

CONSUMERS' AWARENESS OF SUSTAINABLE FASHION

DONG SHEN, California State University, Sacramento
JOSEPH RICHARDS, California State University, Sacramento
FENG LIU, California State University, Sacramento

Sustainability as a central theme in consumer's fashion choice is investigated in this study. We focus on how well consumers are aware of the sustainable fashion concept and its constituent dimensions; on the inter relationship of consumer demographics with various sustainable fashion dimensions; and finally on the appropriate managerial strategies to close the perceived attitude-behavior gap. Survey data from respondents drawn from working and non-working student population of a large state university are used in this study. A subject expert codified eight sustainable fashion dimensions into sixteen descriptive statements, and the survey data identified whether a respondent agreed or disagreed with each statement. Based on this data, the eight dimensions were further reduced into four factors by using exploratory factor analysis. Eight dimensions making up the sustainability fashion construct (Recycle, Vintage, Artisan, Custom made, Fair Trade, Locally made, Organic, and Vegan) coalesced into a four-factor structure. Consumer awareness varied across the four factors, with most being aware of Recycle/Vintage, followed by Fair Trade/Locally Made; least aware of Organic/Vegan, and Artisan/Custom. Factor scores were then regressed to establish relationships with other independent variables of interest. Cluster Analysis was used to segment consumers. Several interesting relationships were identified between the factors and other independent variables, and three notable customer segments identified. As to managerial insights, this study offered many. For the fashion industry, promoting products by combining Recycle/Vintage features might be more effective; same for Artisan/Custom, Fair Trade/Locally Made, and Organic/Vegan. For consumer rights advocates, their choice of educational materials may combine the knowledge on Organic/Vegan together with Artisan/Custom. This study is the first to explore consumer awareness of the sustainable fashion construct. The relationship between the underlying factors of this construct and other independent variables are explored adding further to our understanding in a fast evolving field of research.

INTRODUCTION

The concept of sustainability was first developed in 1972 at a United Nations conference. Conceptually, it encompassed three issues: (1) the interdependence of human beings and the natural environment; (2) the links between economic development, social development, and environmental protection; and (3) the need for a global vision and common principles (Nature in the City, 2010). Over the years, sustainability movement has come of age to reflect a sustained interest in many areas including the organic, green, fair trade, unfair business practices. Parallely, sustainability as a mainstream concept has been firmly established--one that, arguably, might cast the deciding vote-- in the debate among industry leaders, legislators, and policy makers

for finding broadly acceptable solutions for economic and social problems. In particular, the idea of sustainability has progressed to a more receptive audience in many consumer related sectors.

Interestingly, prevailing opinion and extant evidence imply that final consumers who are often far removed from the debate centered on business practices, have a substantial territory to cover to become integral partners in the sustainability movement. Evidence shows that consumers, being at the end of the marketing channel, have shown hesitation and resistance to actually walk the talk for the sustainability movement. In Europe, statistics show that even though 50% of European consumers claim that they are willing to pay a higher price for sustainable products, the final market share is less than 1% (De Pelsmacker, Janssens, Sterckx, & Mielants, 2005). Consumers' positive attitudes are not always translated into final actual action, and this weak relationship is

generally known as the attitude-behavior gap (Arbuthnott, 2009; Yates, 2008).

Naturally, it is pertinent to ask what factors lead to such an attitude-behavior gap. Among the many factors explored in previous studies, the awareness of sustainable fashion has been the key missing element. Awareness must precede adoption, and one can therefore legitimately suspect that awareness of sustainability and its various constituent dimensions should be fully explored. According to Rogers (2003), before consumers decide to adopt an innovation they need to be knowledgeable about the innovation. This innovation adoption model has been used in many consumer innovation situations, such as internet shopping and internet banking (Aldas-Manzano, Lassala-Navarre, Ruiz-Mafe, & Sanz-Blas, 2009). Therefore, in our context of study, when consumers make a non-sustainable fashion decision, their behavior may not mean so much as they do not value sustainability or they are not conscious of being ethical consumers, but, rather, their biased decisions are only insofar as a reflection of their paucity of knowledge or lack of adequate awareness.

Given the above background, the purpose of this study is to investigate whether consumers are knowledgeable enough about sustainable fashion to the level which such knowledge and awareness plays a role in purchase decisions. Specifically, the objectives of this study are (1) to examine consumers' awareness of sustainable fashion, (2) to investigate the possible impact of consumer demographics on their awareness of sustainable fashion, (3) to explore the appropriate strategies of how to close the attitude-behavior gap, and (4) to segment consumers based on their awareness of sustainable fashion.

LITERATURE REVIEW

Criteria of Sustainable Fashion

Before we define what criteria should be used to determine sustainable fashion, one should acknowledge that the current literature allow multiple nomenclatures to describe the concept. The terms green fashion, ethical fashion, and sustainable fashion are frequently used interchangeably to describe the same concept

(De Pelsmacker, Driesen, & Rayp, 2005; Moisaner, 2007; Newholm & Shaw, 2007), which may have led to a confusion among various writers. A clearer and more precise delineation of the sustainable fashion concept is needed before we venture any further to describe its constituent parts. From tracing the evolution of sustainability movement and from the three general schemes of sustainability promoted by the United Nations conference in 1972, sustainable fashion can be defined as clothing that incorporate fair trade principles with sweatshop-free labor conditions; that does not harm the environment or workers by using biodegradable and organic cotton, and designed for a longer lifetime use; that is produced in an ethical production system, perhaps even locally; that which causes little or no environmental impact and makes use of eco-labeled or recycled materials (Fletcher, 2008; Joergens, 2006). Sustainable fashion so defined envelops both the green and ethical dimensions of fashion. While green fashion dovetails into the environmental theme by promoting utilization of recycled materials and biodegradable fibers, by comparison, ethical fashion focuses more on the fair trade principles, and a production system free from sweatshop labor conditions. Both of these dimensions together make the sustainable fashion concept more comprehensive and richer in scope.

