintain efficiency in the design, while allowing more precision in the estimation of potential interaction effects (Sawtooth Software 2008). The design tests generated standard errors of less than 0.036 for each attribute level, exceeding the suggested guideline of no larger than .05 (Sawtooth Software 2010). Each choice set consisted of 2 scenarios, and a full-profile design was used with each scenario containing information on all 10 attributes.

The attributes were selected to explore the relative importance of the dimensions of compromise, confidence, and sustainability in a multi-attribute product context. Specific attributes of compromise (financial; performance; convenience) and confidence (problem recognition; commitment of company offering; perceived effectiveness) were drawn from Peattie (2001). Three sustainability attributes were incorporated from the literature following the 'triple bottom line' (environmental; social; economic dimensions). Each of these attributes was operationalized at three levels: low, medium, and high. The levels were then pre-tested for perceived differences. The 'transportation' attribute was a proxy for choosing the 'sustainable' option, with two levels – taking the shuttle bus versus driving one's own vehicle into the park (Table 1). Support for operationalizing the shuttle bus as the 'sustainable' option can be found in recent reports on public transit as an energy conservation and emission reduction strategy (Litman 2011) and efforts by the National Park Foundation in researching and implementing alternate means of transit (National Park Foundation 2012).

<<Insert Table 1 about here>>

Analysis

The choice data were analyzed using a Hierarchical Bayes estimation method. This method enables the estimation of individual-level utility functions for participants on the basis of only a few product choices by each individual, rather than analyzing solely at the aggregate level (Allenby and Ginter 1995). Conducting the analysis at the individual level increases validity and improves the predictive ability of the data (Sawtooth 2009). Average part-worth utilities and average importance scores for the sample were calculated. The importance scores were then used to cluster participants. Demographic data did not contribute to differences in clustering, and are therefore not discussed further.

RESULTS

The reported importance scores (Table 2) were calculated from the range of the part-worth utilities in each attribute, and indicate the level of importance participants placed on each attribute in making their decision. The results indicate that overall, sustainability had the greatest influence on the participants' choices, with a total average weight of 47.72. The fact that environmental is the heaviest weighted dimension of sustainability (22.91) is not surprising given the societal and academic focus in this area. This result provides support for the attention that is paid towards the environmental dimension. However, given the range of weightings across sustainability dimensions (11.29 – 22.91), it becomes evident that the need to differentiate between dimensions is clear. Also of importance is that the average importance scores of both the social (11.29) and economic (13.52) dimensions of sustainability are considerably strong relative to other attributes in the study, fourth and third overall respectively. Results indicate that each of the three sustainability dimensions held substantial weight in participant decision-making, finding support for the argument that research and marketing materials that have

neglected these dimensions of sustainability may be underestimating their importance to consumers.

<< Insert Table 2 about here>>

Compromise was considered the second most important construct to participants (34.02). Of the three dimensions of comprise, financial was weighted the most heavily (15.30), and was the second ranked attribute overall. This finding supports the attention in the sustainability literature to constructs such as willingness to pay and pricing (Simpson and Radford 2010). However, other dimensions of compromise were also noteworthy in influencing participant decisions. Performance held slightly more influence than convenience (fifth and sixth overall, 9.59, 9.13 respectively). These findings support the contention that the amount of compromise required by consumers is an important consideration in the purchase context (e.g. Peattie 2001).

Confidence was the third most important construct to participants (11.82). Each of the confidence attributes weighed less heavily in participant decisions than many of the other attributes in the study, ranking seventh (company commitment, 4.47), eighth (problem recognition, 4.12), and ninth (perceived effectiveness, 3.23). These findings seem to indicate that the level of confidence, regardless of the sub-dimension, is less influential to participants than sustainability or compromise. The lack of influence of the confidence construct is surprising, given the established literature supporting the relevance of concepts such as perceived consumer effectiveness (Kinnear, Taylor and Ahmed 1974) and company commitment (McDaniel and Rylander 1993). It is possible however, given the operationalization of the attributes, that the confidence attributes were influenced by a *tangibility effect* (Horsky, Nelson and Posavac 2004),

whereby there is a tendency for tangible attributes to be weighted relatively more heavily than intangible attributes in choice tasks.

