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# An empirical investigation of a model of environmentally concerned consumer behavior and its determinants: The moderating role of market mavenship and product involvement

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AN EMPIRICAL INVESTIGATION OF A MODEL OF  
ENVIRONMENTALLY CONCERNED CONSUMER  
BEHAVIOR AND ITS DETERMINANTS:  
THE MODERATING ROLE OF  
MARKET MAVENSHIP AND  
PRODUCT INVOLVEMENT

by

Kishwar A. Joonas, B. Com., M. M. S.

A Dissertation Presented in Partial Fulfillment  
of the Requirements for the Degree  
Doctor of Business Administration

COLLEGE OF ADMINISTRATION AND BUSINESS  
LOUISIANA TECH UNIVERSITY

August 2004

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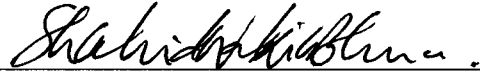
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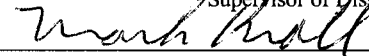
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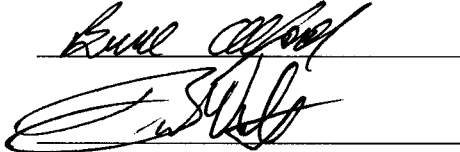


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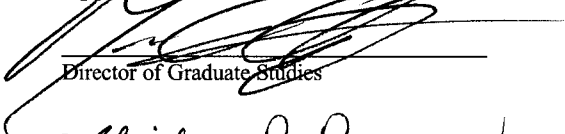
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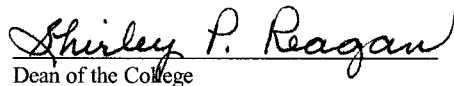


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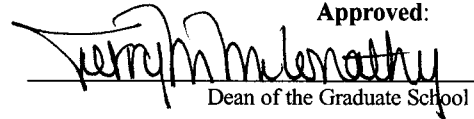


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## ABSTRACT

Extant literature offers incomplete explanations of environmentally concerned consumer behavior (ECCB), based on subsets of determinants. In this study, I have presented an integrated model of ECCB, and examined the main effects of three key psychological determinants (environmentally concerned beliefs and attitudes, personal norm, and perceived consumer effectiveness) and two key socio-cultural determinants (injunctive norm and collectivist orientation), on four dimensions of ECCB, namely purchase behavior, search for information, conserving behavior, and supporting intent. The study also examined the interactional effects of market mavenship and involvement on these direct linkages.

I conducted a national online survey among members of environmental organizations (n= 212). The model explained 58.8 per cent of the variance in purchase behavior, 62.2 percent of the variance in search for information, 51.7 per cent of the variation in conserving behavior, and 81.3 per cent of the variance in supporting intent. The study has served to strengthen, support and extend previous research in the area of ECCB.

Support was found for the main effects of environmentally concerned beliefs and attitudes on purchase behavior, and supporting intent. Furthermore, support was found for the main effects of personal norm on purchase behavior, search for information, and conserving behavior.

Additionally, results supported the main effects of injunctive norm on purchase behavior, search for information, conserving behavior and supporting intent. Also, results supported the main effects of perceived consumer effectiveness on purchase behavior, search for information, and conserving behavior. However, collectivist orientation was not supported as a positive determinant of any dimension of environmentally concerned consumer behavior.

Market mavenship was examined in the environmental context for the first time in this study, and was evidenced to be a determinant of search for information. Additionally, interactional effects of market mavenship were evidenced on two direct linkages in the model. Further, product involvement was evidenced to be a determinant of search for information, and also of supporting intent. Additionally, interactional effects of product involvement were evidenced on three direct linkages in the model.

The contributions of this study have wide research implications, and also societal and managerial implications for the various environmental stakeholders

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Author *Kishwar Joonas*  
Kishwar Joonas, B.Com., M.M.S.

Date August 10, 2004

## DEDICATION

I would like to dedicate this dissertation to my father, the late Dr. Ahmed Joonas. He exercised the virtues of stoicism to overcome exceedingly trying circumstances. In my quest for achievement, I could not find a better role model. At my father's feet, I contemplated the intriguing unity of detail and design, action and intent, practice and precept, atom and cosmos, mundane and ethereal. He gifted me a rounded education, which has proved to be the single most liberating influence in my life.

My father was also the first to sense the worth of my talents; he invoked the pygmalion effect that cast my career choice. By age eight, I gleaned from him my earliest lessons in the humanist ethos. I had by then been exposed to two major aspects of his work. The first was his excellence in dental surgery. In the microcosm of his clinics and laboratory was his alchemy of art, science, technology, and economics. The exposure to his work nurtured in me the spirit of free inquiry, which still soars high today.

The second aspect of my father's work was his stewardship of the apex body in his profession. Its complexity typified the congruence of research, practice, pedagogy and public policy, in delivering quality healthcare to a diverse and developing nation. This catalytic aspect sparked in me the vocation for service, which still burns bright. I shall always owe a debt of gratitude to my father. It is an honor to bear his name.



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More importantly, Dr. Bhuian has been an exceptional mentor. He has always been there for me professionally, during the tough moments of the doctoral program. I will be eternally grateful for his guidance and support, and am optimistic of the years ahead. Thanks, Dr. Bhuian, for believing in me. I will always work hard to make you proud.

I would also like to thank my dissertation committee for their assistance during the dissertation process. As mentioned above, my chairperson, Dr. Bhuian, played a large role in its conceptualization and operationalization. Dr. Bruce Alford and Dr. Bruce Walters have been helpful, caring and collegial. They brought to bear on my

dissertation a rare blend of eclecticism, creativity and flair. It was a privilege to work with a set of such dedicated, dynamic, yet unaffected individuals.

I owe a debt of gratitude to a host of environmental organizations for their cooperation in data collection for this dissertation. Prime among these is the Missouri Department of Natural Resources, which provided a link on their web site to my online survey. My special thanks go to Mr. Steve Mahfood, Mr. Stuart Westmoreland, and Ms. Debbie Boeckman, for enabling a venture of this stature.

I wish to thank my parents, Sophia Joonas nee Fazal, and the late Dr. Ahmed Joonas. I have earlier mentioned the influence of my father in my formative years. My mother was the embodiment of strength and perseverance. My mother spelt love, security, trust, and commitment, which formed the pillars of my potential achievements. For their selfless and seemingly ceaseless support, I thank my parents. I would also like to thank my children, Fauzia and Ibrahim Khatkhatay. My children mothered me throughout the completion of this dissertation. Both have exhibited loyalty, maturity, diligence, and love unalloyed, so rare at so young an age. It is my sincere hope that their filial devotion will in time bring its own rewards.

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Dr. Ali Darrat recommended me to the College of Business Administration at Louisiana Tech University, and Dr. Gene Johnson inducted me into the doctoral program. For their offering me this unique opportunity, I am truly appreciative. Further, I thank two stalwarts of the College of Business for the generosity with their expertise: Dr. Hani Mesak, qaiser of the quantitative, and the Dr. Joe Pullis, Miltonic monarch of *bon mot*. I would also like to thank Dr. Terry McConathy, for being a redoubtable source of moral support. Finally, I would like to thank Dr. Morsheda Hassan, for her valuable friendship, as well as her professional guidance.

## PREFACE

Green is not just a color

It's a way of life

--- Environmental slogan

When the last tree is cut, the last river is poisoned, and the last fish dead, we will  
discover that we can't eat money --- Greenpeace

## CHAPTER 1

### INTRODUCTION

Concern for the state of the earth's environment has grown rapidly in the last decade (Aragon-Correa 1998, Bagozzi 2000, Bansal and Roth 2000, Barone, Miyakazi and Taylor 2000, Bhuian 1997, Egri and Herman 2000, Garland and Keesling 2003, Menon et al 1999, Polonsky 2001, Sharma 2000). An examination of the literature reveals that, in the American cultural context, consumer concern for the environment was born as a social movement, but continues to be nurtured and sustained by the market mechanism. The evolution of consumer demand for environmentally friendly products was the critical point that represented the shift of environmental issues from the marketplace of ideas into the marketplace for commodities.

This "enviro-trend" has found reflection in knowledge development in four major streams, in the area of marketing, business and public policy:

1. Research on environmentally concerned consumer behavior includes behavioral dimensions; psychological, socio-cultural and demographic characteristics, and response to the marketing mix (e.g. Bhuian 1997, Chan 1996, Hallin 1995, Ling-yee 1997, Minton and Rose 1997, Roberts and Bacon 1997, Roper Organization 1990, Shrum, McCarthy and Lowrey 1995, Stern, Dietz and Guagnano 1995).

2. Research on environmental management and marketing strategies covers antecedents and outcomes of strategy (e.g. Aragon-Correa 1998, Bansal and Roth 2000, Klassen and Whybark 1999, Goodstein 1999, Henriques and Sadorsky 1999, Russo and Fouts 1997, Sharma 2000, Shrivastava 1995).

3. Research on environmental strategy implementation covers the perspectives and specifics of implementation (e.g. Barone, Miyakazi and Taylor 2000, Burnett and Wood 1988, DiMaggio 1988, Drumwright 1996, Menon et al 1999, Menon and Menon 1997, Osterhus 1997, Polonsky 2001, Ross, Patterson and Stutts 1992, Varadarajan 1992).

4. Research on public policy issues includes the areas of ethics, the role of regulatory bodies, educational institutions, consumerism and feminism (AACSB 2000, Barone, Miyakazi and Taylor 2000, Burnett and Wood 1988, DiMaggio 1988, Drumwright 1996, Heizman and Stubbs 1999, Menon and Menon 1997, Osterhus 1997, Ross, Patterson and Stutts 1992, Scammon and Mayer 1995, Varadarajan 1992, Whitehead 1994, World Resources, 1998-99:169, Zinkhan and Carlson 1995).

Figure 1 represents an attempt to summarize the above into a classificatory schema. From among these research streams, environmentally concerned consumer behavior is of relevance to almost every section of society. For instance, consumers themselves are interested in the performance of behaviors that help preserve and protect the integrity of the environment, such as obtaining information on products that result in minimum damage to the environment, purchasing such products, recycling waste, and contributing to environmental organizations (Bhuiyan 1997; Chan

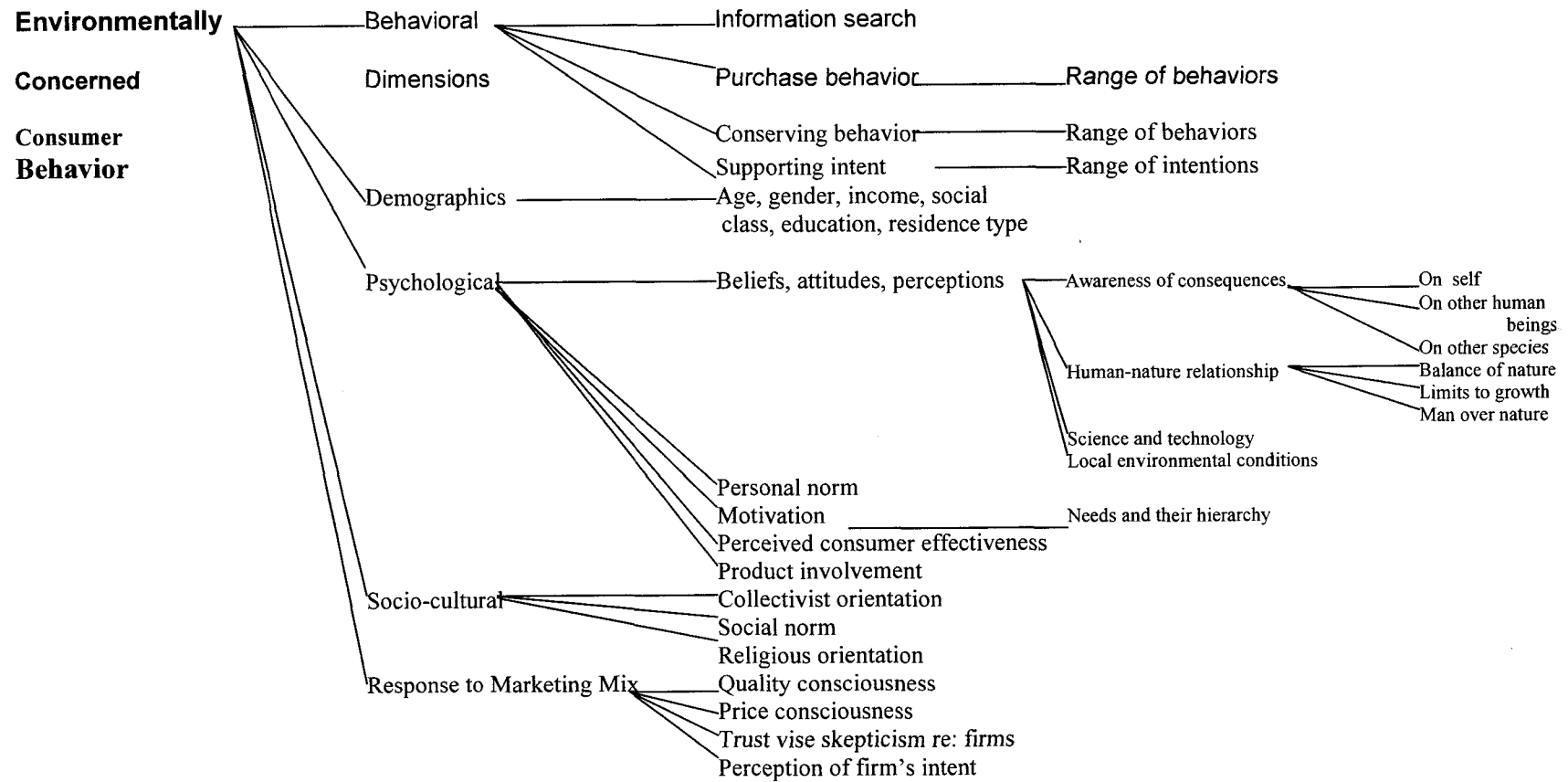


FIGURE 1 (part A). Knowledge Development in Environmentally Concerned Business, Marketing and Public Policy

**Environmental  
Management/  
Marketing Strategy**

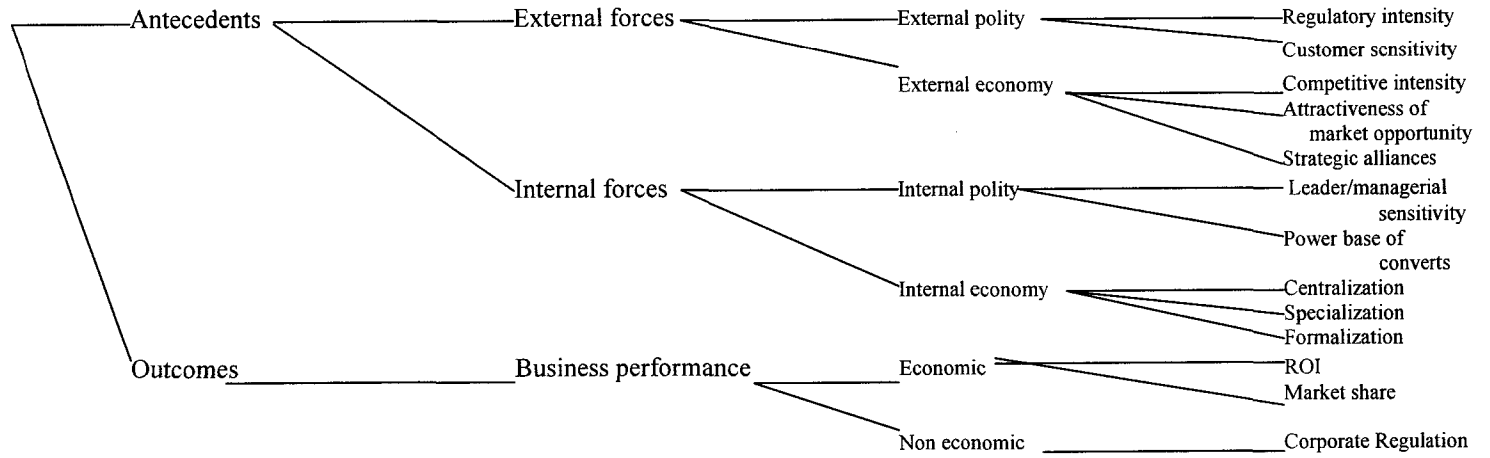


FIGURE 1 (part B). Knowledge Development in Environmentally Concerned Business, Marketing and Public Policy