With this definition of sustainable fashion in place, a clear set of standards to evaluate sustainable fashion in contradistinction to other normative standards is necessary. Without such a clear set of standards, its role in actual user behavior is difficult to understand or impractical to monitor. Clarity would also be needed when such standards determine the corresponding industry and labor standards, and to facilitate consumer education. Similar to the ambiguity prevalent in the literature defining sustainable fashion concept itself, there are many competing versions of sustainable fashion standards that complicate a clear consensus.

Review of literature shows that there are five standard criteria emerging as the cornerstones of sustainable fashion, and they are: (1) Is it locally made? (2) Is it ethically produced? (3) Does it incorporate recycled materials? (4) Does it use organic and naturally processed materials? And (5) Is it made to last? (Yip,

2010). There have been efforts to introduce further granularity into the criteria. The criteria for eco-fashion developed by the Green Advisory Board include the following list: fair/ethical trade; local; custom/tailor made; organic/natural textiles and materials; recycled/reborn; vintage/second hand; vegan/animal free/cruelty free; eco printing; fabric waste reduction; green marketing; socially responsible; resource efficiency; and eco-certification (Eco Fashion Week, 2010).

By closely examining the extant sets of sustainability criteria developed in the literature (AVEDA, 2011; Eco Fashion World, 2011), a comprehensive list of criteria emerges, and after further synthesis as to be consistent with the literature, eight broad categories of criteria could be assembled as the following: (1) Recycle (2) Organic (3) Vintage (4) Vegan (5) Artisan (6) Locally made (7) Custom and (8) Fair trade certified. *Recycled* products are created with reclaimed materials from used clothing. *Organic* products are made from natural sources without any pesticides and toxic materials. *Vintage* refers to any second-hand clothes or up-cycled clothes that have been given a new life. *Vegan* products contain no leather or animal tissue products. *Artisan* products perpetuate the skills of ancestral traditions. *Locally made* refers to the products requiring little transportation and contribute to a local economy. *Custom* is a way of encouraging quality and "slow fashion" over mass-produced disposable fashion. *Fair trade certified* refers to the products made by the companies who demonstrate a respect for human rights.

Consumers and their Sustainable Fashion Behavior

Interest in sustainability was soon making its mark in the consumer behavior literature, after it had firmly established among policy makers in the early 1980's. Specifically, it has been described as the third wave in consumerism (Hilton, 2003), and found early adopters among various consumerism movements in the late 1980s including green, socially responsible, and fair trade (Valor, 2007). Sustainable purchase decisions slowly and decisively crept into the lexicon of choice decisions. Sustainable purchase behaviors are defined as consumers

selecting recyclable products, being socially responsible, and taking other actions to protect the environment (Fraj & Martines, 2006). Many studies examined consumers' attitudes toward sustainable products, and consumers' final purchase decisions of sustainable products. Interestingly, several of those studies found that even though consumers in general have positive attitudes toward sustainable products, they often end up not purchasing sustainable products (Carrigan & Attalla, 2001; McDonald, Oates, & Thyne, 2009; Nicholls & Lee, 2006). This discrepancy between consumer attitude and their actual behavior deserves serious attention, and that is one of the main motivations of this study. Bray, Johns, and Kilburn's study (2011) found that several demographics such as gender and age, and other factors such as moral maturity, price sensitivity, and personal experience, were contributing factors to this discrepancy. Research has also found that consumers' needs for environmentally friendly merchandise are affected by their lifestyle (Connolly & Prothero, 2003) and other factors (D'Souza, Taghian, & Lamb, 2007). Joergens (2006) claim that one plausible reason is consumers do not have a real choice since large quantities of garments available in the market are produced in developing countries.

Research also suggests that American consumers tend to pay more attention to the price of products than otherwise behaving ethically in the marketplace. While they express an interest in purchasing ethically, their unwillingness to compromise on other essential attributes make them resistant to change (Joergens, 2006). Another point of view suggests that American consumers tend to have an exceptional view of the responsibilities of businesses (Maignan, 2001). Specifically, many American consumers believe that one of the most important responsibilities for business is profit making, whereas French and German consumers tend to place more emphasis on the importance of businesses' social and ethical responsibilities. All the above studies deal with variables that are tangential to the understanding of actual purchase behavior and none of them question consumer's awareness of sustainability criteria in purchase decisions. That is the lacunae we seek to address in this study.

