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Moderator Role in Green Product Purchases

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Abstract - Opinion polls consistently show large majorities of Americans supporting efforts to protect and improve the planet's ability to sustain life. However, when it comes to environmentally preferable products, firms attract relatively small shares compared with conventional products. The present study examined the effect intentions (Verbal Commitment – VC) , emotions (Affect – Aff) and two moderators (Perceived Consumer Effectiveness – a PCE and Faith in Others – FIO) have on purchase (Actual Commitment – AC) of environmentally preferable products. Support was found for a direct influence of intentions aided by emotions – affect (Aff) – on AC, purchasing of environmentally preferable products. PCE was also found to be a favorable moderator on actual commitment (AC), buying environmentally preferable purchases and FIO positively influenced Aff and PCE, as in a cheerleader effect. The former finding regarding PCE is consistent with other studies, while the latter finding with respect to FIO represents a possible new dimension for FIO, which previously was thought to have a negative “free-rider” or “let-others-do-it” effect on actual commitment to purchase environmentally preferable products.

Keywords - Consumer behavior, environmentally preferable products, faith in others, perceived consumer effectiveness, sustainable development, green marketing

Relevance to Marketing Educators, Researchers and/or Practitioners - Appealing to consumers that they make a difference with their purchases (PCE) and encouraging others to support such behavior (FIO) may assist in converting consumer's noble intentions with respect to saving the planet into individual purchases when it comes to environmentally preferable products.

Introduction

Marketing, with its focus on demand creation, has not always found certain footing in the environmentalist's world where conservation precedes consumption as the norm for a sustainable future. This phenomenon is readily apparent in buyer behavior related to purchase of environmentally preferable products, which rarely command large market share against conventional alternatives (Ethical Consumerism Index 2008; Ottman 2004). Environmentally preferable means products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or service (U.S. Federal Acquisition Guidelines, p 2.1-6 www.arnet.gov)

So, while governments, corporations and other institutions carry forward with efforts on behalf of the environment, individuals are less likely to consider the effect of their individual actions have on the environment (Dunlap, 2003). Given the large role consumers play in the economy, especially in the use of resources and in the generation of waste, the motivation for the present study was to examine how certain psychographic antecedents related to the purchase of environmentally preferable products. This comes in the context of efforts to develop a framework of sustainable systems and consumerism (Brundtland 1987) as concern over climate change and energy, food and water shortages has reawakened media and public attention on the long-term effect of human activity on the natural environment (Aston, Helm et al, 2005)

Schultz and Holbrook (1999) suggested areas for empirical research including "consumer motivations to engage in green consumption" among others so that "marketers might contribute to solutions in an area in which, too often, they have been vilified for encouraging social waste, wreaking ecological destruction, and contributing to the tragedy of the commons." In keeping with their action call, the present study sought to examine the relationship of intentions, emotions and efficacy of self and others on purchasing environmental preferable products.

Key Research Question and Related Research

How do the psychological antecedents of intentions and emotions and the potentially associated moderators of PCE and FIO relate to the purchase of environmentally preferable products?

The theory of planned behavior (TPB) (Ajzen 1991) suggests that actions, such as purchases, are closely related to intentions. The potential of PCE as an important antecedent has also been examined for some time (Kinnear, Taylor & Ahmed 1974; Antil 1978). Following the lead of Ellen, Wiener and Cobb-Walgren (1991), Berger and Corbin (1992), Lee and Holden (1999) and Straughan and Roberts (1999), perceived consumer effectiveness (PCE) and faith in others (FIO) were examined alongside intentions, emotions and actions. So, the present study conceptualized that intentions, emotions, personal efficacy and reliance on others may significantly influence purchasing behavior.