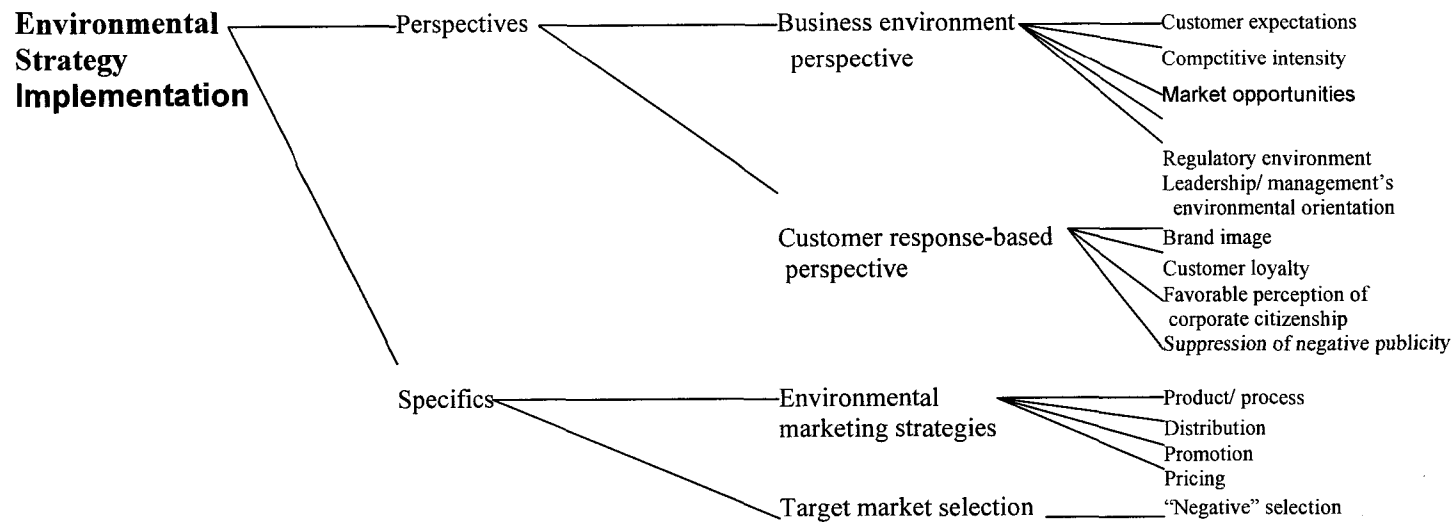


FIGURE 1 (part C). Knowledge Development in Environmentally Concerned Business, Marketing and Public Policy

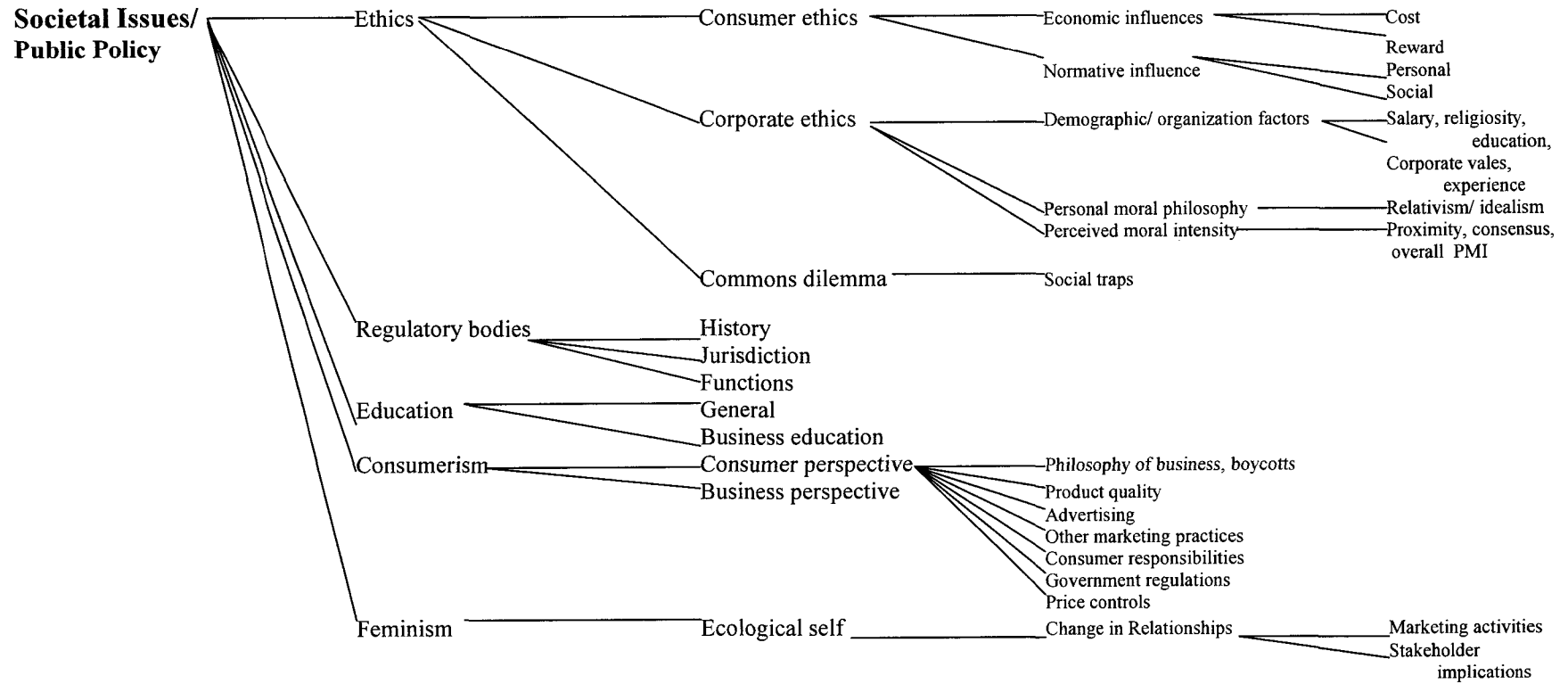


FIGURE 1 (part D). Knowledge Development in Environmentally Concerned Business, Marketing and Public Policy

1996, Hallin 1995, Ling-yee 1997, Minton and Rose 1997, Roberts and Bacon 1997, Shrum, McCarthy and Lowrey 1995, Stern, Dietz and Guagnano 1995).

Business recognizes this “enviro-trend” by aligning strategic change and product development with the new ecological market realities (Aragon-Correa 1998, Bansal and Roth 2000, Klassen and Whybark 1999, Egri and Herman 2000, Goodstein 1999, Henriques and Sadorsky 1999, Russo and Fouts 1997, Sharma 2000, Shrivastava 1995). Marketers respond to the “enviro-trend” by incorporating environmentally friendly features into the marketing mix (Barone, Miyakazi and Taylor 2000, Burnett and Wood 1988, DiMaggio 1988, Drumwright 1996, Menon et al 1999, Menon and Menon 1997, Osterhus 1997, Polonsky 2001, Ross, Patterson and Stutts 1992, Varadarajan 1992, World Resources, 1998-99, Zinkhan and Carlson 1995).

With deregulation and privatization of industries in the early 1980’s, the state retreated from the “moral domain” of the economy, and corporate social responsibility increased. Corporate response to environmentally concerned consumer behavior generates an interest in the areas of environmental audit, stakeholder interventions and public policy (Barone, Miyakazi and Taylor 2000, Burnett and Wood 1988, DiMaggio 1988, Drumwright 1996, Menon and Menon 1997, Osterhus 1997, Ross, Patterson and Stutts 1992, Varadarajan 1992, World Resources 1998-99, Zinkhan and Carlson 1995). Governmental agencies and non-governmental organizations, including investor groups, feel the need to institute suitable responses to environmentally concerned consumer behavior (Andersson and Bateman 2000, Carlson et al 1996, Cohen 1974, King and Lennox 2000, Russo 2001, Scammon and Mayer 1995,

<http://www.dnr.mo.gov/research.htm>), and corporate ethical considerations are under scrutiny (Bhuiyan 1997, Chan 1996, Hallin 1995, Ling-yee 1997, Minton and Rose 1997, Roberts and Bacon 1997, Shrum, McCarthy and Lowrey 1995, Stern, Dietz and Guagnano 1995).

Ecological groups like The Club of Rome, Sierra Club, Audubon, World Wildlife Fund, Greenpeace, Union of Concerned Scientists, Wilderness Society, Environmental Defense Fund, and Defenders of Wildlife endeavor to promote public consciousness and behavior in relation to the environment (e.g. Bhuiyan 1997, Chan 1996, Hallin 1995, Ling-yee 1997, Meadows, Meadows and Randers 1962, Minton and Rose 1997, Roberts and Bacon 1997, Shrum, McCarthy and Lowrey 1995, Stern, Dietz and Guagnano 1995, Zimmer, Stafford and Stafford 1994). These groups are especially responsible for awakening popular interest in the state of the environment, and promoting public consciousness in relation to several areas, mainly waste, the biosphere, “popular” issues like labeling and education; health, energy and environmental technology (<http://www.greenpeaceusa.org>, <http://www.sierraclub.org>, <http://www.ucsusa.org>, Zimmer, Stafford and Stafford 1995).

Educational institutions recognize their responsibility to promote environmentally concerned consumer behavior, and are pressing for the inclusion of environmental education as a curricular necessity (AACSB 2000, Heizman and Stubbs 1999, Research Alert 1990, Whitehead 1994, <http://www.ucd.ie>). Environmentally concerned consumer behavior is of particular relevance to Western society as a whole, in its quest to establish a sustainable means of existence (Easterbrooke, 1995).

Academicians in business, marketing and other fields would like to understand, explain and predict environmentally concerned consumer behavior (Carson 1962, Kotler 1972, 1975, 1994; Gooch 1995, Hallin 1995, Stern, Dietz and Guagnano 1995; Dunlap and Van Liere 1978, Prothero and Fitchett 2000, Kilbourne 1995, Varadarajan and Thirunarayana 1990, Varadarajan, Bharadwaj and Thirunarayana 1994).

Thus, the understanding of environmentally concerned consumer behavior is of importance to consumers, business, marketing, educationists, public policy makers, thinkers and academicians.

### Statement of the Problem

Despite the importance of environmentally friendly consumer behavior to society as a whole, the response in the area of research in marketing has been comparatively limited.

Environmentally concerned consumer behavior has four dimensions: purchase behavior, search for information, conserving behavior, and supporting intent. Different researchers have examined different dimensions of environmentally concerned consumer behavior. For instance, one dimension of environmentally concerned consumer behavior that has received research attention is purchase behavior, i.e. the purchase of environmentally friendly products, and the avoidance of environmentally unfriendly products (e.g. Chan 1996, Ling-yee 1997, Roberts 1996, Roberts and Bacon 1997). Some researchers use the term environmentally concerned consumer behavior to mean the search for information on environmentally friendly products (Minton and Rose 1997). Others include the disposal of waste after the consumption or use of the product, or recycling behavior (Hallin 1995, Ling-yee 1997,

Minton and Rose 1997, Stern, Dietz and Guagnano 1995). Some researchers interpret environmentally concerned consumer behavior to mean behavioral intent, which connotes supporting actions of a general nature, like willingness to take specific action, pay extra taxes, and write letters (e.g. Hallin 1995, Minton and Rose 1997, Stern, Dietz and Guagnano 1995).

Much research has been undertaken to identify the key determinants of environmentally concerned consumer behavior. In theorizing the main effects of environmentally concerned beliefs and attitudes on environmentally concerned consumer behavior, there is general agreement in the literature (e.g., Gooch 1995, Hallin 1995, Stern, Dietz and Guagnano 1995). However, empirical results concerning the role of environmentally concerned beliefs and attitudes in eliciting environmentally concerned consumer behavior are inconsistent (e.g. Hallin 1995), or have a considerably low explanatory potential (Crosby, Gill and Taylor 1981, Ling-yee 1997, Maloney and Ward 1973, Roberts 1996).

Some researchers have attempted to explain inconsistent findings and limited explanations in the direct linkages between these key determinants and environmentally concerned consumer behavior, through examining the moderating role of involvement on some of these direct linkages (e.g. Bei and Widdows 1999, Ling-yee 1997).

Although much of the extant research has advanced the understanding about the making of environmentally concerned consumer behavior, a few observations are in order. First, previous research does not offer a complete picture of the processes responsible for environmentally concerned consumer behavior, since most researchers

have incorporated a limited number of constructs in a single study. This approach is unfortunate, because ignoring the concurrent effects of key determinants offers little hope of attaining a complete understanding of the environmentally concerned consumer behavior process. I attempt to address this gap by integrating into a model of environmentally concerned consumer behavior, three key psychological determinants (viz. environmentally concerned beliefs and attitudes, personal norm, and perceived consumer effectiveness), two key socio-cultural determinants (injunctive norm and collectivist orientation), and four dimensions of environmentally concerned beliefs and attitudes (viz. search for information, purchase intent, conserving behavior, and supporting intent), which were previously treated in sub-sets in the literature, and two moderators, involvement, and market mavenship (the latter has not been examined in the literature).

Second, in the literature, plausible direct effects of key psychological and socio-cultural determinants on all major dimensions of environmentally concerned consumer behavior have not been probed. For instance, literature has ignored the direct effects of collectivist orientation on supporting intent. To fill the above gap, I specify and examine the direct linkage between collectivist orientation and supporting intent. Similarly, literature has ignored the potential direct linkage between perceived consumer effectiveness and search for information, and I address the gap by specifying and examining this direct linkage.

Third, literature has examined the moderating effects of involvement, only on direct linkages between two determinants (environmentally concerned beliefs and attitudes, and collectivist orientation) and two dimensions of environmentally

concerned consumer behavior (purchase behavior, and search for information). However, the potential moderating effects of involvement on the other direct linkages in the model remain unexamined. I specify and examine the moderating role of involvement on four direct linkages: 1. The direct linkage between environmentally concerned beliefs and attitudes, and conserving behavior. 2. The direct linkage between environmentally concerned beliefs and values, and supporting intent. 3. The direct linkage between collectivist orientation and conserving behavior. 4. The direct linkage between collectivist orientation and supporting intent.

Fourth, there is scope for the examination of the effects of potential moderators on the direct linkages between the determinants and dimensions of environmentally concerned consumer behavior in the model; these have not received research attention. Although their moderating effects are plausible and tenable, they have not been examined in the literature. For instance, environmentally concerned consumer behavior is information-sensitive (e.g. Brown and Wahlers 1998). Furthermore, environmentally concerned consumer behavior rests on a sense of social responsibility (e.g. Antil 1984, Hallin 1995, and Heberlein 1981, 1989), stems from an identification with a social cause (Ross, Patterson and Stutts 1992), and is driven by social-altruistic values (Stern, Dietz and Guagnano 1995). In this context, we would seek a moderator that might interact with some of the key determinants of environmentally concerned consumer behavior, to strengthen such behavior.

A concept that appears to fit this set of requirements is market mavenship (Dichter 1966, Feick and Price 1987, Price, Feick and Higie 1987), which I posit would moderate the direct linkages, between a key determinant, environmentally



concerned beliefs and attitudes, and four key dimensions of environmentally concerned consumer behavior (purchase behavior, search for information, conserving behavior, and supporting intent).

Fifth, for a large part, contributions to extant literature remain descriptive (e.g. Hallin 1995, Kilbourne 1995, Prothero and Fitchett 2000). Empirical studies are not only limited, but also suffer from the demerits of small sample sizes (e.g. Chan 1996, Hallin 1995, Minton and Rose 1997), and convenience samples (e.g. Chan 1996, McCarty and Shrum 1994, Minton and Rose 1997, Ross, Patterson and Stutts 1992). This limits both the validity and generalizability of the findings. I propose to overcome this limitation by conducting this study among a larger, random, national sample of members of environmental organizations in the U.S. These individuals, by virtue of membership, can be said to be environmentally concerned, and aware of the constructs of interest.