The least weighted attribute by participants was the actual transportation option in the scenario (i.e., shuttle versus vehicle; 6.43). The average part-worth utilities indicate that, in general, participants preferred driving their own vehicles to taking the shuttle (15.15, -15.14). Further, a market share simulation (Table 3) demonstrates that overall the preference is for driving one's own vehicle and high sustainability (60.20%), but when sustainability is compromised, the preference sharply decreases (1.81%). This market simulation result provides supports the contention that sustainability can add value to a product (Bhattacharya and Sen 2003; Mohr and Webb 2005).

<<Insert Table 3 about here>>

Segmenting Responses to Attributes

Self-image congruence (Sirgy 1982; Sen and Bhattacharya 2001) and situational elements (Peattie 2001) are likely to give rise to clearly discernable segments of consumers, as the degree to which certain attributes are weighted as important and desirable for the 'self' will differ by individual (Wilkie and Pessemier 1973). The second stage of analysis employed a cluster method (Silayoi and Speece 2007), using a *k*-means cluster to estimate the cluster means and assign each case to the cluster for which its distance to the cluster mean is smallest. To determine the clusters, the individual level importance weights for each of the dimensions of sustainability, compromise, and confidence were analyzed. The cluster centres converged after 12 iterations, with minimal change after three iterations, resulting in the final interpretation. Figure 1 shows

the patterns of importance using the summed cluster centres across the three segments on each of

the upper-level attributes included in the study. Table 4 indicates that the segmentation scheme

derived from the cluster analysis is valid, as the *F* ratios computed via ANOVA analysis revealed

that the clusters differ significantly on each of the nine importance weights. The observed

significant levels indicate three distinct segments largely identified by their weightings of

sustainability and compromise. We have consequently named these segments '*Self Focused,*'

'*Trend Motivated,*' and '*Reality Driven.*'

<<Insert Figure 1 and Table 4 about here>>

The *Self Focused* segment of consumers consists of those who are focused on the

potential compromises required of them in a purchase situation, and consisted of just under one

third of the sample (32.3%). These participants placed greater importance than the other

segments on all three dimensions of compromise, indicating that the impact of their decision on

the self, whether cost, convenience, or performance, is particularly important. This segment is

particularly self-oriented and determines behaviours based on what is most appealing to the

individual and places less importance on the benefits to society (Hardin 1986). While these

participants are not necessarily resistant to making sustainable choices, their priority is 'me first,

then the world,' and they weighed the sustainability dimensions lower than other segments. The

Self Focused segment nonetheless places substantial weight on sustainability dimensions. This

overall influence is consistent across segments, and each segment places the largest weighting on

environmental sustainability. This result is not unexpected, given the attention in the media to

environmental sustainability. Regardless it is interesting to consider that people focused their

attention more on the environment than on social sustainability of the local community or economic sustainability of the park. Further, this segment was moderately concerned about confidence in the impact of the action, suggesting that while they, as individuals, would rather not compromise for sustainable products, if they do compromise, they want to be sure that this will make an impact.

The *Trend Motivated* segment places the greatest weight on environmental sustainability, and is higher in their consideration of both environmental and social sustainability relative to other segments. They account for the smallest segment of the sample at 28.0%. The substantial focus on the environmental dimension indicates that this segment has a desire to support environmental sustainability with their actions. However, this segment also focuses the least on compromise attributes, signalling a desire to make sustainable choices regardless of compromises that they must make. Further, the confidence importance scores for this segment are decidedly lower than for other segments. Taken as a whole, these results suggest that *Trend Motivated* participants are riding the sustainability bandwagon, rather than deeply committed to environmental sustainability. As noted by Prothero et al. (2010, p. 150) "In many ways, environmental issues have become trendy, mainstream, and commodified." Being environmentally responsible is no longer seen as in the domain of fringe elements and instead is more visible and accepted as celebrities like Leonardo DiCaprio are seen driving a Toyota Prius or a Fisker Hybrid. However, it appears that because of the high visibility, many consumers engage in sustainable practices because it is the trendy thing to do, and not because of any deeper underlying interest. Drawing on involvement and persuasion literature (e.g., Bloch and Banjeree 2001; Petty and Cacioppo 1988) it would be expected that consumers who are more concerned with the issue would rely on complex cues like confidence in their decision-making rather than