We hypothesize that knowledge gap could be the main determinant of the attitude-behavior gap observed. Standard innovation adoption theories, for example, Rogers (2003), and other consumer behavior models precondition consumer's knowledge and awareness before a decisive change is adopted. Before consumers make any decision, they need to be knowledgeable about their choices so that they can make careful evaluation of competing alternatives. Not choosing one particular alternative might be by the lack of awareness and knowledge. Specifically, as relevant to our context, when consumers make a non-sustainable fashion decision, their behaviors, plausibly, are only a reflection that they stand fairly untutored, or rather, even naïve as to the importance of sustainability. As a remedy, if given sufficient insight into it, they may well be predisposed to its adoption. To test our hypothesis, the natural starting point is to ascertain whether consumers are aware of all the eight sustainability criteria we discussed in the previous section. If there is a perceived awareness deficiency, it, apart from providing a plausible explanation to the attitude-behavior discrepancy, will also lead to a closer scrutiny of other variables, both lifestyle and demographic variables, that are causative to this perceived awareness discrepancy.

It is also important to distinguish this study from other related or tangential studies. Chief among them is the literature on Corporate Social Responsibility (CSR), an area which has some similarities with the sustainable fashion concept. An organization's activities impact society and its stakeholders and its environment, and therefore it has a natural responsibility to societal well-being. CSR can therefore be considered related but tangential to the sustainability concept. Further, extant research suggests that the determining role of CSR in consumer's decisions is at best superficial. Boulstridge and Carrigan (2000) found that only 20% consumers support CSR and they concluded that CSR is not a main criterion influencing consumer's purchase intention. But interestingly, one of the reasons that CSR is not decisive is because of consumer's lack of awareness of CSR practices (Smith, 2000). Moorthy, Arokiasamy, and Chelliah (2010) found that consumers are not aware about a particular company's CSR

practice but more influenced by the brand name and peers' influence. Importantly, the intention to purchase from a company is more likely to increase when the information about the socially-responsible activities of the business have been provided (Mohr & Webb, 2005). Awareness and information about CSR activities of a business plays a decisive role in actual purchase decisions, and rather analogously, we can hypothesize that awareness and knowledge about sustainability criteria would be equally decisive in consumer's sustainable fashion choice.

In summary, in this study we want to establish that 1) knowledge gap could be the main determinant of the attitude-behavior gap observed, and that awareness and knowledge about sustainability criteria are decisive in consumer's sustainable fashion choice; and 2) the awareness levels of at least some of the sustainability dimensions are inter-correlated and such interrelationships can be used to identify and segment sustainable fashion consumers.

METHOD

A written survey questionnaire was used for data collection using a sample drawn from the student population of a large state University. Being a commuter campus, catering to a largely mature and working student population, the profile of the student respondents ideally suited this study. Five hundred questionnaires were distributed, and three hundred and six (306) useful questionnaires were returned, with an approximate response rate of sixty percent. Efforts were taken to get responses across a variety of student demographics so as to keep the response bias minimal. In the questionnaire, two item statements were developed for each of the eight criteria of sustainable fashion. The eight criteria of sustainable fashion, as we discussed above, were: (1) Recycle, (2) Organic, (3) Vintage, (4) Vegan, (5) Artisan, (6) Locally made, (7) Custom, and (8) Fair trade (AVEDA, 2011; Eco Fashion World, 2011). Therefore, sixteen statements were developed to measure consumers' awareness of sustainable fashion criteria. Specifically, the subjects were asked to indicate which of the following sixteen statements were examples of sustainable fashion by answering yes or no. A

subject expert drawn from the faculty was asked to evaluate each of the sixteen items to judge their face validity with respect to representing the eight criteria. In the questionnaire administered, respondents were asked to check all the items which they viewed as applicable to sustainable fashion. The rest of the questionnaire was related to demographic questions of age, gender, ethnicity, marital status, educational level, and monthly income.

DATA ANALYSES AND RESULTS

Response analysis shows that 38% of the respondents are male and the rest 62% female. The average age is 25 years with the youngest 14 years old and the oldest being 80. The average monthly income is \$1,311, ranging from \$10,000 to \$0. Eighty-two percent of the respondents are single and the rest 18% married or are of undeclared status. As for the racial identity, forty-nine percent of the sample are Caucasians, 7% African Americans, 19% Asians, 14% Latinos, and the rest 10% belonging to the others category. Even though the sample demographics do not accurately reflect the general population profile, it is a good representation of one main consumer group, the group dominated by young and single consumers and also veering more to females than males.

Sixteen items representing the eight sustainable fashion criteria are listed in Table 1 along with the percentage of respondents' agreeing to each statement. Among all the items, Item 4, which describes products made without the use of leather, scored the lowest (25.5 %) percentage agreement. The next lowest is Item 13, which describes custom-made garment as a way to encourage "slow fashion," scoring 29.1%. Item 8, which describes products using artisan skills, scored 31.4%. In contrast to these low scoring items, Item 7, that describes reusing existing materials by reclaiming and reworking, scored the highest agreement (68.3%). The next highest, Item 2, describing a garment made by following environmental laws and social norms, scored 67.0%. Item 3 and 12, both that describe second-hand clothes and vintage in that order, scored 65.7% and 62.7% respectively. Item 15, describing products made of natural fibers, scored 61.1%.

The results show that consumers are generally more aware of the association of products made of recycled materials, second-hand materials and natural fibers, and companies that follow sound environmental and social practices with the concept of sustainability. The least familiar criteria include the association between sustainable fashion and products made of leather materials, or using artisan skills, or just simply not making any purchase to promote "slow-fashion".