### Statement of Purpose

Based on the literature, I propose and empirically test an integrated model of environmentally concerned consumer behavior, showing the direct linkages between three key psychological determinants (environmentally concerned beliefs and attitudes, personal norm, and perceived consumer effectiveness), two key socio-cultural determinants (injunctive norm and collectivist orientation), and four dimensions of environmentally concerned consumer behavior (purchase behavior, search for information, conserving behavior, and supporting intent) (Figure 2). The model also specifies the contingency effects on some of these direct linkages, of two moderators, viz. involvement (Figure 3) and market mavenship (Figure 4).

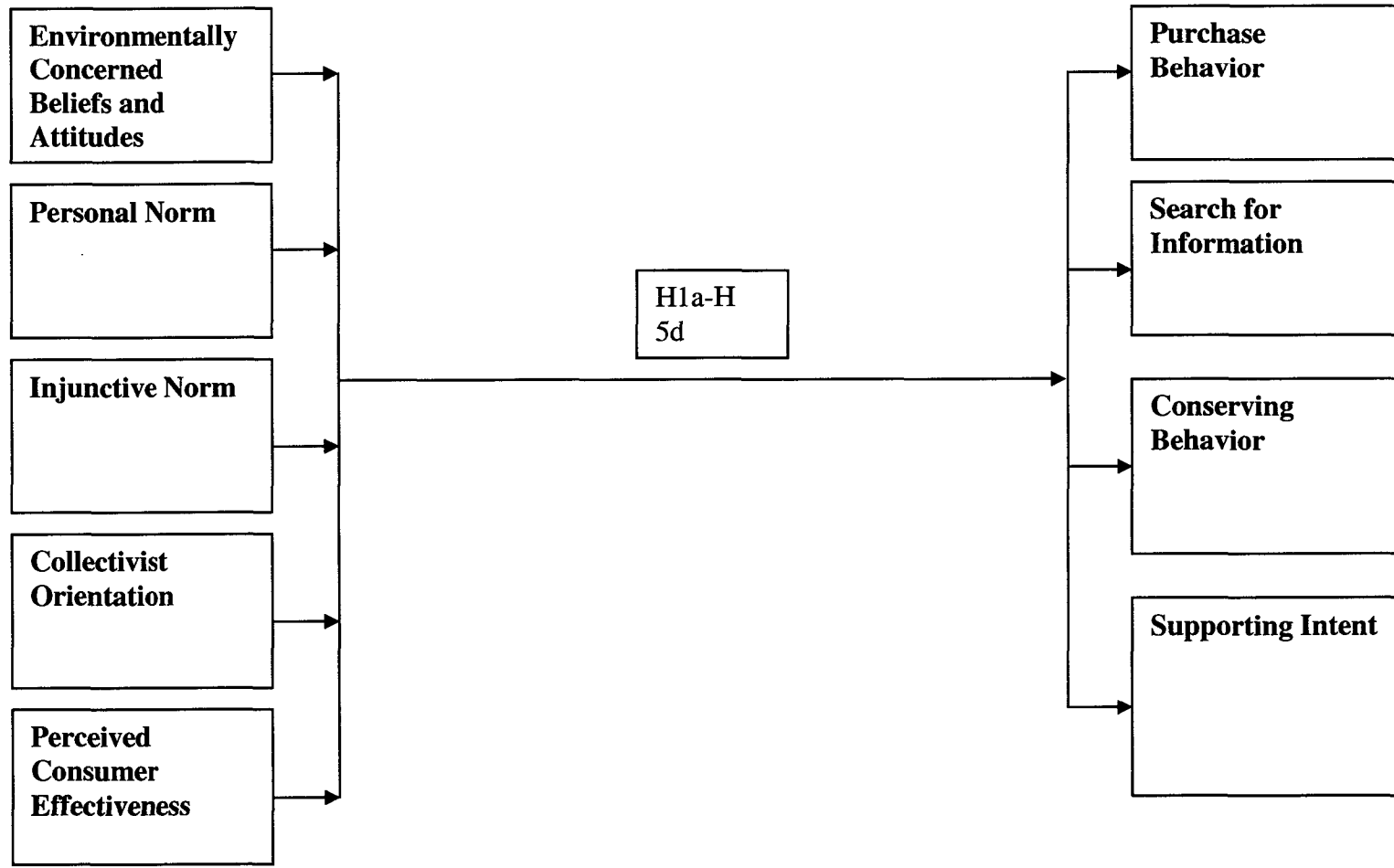


FIGURE 2. A Model of Environmentally Concerned Consumer Behavior Direct Effects of Determinants on Dimensions of Environmentally Concerned Consumer Behavior

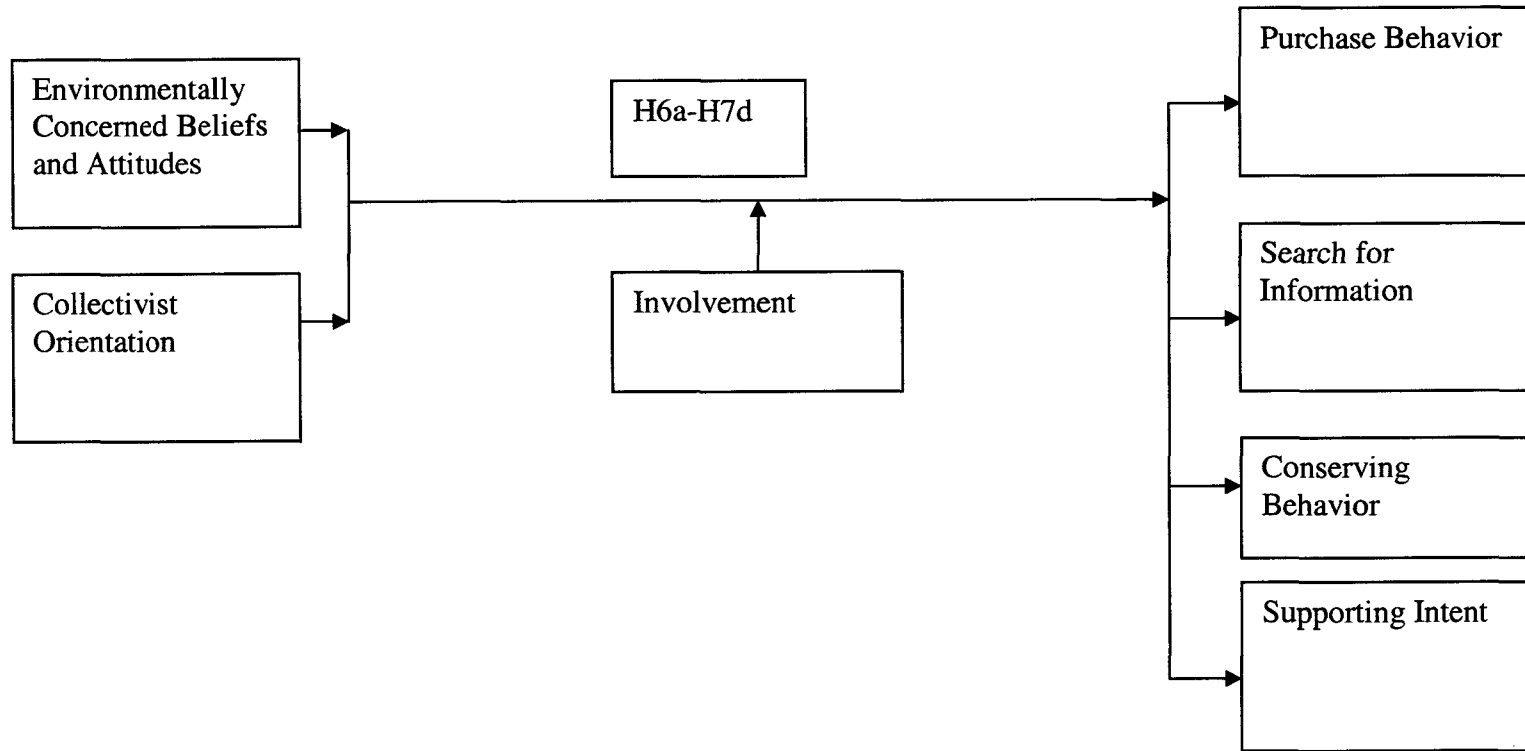


FIGURE 3. Moderating Effect of Involvement

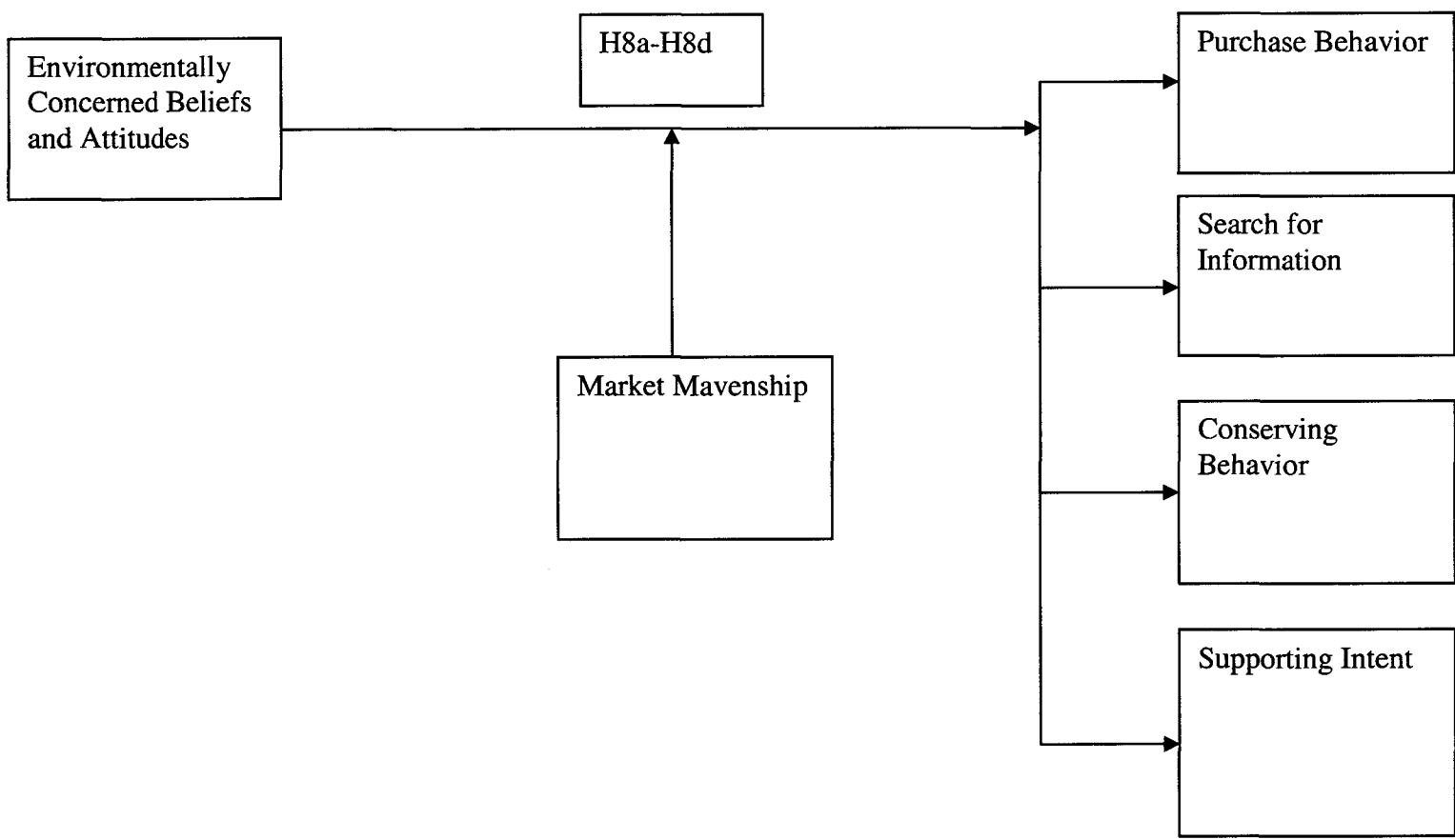


FIGURE 4. Moderating Role of Market Mavenship

Specifically, the first purpose of this dissertation is to examine the main effects of the key determinants of environmentally concerned consumer behavior, both psychological (viz. environmentally concerned beliefs and attitudes, personal norm, and perceived consumer effectiveness) and socio-cultural (collectivist orientation and injunctive norm), on environmentally concerned consumer behavior (viz. search for information, purchase behavior, conserving behavior and supporting intent). All the linear linkages have not yet been examined in a single study. Furthermore, this is the first attempt to theorize and examine two potential direct linkages: (1.) the direct linkage between collectivist orientation and supporting intent, and (2.) the direct linkage between perceived consumer effectiveness and search for information.

The second purpose of the study is to examine the moderating effects of involvement and market mavenship on some of the above-mentioned linear linkages in the model. Inconsistent empirical findings and low explanatory potential of the direct linkages between the key determinants and environmentally concerned consumer behavior, appear to mask the potential moderating effects of involvement on some of the direct linkages. The moderating effects that have not been covered in extant literature, but are specified and examined in this study are:

1. The moderating effect of involvement on the direct linkages between two determinants (viz. environmentally concerned beliefs and attitudes, and collectivist orientation), and two dimensions of environmentally concerned consumer behavior (viz. conserving behavior and supporting intent).
2. The moderating effect of market mavenship on the direct linkages between the determinant environmentally concerned beliefs and attitudes, and four

dimensions of environmentally concerned consumer behavior (viz. purchase behavior, search for information, conserving behavior, and supporting intent).

The research questions are: What are the main effects of the determinants of environmentally concerned consumer behavior, both psychographic (environmentally concerned beliefs and attitudes, personal norm, and perceived consumer effectiveness), and socio-cultural (injunctive norm and collectivist orientation), on the four dimensions of environmentally concerned consumer behavior (viz. search for information, purchase behavior, conserving behavior and supporting intent)? What is the moderating effect of involvement on the direct linkages between two determinants (viz. environmentally concerned beliefs and attitudes, and collectivist orientation) and the four dimensions of environmentally concerned consumer behavior (viz. purchase behavior, search for information, conserving behavior, and supporting intent)? What is the moderating effect of market mavenship on the direct linkages between the determinant environmentally concerned beliefs and attitudes, and the four dimensions of environmentally concerned consumer behavior (viz. purchase behavior, search for information, conserving behavior, and supporting intent)?

### Anticipated Contributions to the Body of Knowledge

The theoretical contributions of my research are five-fold. First, I attempt to offer a more complete picture of the processes that create environmentally concerned consumer behavior. This I do by integrating into a model of environmentally concerned consumer behavior, and examining the concurrent effects therein, five determinants (viz. environmentally concerned beliefs and attitudes, personal norm,

injunctive norm, collectivist orientation, and perceived consumer effectiveness), on four dimensions of environmentally concerned consumer behavior (viz. purchase behavior, search for information, conserving behavior, and supporting intent). Second, in addition to integrating the above variables into a single study, I also specify two new direct links, between collectivist orientation and supporting intent, and between perceived consumer effectiveness and search for information. Third, I theorize and examine the contingency effects of the moderator, involvement, on the direct linkages between two determinants (viz. environmentally concerned beliefs and attitudes, and collectivist orientation), and two dimensions of environmentally concerned consumer behavior (conserving behavior, and supporting intent). Fourth, I introduce, theorize and examine the contingency effects of a potential moderator, viz. market mavenship, on the direct linkages between a key determinant, environmentally concerned beliefs and attitudes, and four dimensions of environmentally concerned consumer behavior (viz. purchase behavior, search for information, conserving behavior, and supporting intent). Fifth, I conduct my survey among a large random national sample of individuals who are highly environmentally concerned, and who have some knowledge of the constructs of interest, thus increasing the generalizability of the findings.