the more easily interpreted compromise attributes. The lack of weight placed on confidence dimensions therefore leads to the likelihood that those who are *Trend Motivated* have accepted the sustainability claims at face value, and aren't questioning the actionable influence of the purchase decision. It appears that those who are *Trend Motivated* are latching onto the most trendy sustainability dimension (environmental), but lack depth in their consideration of the more complex elements of the message in decision-making.

The *Reality Driven* segment was the largest cluster of participants at 39.8%. While the environmental sustainability of the offering remains strongly influential, these participants approached product decision-making with a more balanced representation of the full scope of sustainability. Economic sustainability was important to the *Reality Driven* segment, suggesting a pragmatic approach to sustainability through the recognition that the long-term economic sustainability of the park was valued. Compromise remained central to these participants, although moderately so relative to others. The *Reality Driven* segment demonstrated a willingness to compromise to attain a more holistically sustainable product. This segment was also the most concerned with the confidence dimensions, leading to the interpretation that these consumers are valuing sustainability to the extent that they have (or lack) confidence in the attribute. This finding implies that the largest segment of consumers are those who had heightened levels of elaboration in the decision (Petty and Cacioppo 1988), demonstrating that they weren't taking the claims at face value, and instead were relying on more complex cues and the difference the actions were likely to make. Importantly, this segment demonstrates the need to integrate multiple dimensions of sustainability in future research, as the balanced weight of the dimensions in the largest participant segment illustrates the evident influence of more than 'environmental' sustainability.

In the final stage of analysis, between-segment differences on the level of preference for driving one's own vehicle were examined. The individual importance scores from the transportation choice attribute were considered as the dependent variable. An ANOVA reveals significant differences on the importance placed on the transportation option ($F_{(2,158)}=9.266$, $p < .001$). Tukey post-hoc tests reveal that *Self Focused* participants ($M = 7.533$) were significantly more concerned with driving their own vehicle than the *Reality Driven* ($M = 4.331$; $p < .05$), consistent with their higher importance placed on convenience and performance. The *Trend Motivated* ($M = 9.316$) were also significantly more concerned with driving than the *Reality Driven* ($p < .001$), supporting the interpretation that the *Trend Motivated* segment is more interested in paying 'lip service' to sustainability than incorporating it into their actions. This finding demonstrates clear behavioural outcome preferences between the segmented groups.

Of note in the analysis is that attempts to segment participants based on NEP score did not provide evidence for the role of environmental values. Given the popularity of this measure as a proxy for an ecological worldview, one would anticipate that at a basic level those who were higher in NEP would select the option with the lower ecological footprint. This was not the case, providing further support for the consideration of situational variables (i.e., compromise and confidence). Segmenting importance scores by NEP did reveal that those high in NEP found confidence slightly less important (3.96 versus 4.59) than those low in NEP. While this may seem counterintuitive, as one might expect those who are higher in environmental values to focus more on indicators of sustainability, it is possible that this indicates consumer cynicism (Helm 2004). Those with higher environmental values may be more likely to question the claims made by firms, and therefore rely less on such information cues when making decisions. These

findings may also reflect the narrow ecological focus of the measure, rather than on multiple dimensions of sustainability.

DISCUSSION AND IMPLICATIONS

As firms strive to integrate sustainability into marketing strategy they must consider the way they communicate this attribute to consumers, and the potential for varied perceptions of the construct. This study provides an initial understanding of the influence of multiple dimensions of sustainability to consumers by exploring the importance of the individual dimensions in multi-attribute consumer decision-making. The results have important implications for both researchers and practitioners, demonstrating that there is value in considering the influence of consumer confidence, perceived compromise, and all three dimensions of sustainability, on consumer decision-making in a sustainable product context.