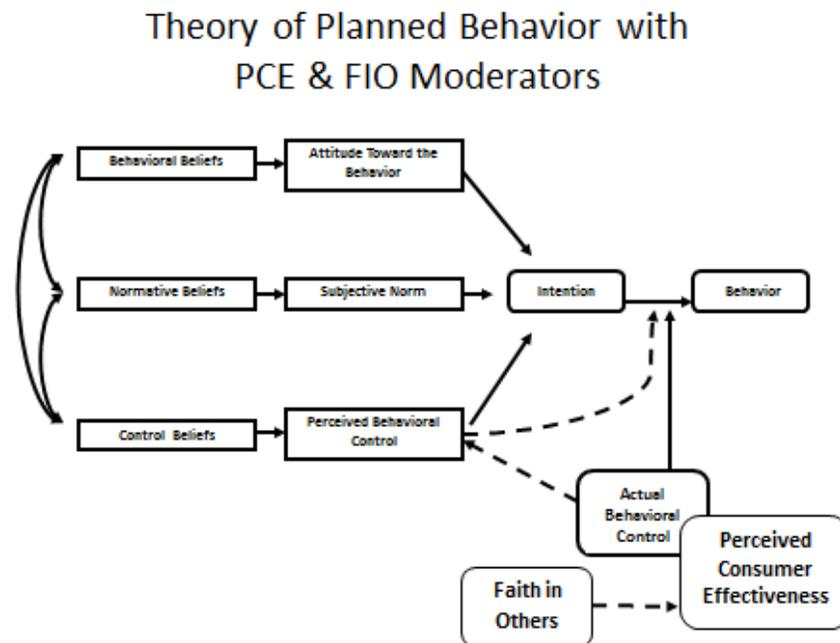
The present study added the elements of PCE and FIO because despite strong intentions and feelings for the environment, American consumers have not made environmentally preferable products a purchasing priority. The supposition was that perhaps a psychological mechanism such as PCE seen as a positive influence facilitated or FIO viewed as a negative influence impeded intention to act. This proposition was built on Berger and Corbin (1992) finding that “the moderating influence of PCE and FIO provides a framework for understanding when general societal concerns will be translated into consumer actions.” Ellen, Wiener and Cobb-Walgren (1991) also found PCE as a distinct construct separate from environmental concern and a significant predictor in some behaviors, such as purchasing. Lee and Holden (1999) treated PCE and FIO as direct effects “for conceptual simplicity” in their study on motivating environmental behavior but they also found evidence supporting the moderator influence observed by Berger and Corbin, although in a different ways. Straughan and Roberts (1999) found that presence of PCE and altruism, trumped demographic criteria when it came to ecologically conscious consumer behavior regarding the purchase of detergents, recycled paper, appliances, packaging, light bulbs and aerosols. In a study of the cultural dimension of collectivism along with environmental concern and PCE, Kim and Choi (2005) found that “perceived self efficacy directly influences the likelihood that consumers actually engage in green purchase behavior.” This was also reaffirmed in a study of Malaysian undergraduate students (Tan and Lau 2011) based on the value-attitudes-behavior model in which PCE and green purchase intention were significantly more likely to predict green purchase behavior than environmental attitude alone.

Accordingly, in addition to measuring intention, the present research examined moderators related to a consumer’s sense of personal efficacy (PCE) and reliance on others (FIO). Under social cognitive theory (Bandura, 2001) Bandura observed: “Unless people believe they can produce desired results and forestall detrimental

ones by their actions, they have little incentive to act or persevere in the face of difficulties.”

For the present study PCE and FIO were viewed as moderators closely associated with TPB’s perceived and actual behavioral control (see Fig. 1 model). PCE was viewed as related to locus of control and pro-social behavior and defined as an estimate by the consumer of how well personal choices make a difference thus acting as a facilitator to environmentally preferable intentions to purchase environmentally preferable products. FIO was viewed as a form of the psychological principle of diffusion of responsibility or free-rider rationalization in which consumers expect others especially government, industry, institutions or future generations to solve a problem rather than their own personal actions. In some circumstances, FIO was conceptualized as impeding environmentally preferable actions, the free rider effect. However, in other circumstances, FIO demonstrated a beneficial effect because individuals with this mindset tended to support other individuals in their purchase of environmentally preferable products, resulting in a cheerleading effect. Thus, FIO may foster social acceptance of environmentally preferable products and those who purchase them.

Figure 1: Theory of Planned Behavior With PCE and FIO Moderators



These antecedents were selected for this study because, based on theory and empirical studies, they may assist in converting intentions and emotions to action and they tend to be accessible to persuasion efforts that seek to increase the number of individuals willing to purchase environmentally preferable products.