### Societal and Managerial Contributions

This study is of relevance to almost every section of society, and has six major managerial contributions. It will be of interest to consumers who want to protect and preserve the integrity of the environment. It will be useful to business and marketing, in conceptualizing and implementing strategies for environmentally sustainable

survival and growth. Government will find its utility in the formulation and implementation of environmentally concerned public policy. Educational institutions will find this study useful in inculcating ecological values in their students. Environmental groups, which aim at encouraging environmentally concerned behaviors on the part of all the above groups, will find this study of relevance in achieving a socially just and sustainable society. Finally, it will be of interest to researchers, who strive to understand, explain and predict environmentally concerned consumer behavior.

### Organization of the Proposal

In the first chapter, I introduce the research, with a focus on its importance, a statement of the problem, a statement of purpose, and a listing of major contributions. In Chapter 2, drawing from the salient literature, I present the conceptualization of terms, hypothesize all the direct linkages in the model, and hypothesize the effects of moderators on these direct linkages. In Chapter 3, I present the research methodology, including measurement, sampling procedure, data collection, and statistical techniques of analysis.



## CHAPTER 2

### LITERATURE REVIEW AND HYPOTHESES

The objective of this chapter is to present the salient literature on three key psychological determinants (viz. environmentally concerned beliefs and attitudes, personal norm, and perceived consumer effectiveness), two key socio-cultural determinants (injunctive norm and collectivist orientation), and four dimensions of environmentally concerned consumer behavior (viz. purchase behavior, search for information, conserving behavior, and supporting intent). Salient literature concerning the moderators in the model, viz. involvement, and market mavenship, is presented. Based on extant literature, I propose the hypotheses to be tested in this research.

It is observed that the field of research in environmentally concerned consumer behavior is comparatively young, and relatively few studies have been conducted, particularly in relation to the variables of interest in this study. An examination of the literature reveals that the relationships have been established only among sub-sets of the variables that I am studying, and that there are several relationships that have not been covered by extant research. I attempt to fill this gap by specifying and examining some of these relationships.

## Four Dimensions of Environmentally Concerned Consumer Behavior

Environmentally concerned consumer behavior in the literature has been conceptualized in the form of four dimensions of behavior: purchase of environmentally friendly products (and avoidance of environmentally unfriendly products), search for information, conserving behavior, and supporting intent. These comprise the connotative component of the traditional consumer behavior model.

### Purchase Behavior

Ecologically concerned consumers are defined as those who purchase products and services that they perceive will have a positive (or less negative) impact on the environment (Roberts 1996). Such purchase behavior includes consciously limiting the use of products made with scarce resources, attempts at conserving energy consumption, and avoiding the purchase of products with excessive packaging (Bhuiyan 1997, Gronroos and Bowyer 1999, Hallin 1995, Minton and Rose 1997, Stern, Dietz and Guagnano 1995, Roberts 1996, Roberts and Bacon 1997).

Some researchers also considered behaviors in terms of their friendliness towards the environment, like buying disposable razors, aerosol sprays, and beverages in disposable containers (e.g. Chan 1996). Other researchers define purchase behavior narrowly, to include specific behaviors such as buying a product because it has a low polluting effect, and switching products for ecological reasons (e.g. Minton and Rose 1997). For the purpose of this study, I will use Roberts' (1996) definition, which includes consciously limiting the use of products made with scarce resources, attempts at conserving energy, and avoiding the purchase of products with excessive packaging.

## Search for Information

The information processing theory (Bettman 1979) contains assumptions about how consumers respond to information provided by various sources, and then use the information in specific choice situations. “The basic elements of the theory are the concepts of processing capacity: motivation, attention and perception, information acquisition and evaluation, decision rules and processes, and consumption and learning. In addition, mechanisms for continually examining the environment (a scanner), and interrupting current behavior, if necessary, and means for handling conflict are needed ... the operation of the theory is influenced by three other factors: individual differences, situational influences, and effects of different types of stimuli (Bettman 1979:16).

Further, the search for information may be internal (retrieval from memory), or external (from Consumer Reports, retailers, friends and acquaintances). Again, the search for information may be active (when a person has a specific goal in mind, e.g. a purchase goal), or passive (e.g. when a person has no purchase goal in mind). Information is in many cases actively evaluated by customers. The particular information found may lead to interrupts or changes of goals.

In relation to environmentally conscious consumer behavior, search for information on environmentally friendly products comprises an important behavioral outcome (Ling-yee 1997, Minton and Rose 1997). This includes, for instance, the frequency of comparing package label information, noticing and paying attention to advertisements, and talking to family, friends and co-workers about environmentally

friendly products and activities. In this study, the term search for information is used per the definition of Minton and Rose (1997).

### Conserving Behavior

Conserving behavior refers to the attempts made by consumers, to preserve the integrity of the environment after the purchase, use or consumption of a product. It includes conserving actions, particularly in terms of the disposal of the product or its packaging (Bhuiyan 1997, Gronroos and Bowyer 1999, Hallin 1995, Minton and Rose 1997, Stern, Dietz and Guagnano 1995). Hallin (1995) used Erickson's (1985) "environmental actions" to describe environmentally concerned consumer behavior. The actions included taking own bags for groceries, buying environmentally safe detergents, using chemical pesticides in the garden, composting yard waste, buying environmentally safe or recycled products, walking or bicycling on errands under half a mile, and contributing to an environmental organization. Conserving behavior is considered as an independent variable, as one of the dimensions of "verbal commitment", and includes recycling of newspaper, glass, or aluminum cans, and participation in clean-up drives, and contacting a community agency to remedy pollution (Ling-ye 1997). In this study, I will use Hallin's (1995) conceptualization of conserving behavior.

### Supporting Intent

Supporting intent represents consumer's willingness to undertake helping actions that help preserve the integrity of the environment (Bhuiyan 1997, Gronroos and Bowyer 1999, Hallin 1995, Ling-ye 1997, Minton and Rose 1997, Stern, Dietz and Guagnano 1995). In the literature, supporting intent is often referred to as

“behavioral intent”. It includes a variety of behaviors; for instance, willingness to take action, in reference to investing in a company that pollutes (e.g., Hallin, 1995), taking up a job with such a company (Hallin, 1995), boycotting the company’s products, (Hallin, 1995; Minton and Rose, 1997), or signing a petition (Hallin, 1995; Minton and Rose, 1997). Some researchers have also considered the willingness to pay extra income tax to preserve tropical forests, and extra gasoline tax to reduce the use of fossil fuels, writing a letter to members of Congress or the White House to support policies to stop the loss of tropical forests and to reduce the use of fossil fuels (Hallin 1995) and join an environmental group (Minton and Rose 1997). It is observed that in the literature, supporting intent is distinctly different from intention to buy environmentally friendly products, in the conventional marketing usage. Some researchers subsume supporting intent, such as intent to support environmental issues and organizations, under “verbal commitment”, and treat it as part of environmental concern (Ling-yee 1997). In this study, I will use the definition given by Stern, Dietz and Guagnano (1995).

### Determinants of Environmentally Concerned Consumer Behavior

Recent research has focused on five determinants of environmentally concerned consumer behavior, viz. environmentally concerned beliefs and attitudes, personal norm, injunctive norm, collectivist orientation, and perceived consumer effectiveness.

### Environmentally Concerned Beliefs and Attitudes and Their Main Effects

A series of beliefs, which can be cognitive or evaluative, can combine to create an attitude (Heberlein 1981). Beliefs are important in the formation of a value, which is an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable (Rokeach 1973: 5). Individuals and groups strive to order beliefs and values in a consistent cognitive framework (Heberlein 1981). Attitudes and values differ in that an attitude refers to an organization of several beliefs around a specific object or situation. A value on the other hand, refers to a single belief of a very specific kind (Rokeach, 1973: 18).

The link between attitudes, intentions and behavior has been explained primarily by Ajzen (1985, 1988), Ajzen and Fishbein (1980), and Fishbein and Ajzen (1975). The theory of reasoned action (Ajzen and Fishbein 1980, Fishbein and Ajzen 1975) is concerned with the causal antecedents of volitional behavior shown in Figure 5.

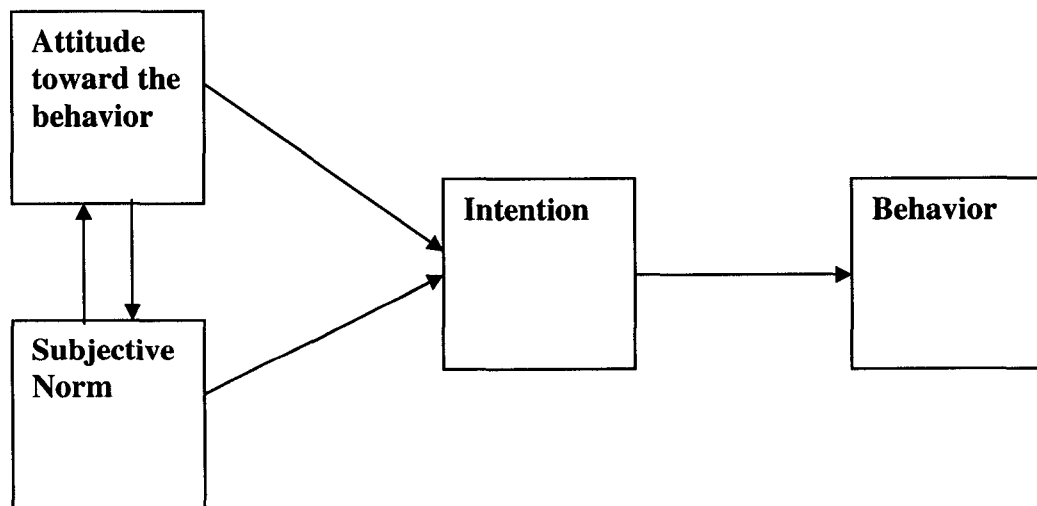


FIGURE 5. Theory of Reasoned Action, Fishbein and Ajzen (1975)

The theory of reasoned action is based on the assumptions that human beings usually behave in a sensible manner; they take into account information available to them, and consider the consequences of their actions. Thus, people are expected to act in accordance with their intentions. Intentions are a function of personal and social determinants. The personal factor is the attitude toward the behavior, which is the individual's positive or negative evaluation of performing the particular behavior of interest. The social determinant of intention is the person's perception of social pressure to perform the behavior under consideration. This factor deals with perceived normative prescriptions, hence it is termed as the subjective norm. People generally intend to perform a behavior when they evaluate it positively, and believe that important others think they should perform it.

Attitude toward a behavior is determined by salient beliefs about the behavior, and the person's evaluation of the outcome of that behavior. Subjective norms, on the other hand, are determined by the person's beliefs that "referent" individuals or groups approve of their performing the behavior, and are called "normative beliefs". Since people's beliefs represent the information people have about themselves and the world around them, behavior is ultimately determined by information. However, people may not always perform an intended behavior, because of limitations such as information, skills and abilities; emotions and compulsions; opportunity, and dependence on others (Ajzen and Fishbein, 1980, Fishbein and Ajzen 1975).

The theory of planned behavior (Ajzen 1985, 1988) provides a conceptual framework to address the problem of incomplete volitional control (Figure 6). This extends the theory of reasoned action, with the introduction of a third antecedent,

perceived behavioral control. This factor refers to the perceived ease or difficulty of performing the behavior, and reflects past experience as well as expected impediments. The antecedents of perceptions of behavioral control are control beliefs of the person. These control beliefs may be based on past experience with the behavior, but may also be influenced by second-hand information about the behavior, and by observing the experiences of their acquaintances and friends. The more resources and opportunities individuals think they possess, and the fewer impediments they anticipate, the greater should be their perception of control over behavior (Ajzen 1985, 1988).

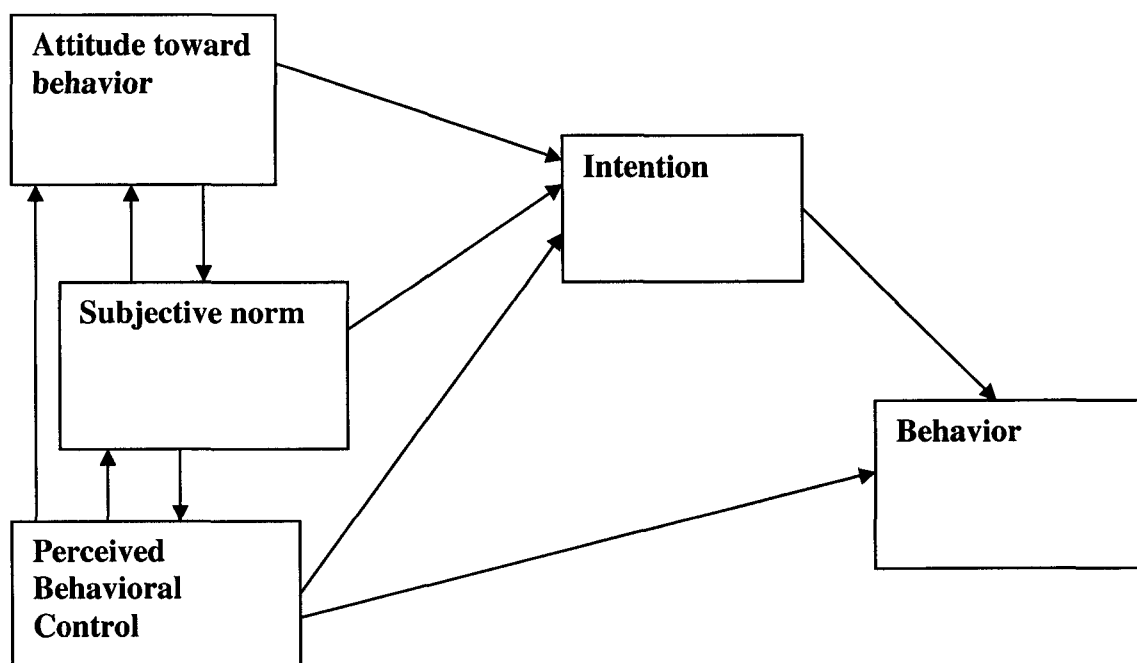


FIGURE 6. Theory of Planned Behavior, Ajzen (1985, 1988)

The extension of this general link between attitudes, intentions and behavior in relation to the environment, particularly in the development of measures to assess



environmental concern, is seen in the early works on the subject (e.g. Dunlap and Van Liere 1978, Gooch 1995, Hallin 1995, Stern, Dietz and Guagnano 1995, and Van Liere and Dunlap 1980). A special mention may be made here to specific contributions to the literature, viz. assessment of environmentally concerned beliefs and attitudes through the new environmental paradigm (Dunlap and Van Liere 1978), general awareness of consequences of environmental conditions (Stern, Dietz and Guagnano 1995), ethnographic approach (Hallin 1995), support for science and technology, and perception of local environmental conditions (Gooch 1995), and to the relationship of these with environmentally concerned beliefs and attitudes.

Environmental concern is a strong positive attitude towards preserving the environment (Crosby, Gill and Taylor 1981). Based on the pioneering research of Dunlap and Van Liere (1978), environmental concern is also defined as a global attitude with indirect effects on behaviors through behavioral intentions (Gill, Crosby and Taylor 1981). Environmental concern attitude is a general concept that can refer to people's feelings about many different green issues (Zimmer, Stafford and Stafford 1994). People's psychological responses towards the environment, as individuals and consumers, are also referred to as environmental concern attitude. Some writers have referred to "ecological concern", which refers to the degree of emotionality, the amount of specific factual knowledge, the level of willingness, as well as the extent of the outcomes of these (like behavioral intent, recycling behavior, and purchase intent) on pollution-environment issues (Maloney and Ward, 1973). Environmentally concerned beliefs and attitudes comprise the affective-cognitive component of the traditional consumer behavior model.