[In addition to knowing the awareness levels of various sustainability dimensions, it is also of consequence to know the inter-relationships among some of the dimensions. It is possible that Recycle and Vintage would be closely aligned dimensions from the sustainability point of view. This hypothesized relationships, if supported by the data, would lend to a richer understanding of the complicated processes that drive consumers' attitudes to sustainability. For this purpose, we factor analyzed all the eight dimensions, and through some exploration, a four-factor solution neatly grouped each two of the eight dimensions into four distinct factors. Each component or factor extracted between 15 to 20 % of the variance and together accounted for 75.48 % of the total variance in the eight dimensions. Factor 1 includes Recycle and Vintage; Factor 2 includes Artisan and Custom; Factor 3 includes Fair Trade and Locally Made; and Factor 4 includes Organic and Vegan. Such associations lead to further insights into consumer attitude formation. Recyclability and Vintage tend to go together. The item descriptions of Vintage included a reference to second-hand clothing and it appears that many respondents view the terms second hand and recyclability go hand in hand. Further, Artisan and Custom Made were found to go together. When an artisan is involved in design and production, such as hand-beading and hand-embroidery, the resulting high production cost often will lead to a high retail price. Therefore, consumers may believe that this practice is often applied in high-end product lines, such as custom-made products which are also in general higher priced. Fair Trade and Locally Made were also found to be perceived closely aligned. This may be a result of the widespread perception that imports, in contrast to locally made products, are made without much adherence to fair trade principles.

TABLE 1:
Item Description and % of the Sample Agreeing to Each Item

	Variable Description	% respondents indicating yes (n = 306)
1.	A garment is made from recycled materials. Once the useful life of the piece is over, it will biodegrade, instead of adding to a landfill.	60.1
2.	A garment is made by a company who follows standards of environmentalism and social policy in areas related to production of goods.	67.0
3.	Second-hand clothes that have been given a new life through some sort of customization. So the life of the item is extended so that it stays out of a landfill and new resources are not used to create it.	65.7
4.	Products that have been made without the use of leather.	25.5
5.	When something is made near you, then fewer resources were used in the transport of the item.	41.8
6.	The maker of the garment has comfortable working conditions and enjoys a good quality of life thanks to a higher wage. The product is likely to last season after season, thus reducing your need to buy a new item.	46.4
7.	Anything that has been made from already existing materials, fabrics, metals or fibers. These are often reclaimed from previously made clothing and accessories and reworked into new ones.	68.3
8.	Products that have been crafted using artisan skills such as embroidery, which preserve the perpetuation of ancestral traditions.	31.4
9.	When purchasing the locally made product, it's like investing in your local community.	40.8
10.	A custom-made garment you cherish all your life and pass down to loved ones, which means less consumption.	48.0
11.	A garment is made from materials grown without the use of pesticides, such as organic cotton.	53.6
12.	Second-hand clothes or up-cycled clothes by using existing materials.	62.7
13.	A made-to-order garment, which is also called demi-couture. This is a way of encouraging quality and "slow fashion" over mass-produced disposable fashion.	29.1
14.	A garment is made by a company who follows standards of international labor, such as reasonable work hours, no child labor, the right to unionize, a fair living wage.	43.1
15.	Natural fibers that have been grown without any pesticides and other toxic materials, preserving the health of humans and the environment.	61.1
16.	Products that have been made without the use of animal tissue products.	44.1

Interestingly, Organic and Vegan tended to cluster together. Consumers' attitudes to Vegan and Organic being found closely aligned, this result would be an interesting call for action by organic but non-vegan producers to counter this association so that their side of the business does not suffer for unwarranted associations.

[To proceed with further analysis, we evaluated the reliability of the two items measuring each sustainable fashion dimension by using Cronbach's alpha. This is shown in Table 3. Cronbach's alpha ranged from 0.39 to 0.70. For exploratory study purposes, alpha values roughly above 0.6 are deemed acceptable (Nunnally, 1979). Based on this criterion, we

selected the following dimensions for further analysis, with the alpha value shown in parenthesis: Recycle (0.592), Vintage (0.701), Locally Made (0.662), Organic (0.662), and Vegan (0.614). All the dimensions, with the marginal exception of Recycle, meet or exceed the minimum Cronbach's alpha criterion for an exploratory analysis. We decided to keep Recycle because it has an alpha value very close to 0.6, and also because it was found to be one of the most familiar standards of sustainable fashion for consumers from the previous two sets of analyses.

The next analysis was to investigate the relationship between the five reliably measured dimensions of the initial list of eight (as per the Cronbach's alpha cut-of criterion) with the demographic data of respondents. Variables such as respondent's gender, age, and monthly income were part of the data. Ethnic identity was codified into two groups labeled White (47.7%) and the remaining as Non-Whites (52.3 %) because almost half of the respondents indicated "White" as their ethnic identity. Similarly, since most of the respondents indicated their marital status as single, we created two groups with singles in one group and the rest in the other group. We had measured the education level of respondents, but this variable was excluded in the analysis because most of the respondents were drawn from the undergraduate student population. The regression results are shown in Table 4.