Given that marketing managers have some control over product attributes, careful assessment of the cognitive structures held by consumers offers a natural approach to formulating components of marketing strategy (Wilkie and Pessemier 1973). This research examines the cognitive structures of sustainability in consumers when influenced by the external purchase environment. In particular, we show that both the compromise made by consumers and the confidence they have about impact of their actions, will play significant roles in consumer decision-making. These two constructs offer a basis for marketers to engage consumers with sustainable products, and to consider that consumers will differ in the weight they place on each construct. Our analysis draws clear implications on how to market to our identified segments. For example, appealing to *Self Focused* consumers would involve minimizing compromises, particularly emphasizing value through lower costs to the consumer, and focusing on

environmental sustainability, insofar as it is not at the expense of consumer convenience, product performance, or price. For the *Trend Motivated,* marketers are likely to see the greatest benefit by appealing to consumers based primarily on the environmental sustainability of the product. Finally, for the *Reality Driven* segment an overall sustainability focus will be most effective addressing the long-term viability for the company, the community, and the natural environment. Instilling consumers with confidence that the product will make a difference will be central to persuading this segment.

The consistent presence of the confidence construct in our results should be of particular interest to practitioners. While segmentation results imply that marketing a product based on environmental sustainability would be a beneficial strategy, the small but consistent presence of the confidence construct indicates that firms must legitimize their sustainability claims and instil confidence about the company's actions. Consumers who are inundated with messages of sustainability and 'green washing' are increasingly sceptical of the intentions and impact of sustainable business practices (Lamonica 2009). Increasing consumer confidence via communications is one means of countering some of this skepticism. Each of the three confidence dimensions was important in consumer decision-making, and may offer a means of increasing the confidence consumers have in sustainable products.

Finally, this research provides essential empirical work that is necessary to support the strong theoretical discourse being developed in marketing literature. Recent research in marketing and sustainability has begun to address sustainability from consumption and corporate marketing perspectives (e.g. Mitchell et al. 2010; Sheth et al. 2011), but has lacked an empirical examination of the multiple dimensions of sustainability that exist in the minds of consumers. Our research notably aligns with a review by Chabowski et al. (2011), who emphasize the

importance of research that explores the relative importance of multiple dimensions of sustainability in shaping consumers' behaviour and argue that the clear distinction between social and environmental dimensions is imperative for the enrichment of sustainability literature.

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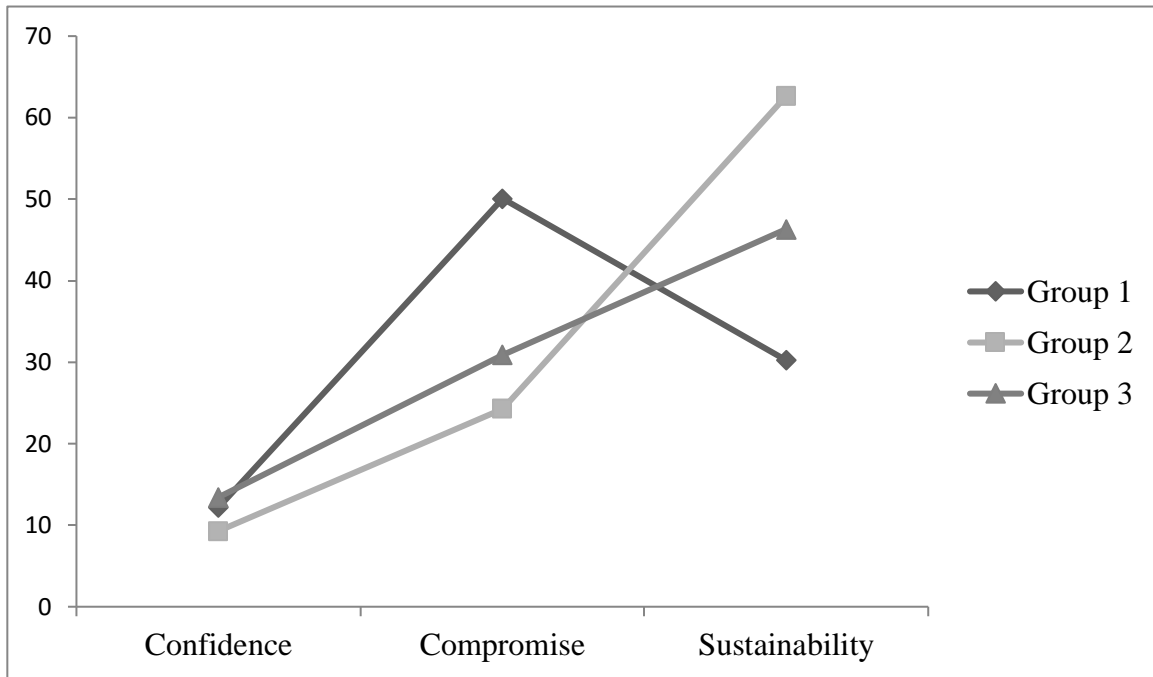**Figure 1: Summed Mean Importance Weights Across Segments**