Literature has described how environmentally concerned beliefs and attitudes can be assessed at four levels, i.e., new environmental paradigm, general awareness of the consequences of environmental conditions, attitude toward science and technology, and perception of local environmental conditions. These have been described in the literature as follows:

1. There is a distinct shift of consumers' general or "primitive" beliefs and attitudes, on a continuum, away from the *dominant social paradigm* or DSP which views human beings seen as above and exempt from nature, to the new environmental paradigm or NEP which seeks to integrate humans with the environment (Dunlap and Van Liere 1978, Egri and Herman 2000 Gooch 1995, Hallin 1995, Minton and Rose 1997, Roberts 1996, Roberts and Bacon 1997; Stern, Dietz and Guagnano 1995).
2. Environmentally concerned beliefs and attitudes also include the possible negative consequences that environmental changes might have for people themselves, and for nonhuman species and the biosphere, and represent "directly experienced environmental degradation" (e.g. Bhuian 1997, Egri and Herman 2000; Ling-yee 1997, Stern, Dietz and Guagnano 1995).
3. A faith in the ability of science and technology in solving environmental problems is the antithesis of environmentally concerned beliefs and attitudes. Science and technology do not have the capability to address all the problems of environmental degradation (Bhuian 1997, Egri and Herman 2000, Gooch 1995, Luzar, Diagne, Gan and Hennig 1998).

4. Some consumers might not be conversant with the global aspects of environmental problems (e.g. the “earth as a spaceship with scarce resources”). However, it is more common for lay people to have a perception of local environmental problems, pertaining to the immediate living environment, such as pollution of the air, and water sources (Chan 1996, Gooch 1995, Ling-yee 1997, Minton and Rose 1997).

Ling-yee (1997) has defined environmentally concern beliefs and attitudes to include environmental knowledge, attitudes, perception of local environmental conditions, and “verbal commitment”, which reflects behavioral patterns of a general nature. However, for the purposes of this study, I will include under environmentally concerned beliefs and attitudes, only the beliefs, attitudes and perceptions as discussed in the foregoing section, and as defined by Minton and Rose (1997).

Empirical support exists in the literature for the association of environmentally concerned beliefs and attitudes with purchase behavior (Balderjahn 1988, Crosby, Gill and Taylor 1981, Chan 1996, Ling-yee 1997, Minton and Rose 1997, Roberts 1996), and with search for information (e.g. Ling-yee 1997, Minton and Rose 1997). Environmentally concerned beliefs and attitudes are also associated with conserving behavior (Crosby, Gill and Taylor 1981, Gooch 1995, Hallin 1995, Minton and Rose 1997) and supporting intent (Balderjahn 1988, Stern, Dietz and Guagnano 1995, Minton and Rose 1997).

However, it must be noted that, despite the several conceptual contributions in the area of environmentally concerned beliefs and attitudes, there is a paucity of empirical evidence in its support as an explanation of environmentally concerned

consumer behavior, and several studies show inconsistent results (e.g. Hallin 1995), or low explanatory potential (e.g. Balderjahn 1988, Crosby, Gill and Taylor 1981, Hallin 1995, McCarty and Shrum 1994, Maloney and Ward 1973, Roberts 1996). I will discuss some of the above studies in relation to their focus on environmentally concerned beliefs and attitudes.

Balderjahn (1988) conducted a survey among 791 adults in the Federal Republic of Germany in 1980, and considered the effect of four determinants (i.e. demographic characteristics, socio-economic characteristics, personality, and attitude) on five dimensions of consumption (i.e., energy conservation, home insulation, energy curtailment, type of products purchased, support for an environmental organization, and the use of automobiles). Results from a multiple indicator measurement (LISREL) model revealed that strength of the direct effects of attitude on energy conservation, and on home insulation, ranged from nil to poor. The strength of the direct effects of attitude on product purchase, and on auto use, was low. Only the effect of attitude on the “public” act of supporting an environmental organization was found to be high (Balderjahn 1988).

Crosby, Gill and Taylor (1981) conducted a random telephone survey among 306 voting age adults in Michigan, to study voter behavior on the issue of the Michigan Container Law in 1976. These researchers modeled ecological behavior and related consumption patterns as the outcome of three determinants, i.e. social, political and economic attitudes. Based on the multivariate regression results (beta coefficient = .14, F-value = 6.61,  $p = .001$ , adjusted  $R^2 = .4$ ), these researchers concluded that ecological concern is by itself not strong enough to induce ecological behavior.

In a study on conserving behavior based on recycling, among 134 undergraduate students (McCarty and Shrum 1994), LISREL results evidenced, that regardless of how important individuals believed recycling to be, the perception of inconvenience of recycling had a greater influence on their behavior (causal model results: Chi squared= 182.29, df= 172, p= .281, GFI= .869;  $R^2$  for importance of recycling= .523, endogenous coefficient beta= .026, t=-.222).

In the context of new streams of research, a demerit of positivist approaches such as those described above, is that both researcher and respondent are bound by the confines of conventional idiom, limited interaction, and restriction of scope for the emergence of new concepts. In an attempt to better explain the role of the environmentally concerned beliefs and attitudes in environmentally concerned consumer behavior, Hallin (1995) adopted a phenomenological approach, and conducted an ethnographic study among 250 individuals belonging to 20 household, of which 10 displayed a high level of environmentally concerned consumer behavior, and the other 10, low on this measure. The setting was Foley, a small town in Minnesota, which had in place some group measures for the recycling of household waste.

Hallin's (1995) findings revealed that environmentally concerned beliefs and attitudes were responsible for only a small proportion of conserving behavior, among individuals who were role models, or who gradually adopted conserving behavior. For a large part, conservation behavior was traced to moral/ethical aspects of such behavior, belonging to the depression generation (despite a stand against the new environmental paradigm), having parents from the depression generation (who

encouraged thrift and economy), and belonging to the Vietnam generation (i.e., having a new value system). Non-conservers cited such reasons as lack of time, lack of monetary reward, and inconvenience associated with conserving behavior (Hallin 1995).

With the objective of segmenting environmentally concerned consumers in the U.S., Roberts (1996) conducted a study on a random sample of 582 adults from six test-marketing regions. In the results from a hierarchical multiple regression analysis of the model, which included attitudinal and demographic variables,  $R^2$  was observed to be 45 per cent ( $F= 52.52, p \leq .0001, df= 8.519$ ). Environmental concern was found to explain only five per cent of the variation in environmentally concerned consumer behavior.

Ling-yee (1997) conducted a random mail survey of 196 adults in Hong Kong, in the context of health food consumption. Results indicate that environmentally concerned attitude, along with collectivist orientation, accounted for 17 per cent of the variance in green consumption, and 14 per cent of the variance in information search.

In an exploratory study, based on a mail survey of a convenience sample of 144 non-faculty university staff (also primary shoppers in the household), Minton and Rose (1997) observed the direct effects of three determinants (environmentally concerned beliefs and attitudes, injunctive norm, and personal norm), on four dimensions of environmentally concerned consumer behavior (purchase behavior, search for information, conserving behavior, and supporting intent). Whereas MANOVA results did not indicate any interaction effects, the direct effects of all the three determinants, on all the four behavioral dimensions were supported by ANOVA

results, with environmental concern having the smallest F ratio ( $F = 3.92$ ), against injunctive norm ( $F = 4.45$ ) and personal norm ( $F = 8.00$ ).

I have discussed the conceptualization of environmentally concerned beliefs and attitudes, and the theoretical foundations of the linkage between environmentally concerned beliefs and attitudes, intentions and environmentally concerned consumer (Ajzen 1985, 1988; Ajzen and Fishbein 1980, Fishbein and Ajzen 1975). Further, in the light of empirical evidence, I have discussed that environmentally concerned beliefs and attitudes are found to be associated with purchase behavior (Balderjahn 1988, Crosby, Gill and Taylor 1981, Ling-ye 1997, Minton and Rose 1997, Roberts 1996), search for information (e.g. Ling-ye 1997, Minton and Rose 1997). Environmentally concerned beliefs and attitudes are also associated with conserving behavior (Crosby, Gill and Taylor 1981, Gooch 1995, Hallin 1995, Minton and Rose 1997) and supporting intent (Balderjahn 1988, Stern, Dietz and Guagnano 1995, Minton and Rose 1997).

Based on the preceding, I test the following hypotheses:

H1a: Environmentally concerned beliefs and attitudes will be significantly and positively related to purchase behavior.

H1b: Environmentally concerned beliefs and attitudes will be significantly and positively related to search for information.

H1c: Environmentally concerned beliefs and attitudes will be significantly and positively related to conserving behavior.

H1d: Environmentally concerned beliefs and attitudes will be significantly and positively related to supporting intent.

## Personal Norm and Its Main Effects

It is found pertinent to introduce this section with a discussion on the class of norms, which is traditionally regarded as useful to predict and explain behavior. For instance, one of the earliest researchers in this area is Sherif (1936), who defined a social norm as a standard, or a scale, consisting of categories that define a range of acceptable attitude and behavior, and a range of objectionable attitude and behavior, for members of a social unit, in matters of consequence to that unit. Social norms are concerned with those regularities in social life that embody evaluation of objects, persons, actions, and ideas. There are rules defining what is done, and what should be done: what is expected, good, desired, and even ideal, as well as what is bad or forbidden (Sherif and Sherif 1969: 184). Conformity and deviation are evaluated in relation to social norms, and attract sanctions (for undesirable behaviors), and rewards (for desirable behaviors). As a result, the effect of the definition of acceptable behavior is observable in individuals, in the expression of guilt or shame, or in discussions and directives toward improving the level of conduct (Sherif and Sherif 1969).

Staub (1972) suggested that the frequent conformity to social expectations we observe around us, shows that norms are powerful determinants of pro-social behavior. One reason for this, forwarded by Staub (1972), is people's sensitivity to, and concern about, other's reactions to them. Another reason may be that people strive towards a definition of reality, and much of reality, according to Festinger (1950), is socially defined. However, in a subsequent work, the same researcher suggested that orientations, rather than norms, offer a better understanding of positive



pro-social behavior (Staub 1978). Another researcher expressed concern over the use of norms in the study of behavior: "... the postulation of social norms can also end in tautology. A particular response can be explained on the basis of a norm. If it occurs, the norm is said to have an effect. If it does not occur, the situation is said to fall outside the range of the norm." (Krebs 1970: 294). Thus we observe that some researchers find little merit in the study of norms as determinants of behavior.

In response to this controversy, Schwartz (1977) suggests that "... the feeling of moral (personal) obligation ... is the motivational construct that energizes altruistic behavior..." Individuals respond to their own self-expectations, their personal norms. What distinguishes personal norms from social norms is that sanctions attached to personal norms are tied to the self-concept. Anticipation of or actual conformity to a self-expectation results in pride, enhanced self-esteem, security, or other favorable self-evaluations; violation or its anticipation produces guilt, self-deprecation, loss of self-esteem, or other negative evaluation. Internalized norms are standards for behavior which are self-reinforcing," (Schwartz 1977: 231). Further, Schwartz's process of "norm-activation", describes altruistic behavior to be the result of a series of steps: (1.) Activation, or perception on need and responsibility, (2.) Obligation, or norm construction and feelings of moral obligation, (3.) Defense steps: assessment, evaluation, and reassessment of potential responses, and (4.) Response.

As discussed earlier, support for norms is also seen in the theory of reasoned action (Ajzen and Fishbein 1980, Fishbein and Ajzen 1975) and the theory of planned behavior (Ajzen 1985, 1988), which explained the effect of social norms on behavior, through their impact on the intention to perform the behavior. I examine below, some

empirical studies that have considered the influence of social norms in the context of environmentally concerned consumer behavior.

As discussed earlier, personal norm refers to what “I feel morally obligated to do”, and motivates behavior by the desire to act in ways that are consistent with one’s values (Minton and Rose 1997). The personal norm represents an internalization of the injunctive norm. In this study, I will adhere to Minton and Rose’s (1997) definition of personal norms.

Some researchers studied the direct linkages of personal norm with all the four dimensions of environmentally concerned consumer behavior, viz. purchase behavior, search for information, conserving behavior, and supporting intent (Minton and Rose 1997). Empirical evidence showed that personal norm is positively and significantly associated with all four dimensions of environmentally concerned consumer behavior. As mentioned above, ANOVA results indicated the highest F ratio for personal norm at 8.0, compared to injunctive norm ( $F=4.45$ ) and environmental concern ( $F=3.82$ ) (Minton and Rose 1997).

Based on the theoretical and empirical support discussed above, I propose the following hypotheses:

H2a: Personal norm will be significantly and positively related to purchase behavior.

H2b: Personal norm will be significantly and positively related to search for information.

H2c: Personal norm will be significantly and positively related to conserving behavior.

H2d: Personal norm will be significantly and positively related to supporting intent.

### Injunctive Norm and Its Main Effects

The injunctive norm is also considered to be an attitude, and is similar to the subjective norm of the theory of reasoned action (Ajzen and Fishbein, 1980, Fishbein and Ajzen 1975). It refers to what “others think I should do” and motivates behavior by imposing social sanctions (Schwartz 1977); this definition was also used in a recent study by Minton and Rose (1997), and this is the definition I will use in the present study.

Cialdini, Reno and Kallgren (1990) distinguished between the interpretation of the social norms to mean “what is” versus “what ought to be”. These researchers conducted a series of five experiments to study the littering behavior in public places like a university-affiliated hospital, the parking lot of a university-affiliated hospital, an amusement park, in a parking garage, and outside a men’s dormitory at a university. The number of persons observed at each setting ranged from 127 to 484. Also, a paper and pencil test was given to two groups of undergraduate students at a university. The pattern of results showed that:

1. Under conditions of high (descriptive) norm salience, subjects littered more in a littered environment, but less in a clean one, though neither effect was significant. Also, the least littering occurred among those who had seen a confederate litter in a clean area.
2. Subjects were least prone to litter into an environment when it contained a single, salient piece of litter, than when it was completely clean of litter.

3. Littering behavior reduced when a clear injunctive cue was given (swept litter).

The injunctive norm approach was also applied by Minton and Rose (1997), in a mail survey among 144 non-faculty staff members at a Southern university, who were also primary shoppers in the household. Results showed that the injunctive norm was positively and significantly associated with all four dimensions of environmentally concerned consumer behavior, viz. purchase behavior, search for information, conserving behavior, and supporting intent. ANOVA results indicated a fair F ratio for injunctive norm ( $F= 4.45$ ), compared with personal norm ( $F$  ratio = 8.0), and environmental concern ( $F= 3.82$ ).

Based on the theoretical and empirical support discussed above, I propose the following hypotheses:

H3a: Injunctive norm will be significantly and positively related to purchase behavior.

H3b: Injunctive norm will be significantly and positively related to search for information.

H3c: Injunctive norm will be significantly and positively related to conserving behavior.

H3d: Injunctive norm will be significantly and positively related to supporting intent.

## Collectivist Orientation and Its Main Effects

Collectivist orientation is a socio-cultural value, described in terms of cooperation, helpfulness, and consideration for group goals under Hofstede's (1980) typology; a typology being a unique form of theory building (Doty and Glick 1994). Ling-yee (1997) extended collectivist orientation to reflect group orientation, unity-with-nature, and harmony-with-others orientation. This definition includes, and extends, Hofstede's (1980) conceptualization of collectivist orientation, and I will adhere to in the current research.

Collectivist societies are those in which the interest of the group prevails over the interest of the individual (Hofstede 1997: 50). Individualism pertains to societies in which the ties between individuals are loose; everyone is expected to look after himself or herself, and his or her immediate family. Collectivism as its opposite pertains to societies in which people from birth onwards are integrated into strong, cohesive ingroups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty (Hofstede 1997: 51).

In a collectivist society, there is intense social contact, hence maintaining harmony is of paramount importance in all facets of life. It is rude and undesirable to be confrontational. In exchange for loyalty, there is a sharing of resources. The family becomes the responsibility of those who earn. Thus, a family may invest in the higher education of one member, in the hope of sharing his future income. Sometimes, family-like ties exist with individuals who are not biological relatives, but are accorded in-group status. Collectivist societies are described as "shame" cultures, and the fact of an infringement becoming public, causes more shame than the

infringement itself. A corollary to this is the concept of “losing face” or the failure to meet socially imposed requirements, and “giving someone face” or according honor or prestige (Hofstede 1997).

Further, collectivist orientation is observable beyond the confines of the family. It extends to the school, workplace, state, and ideas. In contrast with individualist cultures, identity is based on the social network, communication is high-context, the purpose of education is to learn how to do, and diplomas are passports to social improvement. Work relationships are akin to family ties, employment decisions take the in-group into account, and the group and relationships are accorded high priority (Hofstede 1997).