The results show that gender and marital status were not significant to all five dimensions, which means that gender and marital status are non-issues with sustainability dimensions. Among the rest three demographic factors, age and income have significant impact on Organic; and ethnic group has significant impact on Recycle. Specifically, age shows a negative correlation with Organic, whereas income is positively related to Organic. That means younger consumers tend to relate Organic products more to sustainable fashion than older consumers do, and consumers who earn higher income are more aware of the connection between Organic products and sustainable fashion. It may be plausibly concluded that, the younger generation being on the leading edge of organic revolution, when they are aided with a higher income, are more drawn to

sustainability. In addition, ethnic status may be also playing a role, with Recycle being found to be significant with the respondent's ethnic status, because the results show that Whites tend to support Recycle more than non-Whites.

To further understand various benefits sought by consumers, we conducted a cluster analysis by using each individual's factor scores generated in previous procedures. We selected the Euclidean distance as our measure of similarity, and a hierarchical agglomerative clustering procedure was applied for assigning group memberships to the respondents. We used running means in our iterations and conducted K-means clustering ($K=1, \dots, 5$). Based on the information contained in both the agglomeration schedule and the resulting dendrogram, it appears that a three-cluster solution is the most appropriate. We then obtained the centroids for each of these three clusters. The results are shown in Table 5.

As can be seen in Table 5, three segments (clusters) of consumers can be clearly identified in this situation. The first segment consists of consumers who mainly value the "Organic and Vegan" virtue of sustainable fashion products (the mean score of this group in the dimension of Factor 4, $M = .893$, is the highest among those of all the clusters). They also believe that "Recycle/ Vintage" slightly contributes to the overall value of sustainable fashion. However, they tend to dislike the "Artisan/ Custom" and "Fair Trade/ Locally Made" aspects of sustainable fashion, as is manifested by the negative mean scores $-.605$ and $-.649$, respectively.

The second segment, on the other hand, places the highest value in the "Fair Trade/ Locally Made" dimension ($M = .421$). However, these consumers have a quite low mean score in the "Artisan/ Custom" dimension, indicating that they do not associate sustainable fashion with hand-made, high-end product lines in the fashion product category.

Interestingly, the third segment goes, in a sense, in the diametrically opposite direction to that of the second segment with regard to the evaluation on the quality of sustainable fashion products. This group of consumers strongly believes that sustainable fashion has an

**TABLE 2:
Relationships between the Dimensions**

	Factor-1	Factor-2	Factor-3	Factor-4
Recycle	X			
Organic				X
Vintage	X			
Vegan				X
Artisan			X	
Local		X		
Custom			X	
Fair Trade		X		
Variance (%)	20.4	20.04	19.07	15.95
Cumulative Variance of four components: 75.48 %				

Note: 'X' indicates the relationship mapping of each factor component to the eight dimensions

**TABLE 3:
Reliability of Scale Items**

	Dimension	Items from Table -1	Reliability of Dimension (Cronbach's Alpha)
1	Recycle	1 & 7	0.592
2	Vintage	3 & 12	0.701
3	Artisan	6 & 8	0.447
4	Custom	10 & 13	0.467
5	Fair Trade	2 & 14	0.395
6	Locally Made	5 & 9	0.662
7	Organic	11 & 15	0.662
8	Vegan	4 & 16	0.614

Note: Dimensions with acceptable Cronbach's Alpha values are shown in bold

“Artisan/ Custom” element (M = 1.098) weaved into it. In fact, they view it as the most eminent characteristic of sustainable fashion products, as evidenced by the observation that all the other mean scores of this group are close to zero.

Our identification of three distinct consumer groups regarding sustainable fashion is managerially relevant. However, from the

manager's perspective, it would be more practical if the group memberships were identified with certain demographic traits of consumers. To investigate if such association exists, we conducted the non-parametric Kruskal–Wallis test for all the demographic variables in our data, with cluster membership as the sorting variable. The results are shown in Table 6.

**TABLE 4:
Regression Results**

Dependent Variables	Recycle	Organic	Vegan	Locally Made	Vintage
Gender	x	x	x	x	x
Age	x	Beta= -0.184, t= -2.121, d.f=215,	x	x	x
Income	x	Beta= 0.167, t= 1.998, d.f=215	x	x	x
Marital Status	x	x	x	x	x
Ethnic Status	Beta =0.149 t= 2.1, d.f= 215	x	x	x	x

Note: 'x' denotes insignificant coefficient in regression results

**TABLE 5:
Cluster Centers in Three Cluster Situation**

Factors	Cluster		
	1	2	3
Factor 1 (associated with Recycle/ Vintage)	.11824	.00680	-.08423
Factor 2 (associated with Artisan/ Custom)	-.60488	-.63608	1.09720
Factor 3 (associated with Fair Trade/ Locally Made)	-.64859	.42119	-.04601
Factor 4 (associated with Organic/ Vegan)	.89277	-.48779	-.03857

As Table 6 illustrates, among the five demographic variables, only Marriage is significant, indicating that marriage status is an important determinant of the cluster assignment. In general, however, people's demographic traits are not influential on whether they value certain aspects of sustainable fashion.

We created a cross-table to examine the relationship between marriage and cluster membership more closely. As can be seen in Table 7, most of the consumers in the "Organic/Vegan" segment are single (91.5%). In fact, the distribution of single consumers across the three clusters is quite even (26.3%, 36.0%, and

37.7%, respectively). On the other hand, the "Fair Trade/ Locally Made" segment consists of about 20% married people. The majority of married consumers belong to this segment (66.7%). Such a finding is in consistent with the general observation that those who are married are more likely to have already settled down, therefore more likely to get involved with their communities and provide more support for local economies and environment.