Table 1: Attributes and Levels

Attribute	High	Medium	Low
Confidence			
Problem Recognition	Transportation has been shown to be a significant contributor to degradation	Degradation due to transportation issues is presumed	Transportation may be contributing to degradation of park
Offering Commitment	Transportation system is one of many initiatives park is using to mitigate negative impacts of visitors	Sustainability impacts are being studied	Sustainability is a low priority
Perceived Effectiveness	System has been very effective in reducing negative impacts	System thought to be effective in reducing negative impacts	Effectiveness in reducing negative impacts no known
Compromise			
Financial Cost	$35 per group	$25 per group	$10 per group
Convenience	30 minute schedule	20 minute schedule	10 minute schedule
Performance	15 min walk	8 min walk	2 min walk
Sustainability			
Environmental Sustainability	Positive impact on environment	Neutral environmental impact	Negative impact on environment
Social Sustainability	Positive impact on local community	Little impact on local community	Negative impact on local community
Economic Sustainability	Be financially profitable	Breaks even financially	Operates at a financial loss
Transportation Options	Shuttle bus	n/a	Drive own vehicle

Table 2: Aggregate Results of Conjoint Analysis (*n = 161*)

Attribute	Level	Utility	Relative Importance
Problem Recognition	High	-0.56	4.12%
	Medium	6.18	
	Low	-5.63	
Offering Commitment	High	-3.69	4.47%
	Medium	4.79	
	Low	-1.10	
Perceived Effectiveness	High	6.21	3.23%
	Medium	-5.21	
	Low	-1.10	
Financial Cost	High	-71.36	15.30%
	Medium	-6.91	
	Low	78.27	
Convenience	High	-41.72	9.13%
	Medium	-3.80	
	Low	45.51	
Performance	High	-41.08	9.59%
	Medium	2.76	
	Low	38.32	
Environmental Sustainability	High	102.07	22.91%
	Medium	18.32	
	Low	-120.39	
Social Sustainability	High	37.90	11.29%
	Medium	23.11	
	Low	-61.02	
Economic Sustainability	High	51.10	13.52%
	Medium	21.49	
	Low	-72.59	
Transportation	Drive	15.15	6.43%
	Bus	-15.15	

Table 3: Product Shares of Preference

Product Scenario	Share (%)	Std. Error
Shuttle/High Sustainability	37.67	3.24
Vehicle/High Sustainability	60.20	3.25
Shuttle/Low Sustainability	0.32	0.20
Vehicle/Low Sustainability	1.81	0.84

Table 4: Means of Importance on Attributes by Segment

Attribute	Self Focused (n=52, 32.3%)	Trend Motivated (n=45, 28.0%)	Reality Driven (n=64, 39.8%)	sig.
Confidence				
Problem Recognition	3.93	3.10	4.43	.002
Offering Commitment	4.81	3.66	5.12	.006
Perceived Effectiveness	3.42	2.46	3.87	.000
Compromise				
Financial Cost	25.36	9.75	13.03	.000
Convenience	11.18	7.84	8.63	.003
Performance	13.53	6.69	9.26	.000
Sustainability				
Environmental Sustainability	15.72	32.89	17.19	.000
Social Sustainability	6.64	13.90	11.92	.000
Economic Sustainability	7.87	15.87	17.22	.000

Note: Sig = ANOVA significance of difference between segment means