Additionally, the individual societal norm is permeated by a collective consciousness, value standards differ with group affiliation, and identity is based on the social system. Group membership is the ideal, the objective is to survive as a society, not to give in to individual desires; activities are imposed by context, and society follows traditional ways. Expertise, order, duty, and security are provided by the clan, or the organization (Hofstede 2001). In terms of consumer behavior, people in collectivist societies live with human companions in apartments or flats, and rely on the social network for security. They have other-dependent lifestyles, and rely on the social network as the prime source of information (Hofstede 2001).

Hofstede’s (1980) typology was applied in the environmental context by some researchers (e.g. Ling-yee 1997, McCarty and Shrum, 1994). In a survey on the recycling of solid wastes in the U.S., using a convenience sample of 134 undergraduate students responding in completion of course requirements, McCarthy

and Shrum (1994) observed attitudes to recycling (viz. inconvenience of recycling, and importance of recycling). The context of the study was four determinants (viz. collectivism, ego, fun and enjoyment, and security), and three outcomes (viz. recycling of newspapers, of cans, and of bottles). Structural modeling with LISREL revealed a significant direct effect of collectivism on inconvenience of recycling, and through it, on recycling behaviors (measurement model results: standardized factor loading= .833 significant at  $p \leq .01$ ,  $R^2 = .694$ ; causal model results: Chi squared= 182.29,  $df = 172$ ,  $p = .281$ ,  $GFI = .869$ ; exogenous standardized path coefficient for collectivism= -.268,  $t = -2.113$  significant at  $p \leq .05$ ; endogenous coefficient= -.784,  $t = 3.224$ ,  $p \leq .01$ ).

As discussed earlier, in a study in Hong Kong by Ling-ye (1997), collectivist orientation was found to be an important antecedent of purchase behavior and search for information. Collectivist orientation, along with environmental concern, accounted for 17 per cent of the variance in green consumption, and 14 per cent of the variance in search for information. Ling-ye (1997) evidenced that in the context of Hong Kong, green consumption is associated with the externally oriented value of collectivist orientation, and achieving harmony with nature.

It may be noted that literature has ignored the main effect of collectivist orientation on supporting intent. This is one of the gaps that I attempt to address in this study. According to extant literature, environmentally concerned consumer behavior stems from a sense of social responsibility (e.g. Antil 1984, Hallin 1995, Heberlein 1981, 1989), is cause-related (Ross, Patterson and Stutts, 1992), and driven by social-altruistic values (Stern, Dietz and Guagnano 1995). Collectivist orientation

is described in terms of cooperation, helpfulness, and consideration for group goals (Hofstede 1980, Ling-yee 1997).

An orientation of unity-with-nature, and harmony-with-others (Ling-yee 1997) might find expression in supporting intent, which reflects the willingness to commit personal resources for environmental preservation. In the light of Hofstede's (1980) typology, the following observations are in order:

1. Collectivism can be interpreted to mean the prevalence of group interests (preservation of group resources) over personal interests (spending of personal resources).
2. Supporting intent would reflect loyalty to the group.
3. Further, collectivist societies are described as "shame" cultures, and it might be considered a "shame" not to make contributions for the preservation of group resources (the environment).
4. Not contributing to group resources might result in the individual's "losing face", or failing to meet socially imposed requirements.
5. Similarly, supporting intent might be considered as a token to show the importance of group relationships.
6. Additionally, in collectivism, the individual societal norm is permeated by a collective consciousness, value standards differ with group affiliation, and identity is based on the social system.

Group membership is the ideal; the objective is to survive as a society, not to give in to individual desires. As described by Hofstede (1980), a collectivist orientation would tend to create a strong intention in favor of such actions as writing



letters to preserve the environment, boycotting firms that pollute, and contributing to an environmental organization, and paying extra taxes for scarce resources.

Based on theoretical and empirical support in the literature, for the direct linkage between collectivist orientation and environmentally concerned consumer behavior, I propose the following hypotheses:

H4a: Collectivist orientation will be significantly and positively related to purchase behavior.

H4b: Collectivist orientation will be significantly and positively related to search for information.

H4c: Collectivist orientation will be significantly and positively related to conserving behavior.

H4d: Collectivist orientation will be significantly and positively related to supporting intent.

It may also be mentioned in this context, that the three levels of socially anchored determinants (personal norm, injunctive norm, and collectivist orientation) would be expected to have differential direct effects on the four dimensions of environmentally concerned consumer behavior (purchase behavior, search for information, conserving behavior, and supporting intent) (Minton and Rose 1997).

### Perceived Consumer Effectiveness and Its Main Effects

Perceived consumer effectiveness is defined as a measure of the subject's judgment in the ability of individual consumers to affect environmental resource problems (Antil 1978), and is similar to the concept of internal locus of control (Rotter 1954, 1966). The environmentally conscious consumer is convinced that he can

actually change the status quo of continued environmental deterioration (Henion 1976). Socially conscious consumers are convinced that they can do something about pollution (Webster 1975). In this study, I use Antil's (1978) definition of perceived consumer effectiveness.

The concept of internal-external locus of control is rooted in social learning theory (Rotter 1954, 1966). "... the stimulus for studying such a variable has come from analysis of patients in psychotherapy, and from an attempt to explain certain discrepancies in learning studies of performance and extinction" (Rotter et al 1962: 474).

A distinction is made between internal versus external control of reinforcement. Individuals with an external locus of control comprehend reinforcements resulting from behavior as a direct result of luck, chance, or fate. On the other hand, individuals with a faith in internal control understand the same reinforcements to be the linked with their own ability or actions (Rotter 1966). The earlier interpretation of locus of control related to learning processes was that the probability of behavioral change, following positive or negative behavioral reinforcement, is higher for individuals with a belief in internal control, as compared with individuals with a belief in external locus of control. Behavioral change is contingent upon the value of the reinforcement. For instance, individuals with an internal locus of control attach greater relevance to perceived reinforcements of value, since they believe that they have control over reinforcements; accordingly, they change their behavior. However, individuals with an external locus of control believe that all outcomes depend on luck, chance, powerful others, or destiny; consequently,

they are less likely to change their behavior, for in their perception, a change in behavior would have no effect on their reinforcements (Rotter 1966).

Locus of control helped explain the linkage between certain cognitions and behavioral change; however, it is incorrect to assume that qualities of individuals with internal locus of control are all positive, and vice versa (Rotter 1975). The concept of locus of control was the key to the transition in research from trait-based to behavior-based research. In current literature, the heightened attention to locus of control lies in its utility in comprehending the way social problems are conceptualized in Western culture, and the resulting sense of powerlessness. This utility accounts for the proliferation of locus of control in several fields, including mental health (Rotter 1990).

A related concept is Anderson, Henion and Cox's (1974) "intensity hypothesis," which these researchers had theorized and empirically tested. These researchers made a distinction between the "traditional" socially concerned consumer, and the environmentally concerned consumer. They hypothesized that the environmentally concerned consumer would possess certain demographic characteristics, and more so, psychological characteristics to a significantly greater degree than the (traditional) socially concerned consumer. This expectation, which was referred to as the "intensity" hypothesis was conceptually justified on the basis that the environmentally concerned consumer would be much more vehement about his desire to right the environmentally related wrongs of society (Henion 1976: 34). Support was found for the intensity hypothesis on basis of the exceptions with respect to two of the psychographic characteristics, alienation and personal competency, that

were especially revealing. Contrary to expectations, the environmentally concerned consumer was shown to be more alienated, and more competent, than the (traditional) socially conscious consumer.

The term “perceived consumer effectiveness” was first described by Kinnear et al (1974), as the conviction of the environmentally concerned consumer, that he can actually change the status quo of continued environmental deterioration. Kinnear et al (1974) conducted a mail survey among 500 members of Canadian Family Opinion, University of Western Ontario Consumer Panel. These researchers treated environmental concern as the dependent variable (comprising attitude and purchase behavior), and observed the direct effects on these, of ten predictors (comprising socio-economic and personality variables, one of them being perceived consumer effectiveness). Results from multiple cluster analysis, a dummy variable regression procedure evidenced that, consumers show more concern for the environment when they perceive that individuals can be effective in stemming pollution. Perceived consumer effectiveness was found to be the best among 10 predictors of ecological concern, with an MCA regression coefficient ranging from -2.49 for “low perceived consumer effectiveness” to 2.54 for “high perceived consumer effectiveness”, with model mean= 11.31, and  $R^2 = .28$  (Kinnear et al 1974).

On the basis of a mail survey of 432 customers of a refuse collection agency in New England, Webster (1975) describes environmentally concerned consumers as more accepting of the views of others (high tolerance scores), and willing to exercise initiative (dominance) based on a conviction that their own actions can make a difference (perceived consumer effectiveness).

Based on the above findings, Henion and Wilson (1976) examined whether the environmentally concerned consumer could be described in terms of locus of control. The results of the study lend support to the locus of control hypothesis. A correlation was undertaken, between the locus of control scale, and two separate measures of environmental concern viz. Maloney and Ward's (1973) ecology scale, and Taylor and Kinnear's index of ecological concern. As expected, the scale and the index varied directly with internal-type, and inversely with two external-type measures of locus of control, viz. "chance" and "powerful others". So did the important attitude of perceived consumer effectiveness (Henion and Wilson 1976).

The construct perceived consumer effectiveness also find support in the theory of planned behavior, which provides a conceptual framework to address the problem of incomplete volitional control (Ajzen 1985, 1988). An extension of the theory of reasoned action, it accounts for the factor of volitional behavioral control. This factor refers to the perceived ease or difficulty of performing the behavior, and reflects past experience as well as expected impediments. The antecedents of perceptions of behavioral control are control beliefs of the person. These control beliefs may be based on past experience with the behavior, but may also be influenced by second-hand information about the behavior, and by observing the experiences of their acquaintances and friends. The more resources and opportunities individuals think they possess, and the fewer impediments they anticipate, the greater should be their perception of control over behavior (Ajzen 1985, 1988). This reflects the locus of control construct (Rotter 1954, Rotter et al 1962, Rotter 1966, 1975, 1990); however, in Ajzen's (1985, 1988) conceptualization, the perception of control rests on

information, which the individual accumulates either at first hand, or through personal or other sources.

The above results were further supported by subsequent empirical findings. For instance, Balderjahn (1988) conducted a survey among 791 adults in the Federal Republic of Germany in 1980, and evaluated the direct effects of four determinants (i.e. demographic characteristics, socio-economic characteristics, personality, and attitude) on five dimensions of consumption (i.e., energy conservation, home insulation, energy curtailment, type of products purchased, support for an environmental organization, and the use of automobiles). Results from a multiple indicator measurement (LISREL) model revealed that LISREL results reveal that, on the basis of path coefficients, that the attitude of perceived consumer effectiveness is an important determinant of environmentally concerned consumer behavior. Perceived consumer effectiveness has significant direct linkages with two dimensions of consumption, i.e., energy saving (path coefficient .24) and purchase of non-polluting products (path coefficient .25). The model had a goodness of fit index of .866 (Balderjahn 1988).

The most striking results in support of perceived consumer effectiveness were obtained in a study by Roberts (1996). With the objective of segmenting environmentally concerned consumers in the U.S., a study was conducted on a random sample of 582 adults from six test-marketing regions. The dependent variable, environmentally concerned consumer behavior, was regressed on five demographic variables, viz. environmental concern, perceived consumer effectiveness, and liberalism. In a hierarchical model of multiple regression, it was observed that

demographic variables explained only six per cent of the variance ( $R^2 = .06$ ,  $F= 7.29$ ,  $p \leq .0001$ ,  $df= 5.531$ ). However, in the full model, which included attitudinal and demographic variables,  $R^2$  increased to 45 per cent ( $F= 52.52$ ,  $p \leq .0001$ ,  $df= 8.519$ ). Perceived consumer effectiveness accounted for 33 per cent of the variation in behavior, compared to only five per cent for environmental concern, and two per cent for liberalism.

As noted earlier, literature has not probed the potential direct linkage between perceived consumer effectiveness and search for information. I will proceed to specify this direct linkage, which I will also empirically examine.

Some empirical studies evidence that consumers' difficulty in locating environmentally directed products is rooted partly in lack of information (e.g. Brown and Wahlers 1998). These researchers further state that environmentally concerned consumers, on the contrary, feel serious about the environment, are aware and informed, and take responsibility for preserving the environment. Environmentally concerned consumers are characterized by strong perceived consumer effectiveness, the conviction that they can actually change the status quo of continued environmental deterioration (Anderson, Henion and Cox 1974, Balderjahn 1988, Henion 1976, Henion and Wilson 1976, Kinnear et al 1974, Roberts 1996, Webster 1975). The above appear to suggest that perceived consumer effectiveness would be related to search for information, through comparing package labels at the grocery store, noticing and paying attention to advertisements, and talking with friends, neighbors and family members about environmentally friendly products. A strong perception of consumer effectiveness would be associated with a high level of information search.

On the basis of the preceding theoretical and empirical support, I posit that:

H5a: Perceived consumer effectiveness will be significantly and positively related to purchase behavior.

H5b: Perceived consumer effectiveness will be significantly and positively related to search for information.

H5c: Perceived consumer effectiveness will be significantly and positively related to conserving behavior.

H5d: Perceived consumer effectiveness will be significantly and positively related to supporting intent.

### Role of Moderators

The foregoing discussion examines the main effects of some psychological and socio-cultural determinants on environmentally concerned consumer behavior. In regard to personal norm and injunctive norm, the direct linkages with environmentally concerned consumer behavior are seen from empirical evidence, to be strong, and consistent with the conceptualization in the literature (e.g. Cialdini, Reno and Kallgren 1990, Minton and Rose 1997). The same is observed in regard to collectivist orientation (Ling-yee 1997, McCarty and Shrum 1994, Stern, Dietz and Guagnano 1995), and perceived consumer effectiveness (Anderson, Henion and Cox 1974, Balderjahn 1988, Henion 1976, Henion and Wilson 1976, Kinnear et al 1974, Roberts 1996, Webster 1975).

In regard to the main effects of environmentally concerned beliefs and attitudes on environmentally concerned consumer behavior, it may be noted that there are several conceptual contributions in the literature. However, there is a paucity of



empirical evidence supporting a strong direct linkage of environmental beliefs and attitudes, and environmentally concerned consumer behavior. As has been discussed earlier, several studies show results inconsistent with the conceptualization in the literature (e.g. Hallin 1995), or low explanatory potential (e.g. Balderjahn 1988, Crosby, Gill and Taylor 1981, Hallin 1995, McCarty and Shrum 1994, Maloney and Ward 1973, Minton and Rose 1997, Roberts 1996).

This indicates the presence of underlying variables, the effects of which mask the direct linkages, and which, if uncovered, might shed further light on environmentally concerned consumer behavior. In addition to examining the moderating effects of involvement on this relationship, which has been studied in the literature, it might be fruitful to seek moderators which have so far not been explored in the literature. In view of the socio-cultural and psychological nature of the determinants, and the social-altruistic and ego domain of the dimensions of environmentally concerned consumer behavior, it would be reasonable to seek moderators of this nature related to the field of information theory or communication theory.

### Involvement

Researchers of consumer behavior have developed several theories to explain and predict the behavior of consumers (e.g. Bettman 1979, Howard and Sheth 1969). These theories posit that consumers actively search for and use information in the decision-making process. The implication is that the consumer is a rational being, who makes reasonable choices based on the evaluation of informational inputs. Consumers, however, make several decisions each day, sometimes for large

purchases, without undertaking extensive information search, or going through elaborate information evaluation. From this observation, the concept of high-involvement consumer behavior and low-involvement consumer behavior has evolved (Zaichkowsky 1985). Thus, involvement refers to “A person’s perceived relevance of the object based on their inherent needs, values and interests” (Zaichkowsky 1985: 342). In this conceptualization, involvement may be with advertisements, with products, or with purchase decisions. Compared to low involvement consumers, high involvement consumers are observed to show a higher interest in information search, a greater perceived brand difference, and a stronger brand preference (Zaichkowsky 1985).