While the majority of divorced people also belong to the "Fair Trade/ Locally Made" segment, a significant share of these consumers can be categorized into the "Organic/Vegan" segment (22.2%). In fact they are about four

**TABLE 6:
Kruskal-Wallis Tests Results**

	Ethnicity	Gender	Marriage	Education	Income
Chi-Square	.704	1.403	10.464	.243	2.892
df	2	2	2	2	2
Asymp. Sig.	.703	.496	.005	.886	.236

**TABLE 7:
Marriage and Cluster Membership**

		Cluster				Total
		Organic/ Vegan	Fair Trade/ Locally Made	Artisan/ Custom		
Marriage	Single	Count	65	89	93	247
		% within Marriage	26.3%	36.0%	37.7%	100.0%
		% within Cluster	91.5%	73.6%	86.9%	82.6%
	Married	Count	2	22	9	33
		% within Marriage	6.1%	66.7%	27.3%	100.0%
		% within Cluster	2.8%	18.2%	8.4%	11.0%
	Divorced	Count	2	6	1	9
		% within Marriage	22.2%	66.7%	11.1%	100.0%
		% within Cluster	2.8%	5.0%	.9%	3.0%
	Others	Count	2	4	4	10
		% within Marriage	20.0%	40.0%	40.0%	100.0%
		% within Cluster	2.8%	3.3%	3.7%	3.3%
Total		Count	71	121	107	299
		% within Marriage	23.7%	40.5%	35.8%	100.0%
		% within Cluster	100.0%	100.0%	100.0%	100.0%

times more likely to be in the “Organic/Vegan” group than are the married consumers. Moreover, comparing to single and married consumers, those who are divorced are the least likely to be in the “Artisan/ Custom” group (37.7%, 27.3%, and 11.1%, correspondingly).

Such findings are managerially significant. For instance, if a sustainable fashion company wants to differentiate itself under the labels of “locally-made” and “fair trade”, the company should probably try to target single consumers. On the other hand, if the company’s goal is to increase its market share by attracting more

single or divorced consumers, its in-house designers should probably introduce more "Organic/Vegan" elements into their products.

DISCUSSION AND CONCLUSIONS

The objectives of this study were to examine consumers' awareness of sustainable fashion, to investigate the possible impact of consumer demographics on their awareness level of sustainable fashion, to explore appropriate strategies of how to close the attitude-behavior gap by raising consumers' awareness of sustainable fashion, and to segment consumers based on their awareness of sustainable fashion. For data collection, this study conducted a survey by using a convenience sample. After data analyses, the results show that among all eight criteria items of sustainable fashion, a four-factor structure is identified: Factor 1 includes Recycle and Vintage; Factor 2 includes Artisan and Custom; Factor 3 includes Fair Trade and Locally Made; and Factor 4 includes Organic and Vegan. Consumers perceive Recycle and Vintage together; Artisan and Custom together; Fair Trade and Locally Made together; and Organic and Vegan together. This finding provides two layers of managerial implications: one for the industry decision makers and the other one for consumer educators. For the industry decision makers, promoting their products and brands might be more effective if they put emphasis on the Recycle and Vintage features of their products together since consumers link these two criteria. Similarly, other observed links suggest that combining the Artisan and Custom features of products, combining the Fair Trade and Locally Made features, and combining the Organic and Vegan features of products during product introduction or promotion process will be more effective strategies as well. It is also very important for the managers to understand the reasons why certain dimensions appear to go together. We alluded earlier that consumers tend to club the recyclability with the vintage dimension. Though some degree of coalescing of various dimensions is a logical consequence of the multidimensional nature of sustainability, managers will note to their advantage that for improving the overall customer's perceptions of the sustainability level of their offering, it requires enhancing customer's perceptions of all the various underlying dimensions of

sustainability. One major consequence of this multi-dimensionality and that which we did not address in this study is the interaction effects between various sustainability dimensions. For example, one managerially relevant question would be whether recycle dimension would tend to interact with, say, the fair trade dimension, in determining the overall view of sustainability by consumers. An implication of one such interaction is the possibility of compensating the perceived lack of one particular dimension when some other dimension is present. It is even more interesting to see whether the presence of one dimension compounds exponentially the positive or negative effect of some other inherent dimension. Such a finer picture of the overall underlying framework of sustainability would be, in our view, immensely interesting to decision makers and managers.