Hypotheses, Method and Participant Profile

Under TPB, the idea of attitudes and perception toward behaviors and control of behaviors is considered. Thus, the present study examined the effects of the independent variables, verbal commitment (VC), emotions or affect (Aff) and the moderators perceived consumer effectiveness (PCE) and faith in others (FIO) had on the dependent variable, actual commitment (AC) related to purchase of environmentally preferable products. Hence, the present study advanced the following hypotheses:

H1: Consumers who express environmental intentions (VC) are likely to purchase environmentally preferable products (AC).

H2: Consumers who are passionate (Aff) about their environmental concern are likely to purchase environmentally preferable products (AC).

H3: Consumers who agree with perceived consumer effectiveness (PCE) items are more likely to purchase environmentally preferable products (AC) than those who do not.

H4: Consumers who agree with faith in others (FIO) items are unlikely to purchase environmentally preferable products.

A questionnaire adapted from an existing scale on environmental attitudes and knowledge (EAK) (Maloney and Ward, 1973, 1975) tested participant verbal and actual commitment as well as emotions and knowledge related to the environment. Questions regarding PCE and FIO (Berger and Corbin 1992) were added to test personal efficacy and/or reliance on others. The instrument also captured demographic, and lifestyle preferences. EAK directly measured verbal commitment (VC), a proxy for intentions and actual commitment (AC), a proxy for behavior. In addition, it also measured Affect (Aff), which is associated with emotions or feelings. The scale has also been used reliably several times since the 1970s producing similar valid results in the United States (Dispoto 1977, Synodinos 1990, Benton, 1994, Shean and Shei 1995) and in China (Chan 1999).

The survey was administered in person by the principal investigator at community meetings and at a community college in the metropolitan New York region. Half the participants were between 17 and 30 years old and the remainder ranged from 31 to over 68 years old. Two thirds were women. Annual incomes were less than \$74,000 for 64 percent of the participants and the 92 percent completed high school or some college. Those whose first language was English totaled 61 percent of the participants. Half the participants said they were involved in volunteer activities.

Hypotheses Testing and Analysis

Based on the findings we accepted H1, H2 and H3 because items representing pro environmental intentions (VC), emotions (Aff) and self-efficacy (PCE) showed significant and moderately strong or definite correlations with items representing actual commitment (AC) to purchase environmentally preferable products (see Table 1). Additionally, in a few cases, items representing negative environmental intentions or emotions correlated significantly with lack of commitment to making green purchases.

Table 1: Pearson Correlations (Significance < .05)

Table 1 - Pearson Correlations (Sig.< .05)				
Independent Factors		Dependent Factors		
Question	Var.	Corr.	Var.	Question
When I think of the ways industries are polluting, I get frustrated and angry.	Aff+	0.499	AC+	I usually seek information on environmentally friendly products and where to buy them.
I'm willing to take mass transit or ride a bicycle to work to reduce pollution.	VC+	0.428	AC+	I have switched products for environmental reasons.
I become incensed when I think about the harm done to plant and animal life by pollution.	Aff+	0.413	AC+	I usually seek information on environmentally friendly products and where to buy them.
When I think of the ways industries are polluting, I get frustrated and angry.	Aff+	0.400	AC+	I consider a company's environmental record before purchasing its products.
I'm not usually bothered by so-called "noise pollution."	Aff-	0.399	AC-	I rarely compare the performance of regular and environmentally safe detergents.
I probably would not make an extra effort to find lighting products or appliances whose manufacture and/or use reduces greenhouse gases that contribute to climate change.	VC-	0.393	AC-	I don't make a special effort to buy recycled or recyclable paper and plastic products
I get depressed on days when we have air Quality alerts.	Aff+	0.367	AC+	I have purchased a car just because it is environmentally preferred
I would donate a day's pay for research on environmentally preferred products.	VC+	0.363	AC+	I subscribe to environmental publications. (Mother Earth News, Nature etc.)
Sometimes, I feel guilty about how my purchasing habits may harm the environment.	PCE+	0.347	AC+	I usually seek information on environmentally friendly products.
I'm not usually bothered by so-called "noise pollution."	Aff-	0.345	AC-	I rarely buy a product because it has a lower polluting effect.
I'm not usually bothered by so-called "noise pollution."	Aff-	-0.343	AC+	I consider a company's environmental record before purchasing its products.
I'm not usually bothered by so-called "noise pollution."	Aff-	0.338	AC-	I rarely say anything about a product that I consider harmful to the environment
I really don't go out of my way for the environment since that's the government's job.	FIO+	0.328	AC+	I consider a company's environmental record before purchasing its products.
It genuinely infuriates me to think that the government doesn't do more to help control pollution of the environment.	Aff+	0.326	AC+	I consider a company's environmental record before purchasing its products.
Sometimes, I feel guilty about how my purchasing habits may harm the environment.	PCE+	0.320	AC+	I have switched products for environmental reasons.
I would donate a day's pay for research on environmentally preferred products.	VC+	0.317	AC+	I usually seek information on environmentally friendly products and where to buy them.
When I think of the ways industries are polluting, I get frustrated and angry.	Aff+	0.317	AC+	I have switched products for environmental reasons.
I'm willing to take mass transit or ride a bicycle to work to reduce pollution.	VC+	0.316	AC+	I consider a company's environmental record before purchasing its products.
The whole pollution issue has never upset me very much, since I feel it's overrated.	Aff-	0.302	AC-	I rarely buy a product because it has a lower polluting effect.
I think future generations will do more for the environment than prior generations.	FIO+	0.262	AC+	I usually seek information on environmentally friendly products and where to buy them.
I would be willing to reduce my consumption of disposable products.	VC+	0.252	AC+	I have switched products for environmental reasons.
I would be willing to bring a re-useable sack to the store to carry my purchases.	VC+	0.221	AC+	I have switched products for environmental reasons.