The term involvement was first used by Sherif and Hovland (1953), in their social judgment approach to evaluating attitudes. Involvement is defined as concern with an issue (Festinger 1957). It is also defined as concern about, interest in, or commitment to a particular position on an issue (Freedman 1964). “The degree of involvement” is another label for the importance of a variable (Howard and Sheth 1969). A subject is said to be involved when the social object is in the subject’s ego domain (Sherif and Cantril 1947), and this is the definition I will adhere to for the purposes of this study.

As mentioned earlier, the origin of the term involvement lies in Sherif and Hovland’s (1953) work, which considered a situation in which subjects expressed themselves on an issue on which they have a strong personal involvement, in an extreme position. These researchers hypothesized that, if required to establish their own scales, such subjects would construct a scale with a smaller number of categories,

in comparison with other subjects not so strongly involved with the issue. Furthermore, these researchers suggested that subjects with a strong personal involvement with the issue would tend to have a higher threshold of acceptance, and a lower threshold of rejection.

More recently, based on a meta-analysis on sources selected from 30 journals, books and conference proceedings, Broderick and Mueller (1999) defined involvement as “the extent to which an individual is characterized by an incremental cognitive process, which connects the individual to a product. The individual may progress through a number of mental states; the relevance of a product to the individual’s wants, needs and emotions; a general interest within the product category, over time; specific interest between products at a point in time; and finally the assessment of importance/ probability of product risk. It is hypothesized that these states are linked sequentially. Moreover, each state may influence a behavioral response in isolation.” (Broderick and Mueller 1999: 104).

Since I am developing a model of environmentally concerned consumer behavior, it would be essential to examine the moderating effects of involvement on a broad range of environmentally concerned consumer behaviors, defined by the four dimensions under consideration (viz. purchase behavior, search for information, conserving behavior, and supporting intent). To that end, it would be more suitable to interpret involvement in its broadest sense, to a general situation wherein the social object (a product, issue, action, or intent) is in the subject’s ego domain (Sherif and Cantril 1947). This definition aptly captures the social-altruistic and egoistic dimensions of involvement.

Several authors have investigated the involvement variable as a mediator. For instance, Bei and Widdows (1999) used involvement as a mediator of the effects of information on price-based purchase decisions. Similarly, Chaudhuri (2000), in an investigation of the risk, considered involvement as a determinant of information search. However, in a study of environmentally concerned consumer behavior, Ling-yee (1997) evidenced the involvement construct to have a moderating effect on the relationship between the determinants environmentally concerned beliefs and attitudes, and collectivist orientation, and environmentally concerned consumer behavior.

### Moderating Role of Involvement

As discussed earlier, Ling-yee (1997) observed, in a study conducted among 196 adults in Hong Kong, that collectivist orientation and environmentally concerned beliefs and attitudes together explained only 17 per cent of the variance in green consumption, and 14 per cent of the variance in information search. However, when purchase behavior was the dependent variable, and environmental concern and collectivist orientation were the independent variables, the difference in the regression coefficients across the two sub-groups reflecting high and low involvement was found to be statistically significant ( $F=9.07$ ,  $p \leq .01$ ). With regard to purchase behavior, the regression coefficient for environmentally concerned beliefs and attitudes was .34 in the high involvement group, and .26 in the low involvement group. Similarly, with regard to purchase behavior, the regression coefficient for collectivist orientation was .40 in the high involvement group, and not significant in the low involvement group (Ling-yee 1997).

Additionally, involvement was shown to moderate the impact of collectivism and environmentally concerned beliefs and attitudes on search for information ( $F=6.20, p \leq .01$ ). When search for information was the dependent variable, the coefficient for environmentally concerned beliefs and attitudes was .30 for the high involvement group, and not significant for the low involvement group. Similarly, with regard to search for information, the coefficient for collectivist orientation was .31 for the high involvement group, and not significant for the low involvement group.

On the basis of extant literature, I posit the following hypotheses:

H 6a: The strength of the direct linkage between environmentally concerned beliefs and attitudes, and purchase behavior, will be higher for consumers with high involvement, and lower for consumers with low involvement.

H6b: The strength of the direct linkage between environmentally concerned beliefs and attitudes, and search for information, will be higher for consumers with high involvement, and lower for consumers with low involvement.

Furthermore, literature is silent on the potential moderating effect of involvement on the direct linkage between environmental beliefs and attitudes, and conserving behavior. I specify and examine this moderating effect. Environmentally concerned beliefs and attitudes include, for instance, a belief in the new environmental paradigm (Dunlap and Van Liere 1978), general awareness of consequence of environmental degradation (Stern, Dietz and Guagnano 1995), perception of local environmental problems (Gooch 1995), and low faith in the ability of science and technology to solve environmental problems (Gooch 1995).

Interaction between environmentally concerned beliefs and attitudes, and a high level of involvement, would result in:

1. A higher salience of the beliefs about conserving behavior, and
2. A greater expectancy of the benefits arising from recycling, walking or bicycling to save gas, or contributing to an environmental organization.

These would be expected to create a more favorable attitude toward conserving behavior, which might result in a stronger intention to perform conserving behavior. This intention would lead to an actual performance of conserving behavior. The opposite would be true in the case of low involvement (Ajzen and Fishbein 1980, Fishbein and Ajzen 1975).

On the above basis, I propose the hypothesis that:

H 6c: The strength of the direct linkage between environmentally concerned beliefs and attitudes, and conserving behavior, will be higher for consumers with high involvement, and lower for consumers with low involvement.

Also, literature has not examined the potential moderating effect of involvement on the direct linkage between environmental beliefs and attitudes, and supporting intent. I attempt to specify and examine this moderating effect. Interaction between environmentally concerned beliefs and attitudes, and a high level of involvement, would result in:

1. A higher salience of the beliefs about supporting behavior, and
2. A higher expectancy of the benefits arising from supporting behavior.

These would create a more favorable attitude toward supporting behavior, which could result in a stronger supporting intent. The opposite would be true in the case of low involvement (Ajzen and Fishbein 1980, Fishbein and Ajzen 1975).

On the above basis, I propose the hypothesis that:

H 6d: The strength of the direct linkage between environmentally concerned beliefs and attitudes, and supporting intent, will be higher for consumers with high involvement, and lower for consumers with low involvement.

Additionally, in relation to collectivist orientation, on the basis of theoretical and empirical evidence in extant literature (e.g. Ling-yee 1997), I propose the following hypotheses:

H 7a: The strength of the direct linkage between collectivist orientation and purchase behavior will be higher for consumers with high involvement, and lower for consumers with low involvement.

H7b: The strength of the direct linkage between collectivist orientation and search for information will be higher for consumers with high involvement, and lower for consumers with low involvement.

Furthermore, literature ignores the potential moderating effect of involvement on the direct linkage between collectivist orientation and conserving behavior. I specify and examine this effect. According to Hofstede's (1980) typology, a collectivist orientation reflects the prevalence of group over individual interests. A collectivist orientation is characterized by strong, cohesive ingroups, unquestioning loyalty to the group, and harmonious group relationships. A collectivist orientation emerges from a "shame" culture, which discourages "losing face". Identity is based

on the social network, the individual societal norm is permeated by a collective consciousness, group membership is the ideal, the objective is to survive as a society rather than to strive for individual desires, and society follows traditional ways. When a consumer's collectivist orientation interacts with a high level of involvement, there would be there would be a greater expectancy of group benefits of conserving behavior (like recycling, bicycling to save gas, or contributing to a social organization), and consequent social approval. There would also be more intense fear of harming group interests by not conserving, and the consequent social censure. These would combine to strengthen conserving behavior. The opposite would be true in the case of low involvement.

On the above basis, I propose the hypothesis that:

H 7c: The strength of the direct linkage between collectivist orientation and conserving behavior will be higher for consumers with high involvement, and lower for consumers with low involvement.

Also, literature is silent on the potential interactional effect of involvement on the direct linkage between collectivist orientation and supporting intent. I specify and examine this interactional effect. Ling-yee (1997) extended collectivist orientation to reflect group orientation, unity-with-nature, and harmony-with-others orientation. According to Hofstede's (1980) typology, collectivist societies are those in which the interest of the group prevails over the interest of the individual. A collectivist orientation presupposes strong, cohesive ingroups, which demand member loyalty; socially active persons might be accorded ingroup status. Arising out of "shame"



cultures, which impose social sanctions, a collectivist orientation denounces “losing face” or the failure to meet socially imposed requirements, and honors the compliant.

Further, collectivist orientation connotes a high priority for group relationships, the individual societal norm is permeated by a collective consciousness, and identity is based on the social system. Group membership is the ideal, the objective is to survive as a society, rather than to follow personal desires; and society follows traditional ways. The lifestyle is other-dependent, and there is a reliance on the social network for security. When such an orientation is combined with a high level of involvement, we might observe in the consumer a greater expectancy of group benefits of actions like writing letters to help preserve the environment, paying extra taxes to conserve scarce resources, and boycotting a firm that pollutes. Also, there would be a heightened anticipation of social esteem from such supporting behavior, and a heightened fear of social censure in the opposite case. The result might be to create a stronger supporting intent.

On the above basis, I propose the hypothesis that:

H 7d: The strength of the direct linkage between collectivist orientation and supporting intent will be higher for consumers with high involvement, and lower for consumers with low involvement.

### Market Mavenship

Empirical evidence shows that consumers’ difficulty in locating environmentally directed products is rooted partly in lack of information (e.g. Brown and Wahlers 1998). Environmentally concerned consumers, on the contrary, feel serious about the environment, are aware and informed, and take responsibility for

preserving the environment (Brown and Wahlers 1998). The latter might be expected to have the characteristic of market mavenship, a concept belonging to the area of information diffusion.

Owing to the relatively recent escalation of environmental problems, and of efforts at their amelioration (e.g. Carson 1962), the knowledge diffusion structures in this area might be expected to be comparatively less developed. Information processing theory posits that the collection, comprehension and application of information about products and issues is an integral and essential link in the process of consumer choice processes (Bettman 1979). Environmentally concerned consumer behavior can be inferred to be sensitive to information regarding not only the environment itself, but also about related issues, products, brands and activities that might affect it (Ling-yee 1997, Minton and Rose 1997). In the context of information theory, it might be fruitful of examine the moderating role of market mavenship on the direct linkages between the determinant environmentally concerned beliefs and attitudes (which are in part based on information), and the dimensions of environmentally concerned consumer behavior (purchase behavior, search for information, conserving behavior, and supporting intent).

One of the earliest references to mavenship appears in an article by Feick and Price (1987). The term “maven” is Yiddish, and was used to describe persons who have information on a wide variety of products, and like to share this information with others. A maven refers to a neighborhood expert who has information ranging over a several topics (Feick and Price 1987). Market mavens are defined as “individuals who have information about many kinds of products, places to shop, and other facets of

markets, and initiate discussions with consumers and respond to requests from consumers about market information.” (Feick and Price 1987: 85). Market mavens are “people of good will” (Dichter 1966), who take on an activist role vis a vis firms as well as public and private agencies (Price, Feick and Higie 1987). A market maven is an influencer characterized by general marketplace expertise (Feick and Price 1987; Price, Feick and Higie 1987). Feick and Price (1987) developed a mavenship scale to measure this construct. Based on the above conceptualization in the literature, we might expect a mavenship to be a good fit in the context of environmentally concerned consumer behavior.

Feick and Price (1987) conducted a telephone survey on a randomly selected sample in 48 states. Results from two sub-samples, one for a food brand, and the other for a non-prescription drug brand, suggested that market mavens are distinct from opinion leaders and early purchasers. To examine the discriminant validity of market mavenship from the other two measures, confirmatory factor analysis was undertaken using LISREL. In the three-factor solution {chi-square(33)= 107.75}, for the food sample, the relationship between the market maven construct and the opinion leader construct was .23, while the relationship between the market mavenship construct and the early adopter construct was .54. Similarly, for the drug sample, in the three-factor solution {chi square (33)= 107.98} the relationship between the market maven construct and the opinion leader construct was .24, while the relationship between the market mavenship construct and the early adapter construct was .47. Also, market mavens were found to have more market information, to conduct more search for

information, and to share market information with friends and acquaintances than non-mavens.

In a study conducted among 219 diners at a McDonald's restaurant, Engelland, Hopkins and Larson (2001) examined the relationship of market mavenship with opinion leadership, cognitive innovativeness, assertiveness, value consciousness, and a more accurate sense of service quality. Results from regression analyses evidenced a positive and significant relationship between market mavenship and opinion leadership ( $\beta = .19799$ ,  $p = 0$ ), and between market mavenship and cognitive innovativeness ( $\beta = .32261$ ,  $p = 0$ ). Market mavenship was also found to correlate significantly and positively with assertiveness ( $\beta = 0.1638$ ,  $p = .033$ ), with value consciousness ( $\beta = 0.12962$ ,  $p = 0$ ), and with service quality value ( $\beta = -0.15396$ ,  $p = .015$ ). Respondents in a second study, respondents consisted of 100 undergraduate students at two universities, who had used on-campus career services. Respondents completed a questionnaire in which they provided responses to the mavenship scale, and a SERVQUAL instrument. Market mavenship was found to be significantly and positively correlated with service quality evaluation ( $\beta = -0.3$ ,  $p = .375$ ) (Engelland, Hopkins and Larson 2001).

Market mavenship appears to fit into the context of socially motivated behavior. Environmentally concerned consumer behavior arises from a sense of social responsibility (e.g. Antil 1984, Hallin 1995, Heberlein 1981, 1989), is cause-related (Ross, Patterson and Stutts, 1992), and driven by social-altruistic values (Stern, Dietz and Guagnano 1995).

Research in the area of marketing, consumer behavior, communications, and political science provides a basis for hypothesizing the existence of market mavens. Furthermore, research suggests reasons for market mavens' acquisition and transmission of market information. These reasons include marketplace involvement (Kassarjian 1981), social exchange (Atkin 1972), and enhancing social power (Sieber 1974). Market mavenship has the potential to fit the characteristics of the moderator under search, and might offer a better understanding of the processes responsible for environmentally concerned consumer behavior.

### Moderating Role of Market Mavenship

As I stated earlier, empirical evidence on the relationship between environmentally concerned beliefs and attitudes and environmentally concerned consumer behavior is in conflict with conceptualization in the literature (e.g. Hallin 1995), or reveal a low explanatory potential (e.g. Crosby, Gill and Taylor 1981, Maloney and Ward 1973, Roberts 1996). People's beliefs represent the information people have about themselves and the world around them; therefore behavior is ultimately determined by information (Ajzen and Fishbein 1980, Fishbein and Ajzen 1975). In this context, it must be remembered that market mavenship is characterized by an intense level of information collection and dissemination (Price, Feick and Higie 1987, Feick and Price 1987). In view of the above, I examine the moderating effects of market mavenship on the direct relationship between environmentally concerned beliefs and attitudes, and environmentally concerned consumer behavior.

Interaction between environmentally concerned beliefs and attitudes, and a high level of market mavenship, would result in:

1. A greater salience of the beliefs about purchase of environmentally friendly products, and a greater expectancy of the benefits arising from such purchases, and
2. A higher expectancy of the benefits to be obtained from such purchase behavior.

These might create a more favorable attitude toward purchase behavior, which would result in a stronger intention to purchase, leading to higher purchase of environmentally friendly products. The opposite would be true in the case of low market mavenship (Ajzen and Fishbein 1980, Fishbein and Ajzen 1975).

Therefore the hypothesis is:

H 8a: The strength of the direct linkage between environmentally concerned beliefs and attitudes, and purchase behavior, will be higher for consumers with high market mavenship, and lower for consumers with low market mavenship.

Furthermore, environmentally concerned beliefs and attitudes, when combined with a high level of market mavenship, would result in:

1. A greater salience of the beliefs about comparing package information labels, and talking to friends and acquaintances about various environmentally friendly products and activities, and
2. A greater expectancy of the positive outcomes arising from search for information.

These are expected to create a more favorable attitude toward search for information, resulting in a stronger intention to search for information, and leading to an increased search for information. The opposite would be true in the case of low market mavenship (Ajzen and Fishbein 1980, Fishbein and Ajzen 1975).

On the basis of this, I hypothesize that:

H 8b: The strength of the direct linkage between environmentally concerned beliefs and attitudes, and search for information, will be higher for consumers with high market mavenship, and lower for consumers with low market mavenship.