The comparison of the means of the four factors showed that Factor 1 had the highest score, followed by Factor 3, Factor 4, and Factor 2, which means that consumers are most aware of Recycle & Vintage, followed by Fair Trade & Locally Made, Organic & Vegan, and Artisan & Custom. This leads to many implications for consumer educators. As we can see, consumers do not have sufficient knowledge of sustainable fashion, especially the knowledge on Organic & Vegan, and Artisan & Custom. They might not realize that buying hand-made products is part of sustainable fashion; buying leather products, such as leather shoes or purses, are not part of sustainable fashion; or simply not buying clothes and garments is showing support to sustainable fashion. Research has found that American consumers tend to pay more attention to the price of products than behaving ethically in the marketplace, even though they express an interest in purchasing ethically (Joergens, 2006). An increase in the importance of ethical and sustainability dimensions in consumer decision making can come by from unexpected and quite tragic events. Recent tragic events in the news, for example, the building collapse in a garment factory in Bangladesh that has killed more than thousand workers in April 2013, will only motivate customers to pay more attention to the ethical practices followed by the manufacture and marketing of products that they buy. Such attention will also help to improve the fair labor and trade practices in the

places where the goods are produced, and through this effect, integrate the consumption and production more closely in a sustainability themed linkage. If money and finance is really a big issue for some consumers, simply not purchasing anything is part of supporting sustainable fashion. Not being aware of sustainable fashion enough requires consumer educators to provide more educational programs, campaigns, and other related training methods to consumers. In order to be more effective, the educational materials may need to combine the emphases on Organic and Vegan together, and on Artisan and Custom together, since the results show that consumers relate those items together. Also, the issues relevant to consumer educators and ultimately their effectiveness as industry watchdogs, are also inextricably tied to the responsibility of industry decision makers to devote attention to communication strategies so as to align those with that of consumer educators, to achieve common goals.

The results also show that consumer demographics to some extent can be a good indicator for their awareness of sustainable fashion. Age, income, and ethnicity do show some significant correlation with certain dimensions of sustainable fashion. Specifically, age shows a negative correlation with Organic, whereas income is positively related to Organic. In addition, Whites tend to support Recycle more than non-Whites. These findings provide more specific guidance to consumer educators because certain groups need better-tailored educational programs. For example, for a consumer group composed of older consumers with relatively lower income, the Organic feature of sustainable fashion needs to be better emphasized than for a group composed of younger consumers with higher income.

Consistently, the results show that demographic traits, except for Marriage, are not determining factors of consumer segmentation based on the awareness of sustainable fashion. The three segments (clusters) of consumers identified in our analysis are, however, distinguishable with regard to the weights they place on each of the four main measurements of the awareness of sustainable fashion.

LIMITATIONS OF STUDY

The general level of appreciation of the respondents with respect to each of the eight sustainability dimensions seems to be of a high order. As seen from Table 1, for most items, more than 40% of the respondents were in agreement that that item applies to sustainable fashion. The issue of concern is the reliability of the items that purports to measure each sustainable fashion dimension. Being an exploratory study, and with further refinement of the wording of the items to elucidate the intended meaning to the respondent, one would hope that reliability could be improved when we conduct analysis with a more rigorous methodology. That being said, we have found many meaningful relationships that would produce further impetus for research in this field.

Based on the factor analysis results shown in Table 3, the independence of the eight sustainable fashion dimensions with respect to each other is also in question. With more reliable items, we could have answered this question with more certainty, but based on the given data, we can conclude that consumers are more likely to have a holistic view of the sustainable fashion construct, with no individual dimension standing out in independence from the rest of the dimensions making up the sustainable fashion construct. This may be also due to the fact that sustainable fashion being a relatively new idea in the consumer's decision framework, there has been an insufficient level of maturity accorded to this construct for these ideas to take root in the decision framework of consumer decisions, and crystallize themselves into readily describable and identifiable ones. This slowly evolving nature of the sustainable fashion construct, therefore, is by itself an important dimension of the construct.

FUTURE RESEARCH

Further, as a consequence of this slowly crystallizing nature of the sustainable fashion construct, many of the supposedly independent dimensions of this construct may be interlinked with each other, and as a consequence with surprising ramifications for marketers and public policy experts. For example, Vegan and

Organic dimensions are closely aligned in the decision realm of respondents. Organic marketers come in all hues and offer their wares in diverse product categories—their perceived identification with the narrow Vegan construct, and therefore by association, as belonging to a radical fringe of consumption, may be a constraint for their promotion efforts. Another surprising association is the one between Locally made and Fair trade dimensions. One may hypothesize that the rising tide of cheap imports and the associated connotation that these imports go hand in hand with unfair trade practices may have given locally made products a welcome association with fair trade practices. This hypothesis should be explored in future studies. As noted before, such associations and interaction between the underlying dimensions of sustainability are immensely useful for decision makers, and therefore merit a closer investigation.

Except age, income, and ethnic status, all other demographic variables that were regressed showed insignificant relationship with any of the sustainability dimensions. We had measured the education level of respondents in the sample, but this variable was excluded in the analysis because most of the respondents were drawn from the undergraduate student population, thus showing insufficient variability of educational attainment. Further research should be inclusive of respondents from a wide level of educational attainment and it will be interesting to know how this would affect awareness of sustainable fashion. Beyond the usual demographic variables, we strongly believe that social-economic variables such as one's profession, social-class, and educational attainment, may also play important roles in determining one's awareness of sustainable fashion and should be explored as a topic for further research. It goes without saying that the sample drawn should be representative of the wider population of interest for more conclusive results when the intention is to go beyond the exploratory level of analysis.