Dependent: AC=Actual Commitment; Independent: VC =Verbal Commitment;

PCE=Perceived Consumer Effectiveness; FIO = Faith in Others; A = Affect

***Factors identified with added significance through variable selection procedure (see regression analysis section)**

In the case of H4 the hypothesis was rejected because items representing reliance on others (FIO) correlated significantly with items representing actual commitment (AC) to purchase environmentally preferable products, rather than opposite, as hypothesized. This may be viewed as a cheerleader effect representing support or encouragement from others as in peer influence.

Canonical Correlations (Table 2) of composites of the independent variable items (VC, Aff, PCE and FIO) and the dependent variable items (AC) show increasing strength of the relationship to actual commitment to purchasing environmentally preferable products. This may suggest that the combined effect of intentions, emotions self-efficacy and support-from-others creates strong and significant correlation for actual commitment to purchase environmentally preferable products. PCE and FIO composites were not as strong VC and Aff supporting the idea that PCE and FIO act as positive moderators to intentions and emotions.

Table 2: Canonical Correlation Summaries

Table 2		
Canonical Correlation Summaries		
<i>N</i> = 122		
Dependent Variable = Actual Commitment (AC)		
<i>Factors</i>	<i>Canonical Correlation</i>	<i>Prob. Level</i>
All independent variables	0.834	0.000
Affect (Aff)	0.721	0.000
Verbal Commitment (VC)	0.653	0.000
Perceived Consumer Effectiveness (PCE)	0.548	0.000
Faith in Others (FIO)	0.517	0.000

Marketing and Public Policy Implications and Conclusion

Increased understanding of the associations among psychographic variables and purchase behavior represent fertile ground for potential future research into how promotions and advertising may be used to activate purchase of environmentally preferable products.

In the present study, the emotionally charged question, “When I think of the ways industries are polluting, I get frustrated and angry,” showed the highest correlation with the actual commitment represented by seeking information on environmentally friendly products. A practical example of how such a linkage might have worked in recent years involves the conversion of public ire in the wake of pesticide and food contamination controversies to growing support for locally grown organic foods.

Appealing to the efficacy of consumers may also assist in converting consumer intentions to purchasing environmentally preferable products. For instance, survey participants demonstrating both PCE (guilt about purchasing habits harming the environment) and FIO (the environment is the government's job) showed a significant correlation to the AC item consideration of a company's environmental record before making a purchase. Based on the findings in the present study environmental intention is more likely to become environmental action when people believe (PCE) and feel supported (FIO) that they can make a difference.

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