REFERENCES

- Aldas-Manzano, J., Lassala-Navarre, C., Ruiz-Mafe, C., & Sanz-Blas, S. (2009), "The role of consumer innovativeness and perceived risk in online banking usage", *The International Journal of Bank Marketing*, Vol. 27 No. 1, pp. 53-75.
- Arbuthnott, K. (2009), "Education for sustainable development beyond attitude change", *International Journal of Sustainability in Higher Education*, Vol. 10 No. 2, pp. 152-163.
- AVEDA (2011), "Eco fashion week", available at: http://www.ecofashion-week.com/designers/eco_criteria/ (accessed March 1, 2011).
- Boulstridge, E. & Carrigan M. (2000), "Do consumers really care about corporate responsibility? Highlighting the attitude-behavior gap", *Journal of Communication Management*, Vol. 4 No. 4, pp. 355-368.
- Bray, J., Johns, N., & Kilburn, D.. (2011). An Exploratory Study into the Factors Impeding Ethical Consumption. *Journal of Business Ethics*, 98(4), 597-608.
- Carrigan, M. & Attalla, A. (2001), "The myth of the ethical consumer; do ethics matter in purchase behavior?", *Journal of Consumer Marketing*, Vol. 18 No. 7, pp. 560-577.
- Connolly, J. & Prothero, A. (2003), "Sustainable consumption: consumption, consumers and the commodity discourse", *Consumption Markets and Culture*, Vol. 6 No. 4, pp. 275-291.
- De Pelsmacker, P., Driesen, L., & Rayp, G. (2005), "Do consumers care about ethics?" *Journal of Consumer Affairs*, Vol. 39 No. 2, pp. 363-385.
- De Pelsmacker, Janssens. P., Sterckx, E., & Mielants, C. (2005), "Consumer preferences for the marketing of ethically labelled coffee", *International Marketing Review*, Vol. 22 No.5, pp. 512-530.

- D'Souza, C., Taghian, M. & Lamb, P. (2006), "An empirical study on the influence of environmental labels on consumers", *Corporate Communications: An International Journal*, Vol. 11 No. 2, pp. 162-73.
- Eco Fashion World (2011), "Eco fashion guide", available at: <http://www.ecofashionworld.com/Browse-By-Eco-Criteria.html> (accessed February 12, 2011).
- Eco Fashion Week (2010), "Designer eco criteria", available at: http://www.ecofashion-week.com/designers/eco_criteria/ (accessed May 15, 2011).
- Fletcher, K. (2008), *Sustainable Fashion and Clothing: Design Journey*, Earthscan: Malta.
- Fraj, E. & Martines, E. (2006), "Environmental values and lifestyles as determining factors of ecological consumer behavior: an empirical analysis", *Journal of Consumer Marketing*, Vol. 23 No.3, pp. 133-144.
- Hilton, M. (2003), *Consumerism in 20th Century Britain*, Cambridge: Cambridge University Press.
- Joergens, C. (2006), "Ethical fashion: myth or future trend?" *Journal of Fashion Marketing and Management*. Vol. 10 No. 3, pp.360-371.
- Maignan, I. (2001), "Consumers' perceptions of corporate social responsibilities: a cross-cultural comparison", *Journal of Business Ethics*, Vol. 30 No. 1, pp. 57-72.
- McDonald, S., Oates, C., & Thyne, M. (2009), "Comparing sustainable consumption patterns across product sectors", *International Journal of Consumer Studies*, Vol. 33, pp.137-145.
- Mohr, L.A., & Webb, D.J., (2005), "The effects of corporate social responsibility and price on consumer responses", *The Journal of Consumer Affairs*, Vol. 39 No. 1, pp.121-147.
- Moisander, J. (2007), "Motivational complexity of green consumerism", *International Journal of Consumer Studies*, Vol. 31, pp. 404-409.
- Moorthy, M K., Arokiasamy, L., & Chelliah, T. D. (2010), "Corporate social responsibility: awareness level among undergraduates", *Interdisciplinary Journal of Contemporary Research in Business*, Vol. 2 No. 2, pp. 440-462.
- Nature in the City (2010), "Origins of sustainability", available at: <http://www.presidio.gov/nature/sustainability/history.htm> (accessed February 10, 2011).
- Newholm, T., & Shaw, D. (2007), "Studying the ethical consumer: a review of research", *Journal of Consumer Behavior*, Vol. 6, pp. 253-270.
- Nicholls, A. & Lee, N. (2006), "Purchase decision-making in fair trade and the ethical purchase 'gap': is there a fair trade twist?" *Journal of Strategic Marketing*, Vol. 14 No. 4, pp. 369-386.
- Nunnally, Jum C. (1979), *Psychometric Theory* 2nd edition, New York: McGraw-Hill.
- Rogers, E.M. (2003), *Innovation of adoption* (5th edition), New York: The Free Press.
- Smith, N.C., (2000), "Changes in corporate practices in response to public interest advocacy and actions: The role of consumer boycotts and socially responsible corporate social responsibility", working paper, London Business School, Centre for Marketing, London.
- Valor, C. (2007), "The influence of information about labor abuses on consumer choice of clothes: a grounded theory approach", *Journal of Marketing Management*, Vol. 23 No. 7/8, pp. 675-695.
- Yates, L. (2008), "Sustainable consumption: the consumer perspective", *Consumer Policy Review*, Vol. 18 No. 4, pp. 96-106.
- Yip, D. (2010), "What does sustainable fashion mean to you?" available at: <http://www.granvilleonline.ca/gr/blogs/citizen-style/2010/04/09/what-does-sustainable-fashion-mean-to-you> (accessed September 14, 2011).