Additionally, the interaction of environmentally concerned beliefs and attitudes, and a high level of market mavenship, would result in

1. A greater salience of the beliefs about recycling of various materials, walking or bicycling for short errands, and contributing to an environmental organization.
2. A greater expectancy of the positive outcomes arising from such conserving behavior.

These are expected to create a more favorable attitude toward conserving behavior, and a stronger intention to perform conserving behavior. A greater level of conserving behavior would tend to follow. The opposite would be true in the case of low market mavenship (Ajzen and Fishbein 1980, Fishbein and Ajzen 1975).

H8c: The strength of the direct linkage between environmentally concerned beliefs and attitudes, and conserving behavior, will be higher for consumers with high market mavenship, and lower for consumers with low market mavenship.

Similarly, the interaction of environmentally concerned beliefs and attitudes, and a high level of market mavenship, would result in

1. A greater salience of the beliefs about behaviors like writing letters to help preserve the environment, paying extra taxes on the use of scarce resources, and not dealing with firms that pollute the environment, and
2. A greater expectancy of the positive outcomes arising from such supporting behavior. These are expected to create a more favorable attitude toward supporting behavior, resulting in a stronger supporting intent. The opposite would be true in the case of low market mavenship (Ajzen and Fishbein 1980, Fishbein and Ajzen 1975).

H8d: The strength of the direct linkage between environmentally concerned beliefs and attitudes, and supporting intent, will be higher for consumers with high market mavenship, and lower for consumers with low market mavenship.

### Conclusion

This chapter provided a review of extant literature in the area of environmentally concerned consumer behavior, which formed the theoretical basis on for the proposed research hypotheses. It started with a discussion of the four dimensions of environmentally concerned consumer behavior, viz. purchase behavior, search for information, conserving behavior, and supporting intent. The main effects on these dimensions, of five determinants, viz. environmentally concerned beliefs and attitudes, personal norm, injunctive nor, collectivist orientation, and perceived consumer effectiveness were theorized and proposed. The moderating effects on some of these direct linkages, of market mavenship and involvement, were theorized and proposed. Chapter 3 will discuss the research methodology for the study.



## CHAPTER 3

### RESEARCH METHODOLOGY

The purpose of this chapter is to present the research methodology, viz. sampling procedure, data collection, measurement, and statistical techniques of analysis.

#### Sample Design and Data Collection

##### Sample Frame

The population frame will be comprised of approximately 274 million individuals in the U.S. The sampling frame will be comprised of the members of some environmental groups in the U.S, including Departments of Natural Resources, and 4-H organizations, Sierra Cub, Greenpeace, Worldwide Fund, Audubon Club, and Defenders of Wildlife, to name a few. These have a representation at national, state and regional levels. Some of their activities include communication about environmental issues, organizing field trips on nature trails, and advocacy with business and government. Being highly concerned about environmental issues, and knowledgeable about the terms and concepts used in that context, such individuals might be suited to the purpose of the study; viz. to understand the behavior of environmentally concerned consumers.

On the basis of an objective personal assessment based on receptivity to the survey at the approach stage, it was found that the primary response was received from DNRs and 4-H organizations. On the other hand, the larger and better-known organizations appeared to be wary due to numerous concerns relating to cooperation in the survey. As a token of appreciation for the networking contribution of Missouri DNR, it was agreed to share with them the results of the research.

### Sample Size

For measure purification, factor analysis will be used in this study. "... A researcher would not generally factor analyze a sample of fewer than 50 observations, and preferably, the sample size should be 100 or larger. As a general rule, there should be four or five times as many observations as there are variables to be analyzed. This ratio is somewhat conservative, and in many instances the researcher is forced to factor analyze a set of variables when only a 2:1 ratio of observations to variables is available. When dealing with smaller sample sizes and a lower ratio, the analyst should interpret any findings cautiously." (Hair, Anderson, and Tatham 1987: 237). On the basis of 11 variables, a sample size of over 200 is considered adequate for the purposes of statistical analysis. Subsequent statistical analysis proved the adequacy of the sample size, as will be discussed in Chapter 4.

### Data Collection

A structured, undisguised questionnaire will be posted on the Louisiana Tech University web site, with my brief introductory appeal for participation. A link to the survey web site will be provided by The Missouri Department of Natural Resources (MO DNR), along with a personal appeal by the Director, Steve Mahfood, to their

constituents to participate in the survey shown in Appendix A (<http://www.dnr.mo.gov/research.htm>). The survey link will appear on the Communications and Research link, accessible through the Media Center link on the main MO DNR web site.

By way of follow-up, e-mail appeals will be sent, and telephone calls made to various environmental organizations, to request cooperation at the organizational level. It was anticipated that several of the organizations would venture their cooperation in diverse forms, such as posting the survey link on their intranet, placing a survey write-up in their newsletter, and making a personal appeal to friends and co-workers.

Each questionnaire will be allotted a distinctive number for identification. In order to encourage participation, and to obtain complete information from each respondent, a cash prize of \$500 will be given to a random winner among the respondents. A specimen of the questionnaire is shown in Appendix B. Additionally, the interpretation of the scores is shown in Appendix C.

The survey instrument will be completed by the respondent and submitted online; this obviated the need for selection of sample elements. This will make it a probability sample, with every member having a known and equal chance of being selected in the sample. Again, this method will eliminate interviewer bias, as it will be based on self-report. Further, sequence bias will be minimized, as respondents can only see one section of the questionnaire on the screen at a time.

## Coding and Tabulation

For the purposes of analysis, a coding file will be created with a distinctive code assigned to each variable. Further, the responses will be coded, in the form of numbers assigned to each response. Data will be arranged in an orderly fashion in a summary spreadsheet, by counting the frequency of responses to each question.

## Measurement Scales Composition and Reliability

All the measurement scales selected for use in this study comprised valid and reliable scales used in earlier studies. A summary of these scales is given below.

### Dependent Variables

Purchase behavior (22 items) is a measure used by Roberts (1996) and Roberts and Bacon (1997), rated on a 7-point Likert-type scale anchored by 7= "always true" and 1= "never true". Roberts (1996) reported an alpha of .96. Search for information (7 items) is a scale from Minton and Rose (1997), a 7-point Likert -type scale with 1= "almost never" and 7= "very frequently". Minton and Rose (1997) reported an alpha of .90.

Conserving behavior (10 items) is from Hallin's (1995) scale measured on a 7-point anchored by 7= "almost always" and 1= "almost never". Supporting intent (6 items) is from Stern, Dietz and Guagnano (1995), rated on a 7-point Likert-type scale anchored by 7= "strongly agree" and 1= "strongly disagree". Stern, Dietz and Guagnano (1995) reported a theta reliability of .73.

## Independent Variables

Environmentally concerned beliefs and attitudes (16 items) is measured with a scale from Minton and Rose (1997), which had a coefficient alpha of .95. The items are rated on a seven-point Likert-type scale, with 1 representing “strongly disagree” and 7 representing “strongly agree”. Personal norm measure (8 items) is a scale from Minton and Rose (1997), based on similar measures reported by Cialdini et al (1991), and Schwartz (1977). The response pattern is a 7-point scale anchored by “no personal obligation” to “very strong personal obligation”, with higher scores indicating higher personal obligation. Minton and Rose (1997) reported an alpha of .95. The injunctive norm measure (9 items) is a scale from Minton and Rose (1997). It comprises a 7-point scale, with a Likert-type response anchored by “strongly disagree” and “strongly agree”. Minton and Rose (1997) reported an alpha of .92.

Collectivist orientation (5 items) is measured with a scale developed by McCarty and Shrum (1994). The items are rated on a 7-point Likert-type scale anchored by 7= “strongly agree” and 1= “strongly disagree”. Ling-yee (1997) reported an alpha of .76. Perceived consumer effectiveness (4 items) is taken from Roberts (1996), rated on a 7-point Likert-type scale, anchored by 1= “strongly disagree” and 7= “strongly agree”. Roberts (1996) reported an alpha of .72.

## Moderators

Involvement (10 items) is measured by Zaichkowsky’s (1990) scale, rated on a 7-point Likert-type semantic differential scale comprising bipolar adjectives, anchored for example by “unimportant” and “important”. Zaichkowsky (1990) reported alpha of .68-.96. Market mavenship (6 items) is measured per Feick and Price (1987), on a

7-point scale anchored by “strongly agree”= 7 and “strongly disagree”= 1. Feick and Price (1987) reported an alpha of .82.

### Control Variables

Extant literature was found to be unequivocal on consumer characteristics as independent variables or moderators. These characteristics include the demographic variables of gender, age, education, income, and occupation. I therefore treat them as control variables, i.e. to test the independent variables while “controlling” for the effects of demographic characteristics.

## Diagnostic Tests

### Extreme Values

The possible influence of extreme data points of the control, independent, and moderator variables on the dependent variable will be confirmed by checking that no more than five per cent of cases are located outside two standard deviations from the mean.

### Normality

This can be confirmed by a histogram of regression standardized residuals. Also, on a normal p-p plot of regression standardized residuals, the observed cumulative probability should be highly correlated with the expected cumulative probability.

### Homogeneity of Error Terms

There should be no significant pattern of scatterplots of the relationship between regression predicted values and regression standardized residuals.

### Variance Inflation Factor (VIF)

The VIF for all the models should be below the cut-off point of 10. This would be evidence that there is no multicollinearity among the independent, dependent and moderator variables. This will be achieved by mean-centering the moderating variable in the interaction terms in the hierarchical regression models.

### Proposed Psychometric Assessment of Measurement Scales

I list below some of the methods for the assessment of the measurement models used in the study.

#### Reliability

The internal consistency or measure of equivalence is an assessment of the interrelatedness of the items comprising a measure. It was assessed through split-half correlation or Cronbach's alpha. Nunally (1967) suggests that for early stages of research, alpha of .5 to .6 is acceptable, while for basic research, alpha of .8 is acceptable. Reliability was also assessed through item to total correlations, which indicate the sharing of a common core among items. This method may fail to discriminate between sets of indicators that represent different but related factors (Anderson and Gerbing 1988).

#### Unidimensionality

Unidimensionality was assessed through factor analysis. Factor analysis is an interdependence technique, in which all variables are simultaneously considered. Each of the observed variables is considered as a dependent variable that is a function

of some underlying, latent and hypothetical set of factors. Conversely, one can look at each factor as a dependent variable that is a function of the originally observed variables (Hair, Anderson, and Tatham, 1987). It can be assessed from a scree plot, or graphic representation of the number of factors that have the highest contribution. Rules of thumb indicate that the communality or factor loading should be greater than .8, eigenvalue should be greater than 1, and average variance extracted should be greater than .4.

### Discriminant Validity

Discriminant validity is achieved when a measure does not correlate too highly with a measure from which it is supposed to differ. In this case, there was a need to examine the discriminant validity between market mavenship and involvement. If correlations are too high, it suggests that the measure does not actually capture a distinct construct. The discriminant function can be graphed on the basis of discriminant studentized scores, or a correlation table, showing the simple coefficients of correlation between the dependent variable and each of the independent variables, as well as among the independent variables. Here, the significance of the correlation, i.e.  $p \leq 0.5$ , is taken into consideration, rather than the absolute value of the correlation. Given the condition of significance, absolute values of plus/minus .22 would be considered as high correlation (Feick and Price 1987).

### Method of Analysis

This study aims at examining the direct linkages between the independent variables and one dependent variable at a time, and subsequently, the contingency



effects of the moderators on these direct linkages. A statistical technique that fits the testing of the proposed hypotheses is moderated multiple regression or MMR, a form of hierarchical regression (Cohen and Cohen 1978, 1983). This technique allows for testing the unique contribution of different subsets of independent variables. Moderated hierarchical regression analysis has been used in contingency research in the fields of both marketing and management. Specific areas of application include corporate ethical values and organizational commitment (Hunt, Wood and Chonko 1989), performance predictions in strategic human resource management (Delery and Doty 1996), performance impact of diversity (Richard 2000), and transformational leadership in sales management (Dubinsky et al 1995).

Control variables are treated as categorical predictors, and are dummy coded (e.g. for gender, male=0, female=1). The first test in the hierarchy was to control for direct effects, if any, of the demographic characteristics (gender, age, income, education, and occupation) on one criterion variable at a time (purchase behavior, search for information, conserving behavior, supporting intent). For example, in the case of the dependent variable purchase behavior, the three regression models estimated are:

### Model 1

In the first test in the hierarchy, three variables, gender, education, and household income, are used as the control variables and are tested by estimating the following regression equation:

$$\text{PURCHBEH}_1 = B_0 + B_1 \text{GENDER}_1 + B_2 \text{EDUCAT}_1 + B_3 \text{HHINCO}_1 + E1_1$$

Where  $PURCHBEH_1$  = purchase behavior

$B_0$  = intercept for the model

$GENDER_1$  = gender

$EDUCAT_1$  = education

$HHINCO_1$  = household income

$E_1$  = error.

## Model 2

The next test in the hierarchy takes into account the direct effects of the predictors (environmental beliefs and attitudes, personal norm, injunctive norm, collectivist orientation, and perceived consumer effectiveness), and mean centered moderators (involvement and market mavenship) on purchase behavior. The moderators were mean centered to keep in check the Variance Inflation Factor or VIF (Aiken and West 1991). The variance inflation factor (VIF), which indicates collinearity among variables, was well below the recommended cutoff of 10 (Neter et al. 1985). The regression equation was in the following form:

$$PURCHBEH_2 = B_0 + B_1 GENDER_1 + B_2 EDUCAT_1 + B_3 HHINCO + B_4 MEEC + B_5 MEPN + B_6 MEIN + B_7 MECO + B_8 PCEFFE + B_9 MCPI + B_{10} MCMM + E_2$$

Where the incremental terms were:

MEEC = environmentally concerned beliefs and attitudes

MEPN = personal norm

MEIN = injunctive norm

MECO = collectivist orientation

PCEFFE= perceived consumer effectiveness

MCPI= mean centered involvement

MCMM= mean centered market mavenship

### Model 3

The final test in the hierarchy takes into account the direct effects between the interaction of mean centered predictors (environmentally concerned beliefs and attitudes, and collectivist orientation) and mean centered moderators (involvement and market mavenship) on purchase behavior. The regression equation is in the form:

$$\text{PURCHBEH}_3 = B0_3 + B1_3\text{GENDER}_1 + B2_3\text{EDUCAT}_1 + B3_3\text{HHINCO} + B4_3\text{MEEC} + B5_3\text{MEPN} + B6_3\text{MEIN} + B7_3\text{MECO} + B8_3\text{PCEFFE} + B9_3\text{MCPI} + B10_3\text{MCMM} + B11_3\text{ECXPI} + B12_3\text{COXPI} + B13_3\text{ECXMM} + E_3$$

Where the incremental terms were:

ECXPI= interaction of mean centered environmentally concerned beliefs and attitudes and mean centered product involvement

COXPI= interaction of mean centered collective orientation and mean centered product involvement

ECXMM= interaction of mean centered environmentally concerned beliefs and attitudes and mean centered market mavenship.

To test the hypotheses, the significance ( $p \leq .05$ ) of the incremental effects of the variables added at each step is examined, in conjunction with incremental  $R^2$  for the model. This is, however, not in itself a good indicator in a curvilinear relationship, and remains an insufficient indicator of the goodness of fit of a model. It is therefore supplemented with the t-test (based on the studentized t-statistic), the change in the F-

ratio, and the overall F-ratio for the model, based on the proportion of regression mean square to residual mean square.

### Conclusion

This chapter provided information about the proposed sampling procedure, data collection, and coding and tabulation. It also described the proposed composition of scales, and their psychometric assessment. The moderated hierarchical regression analysis procedure was outlined, and the estimation model explained. The chapter concluded with a description of the diagnostic tests relating to the expected data. Chapter 4 deals with the statistical analysis of the data.

## CHAPTER 4

### PRESENTATION OF DATA ANALYSIS

The purpose of this chapter is to present the results of the empirical analyses performed. This chapter is divided into several sections, including presentation of the characteristics of the sample, analysis of possible nonresponse bias, discussion of measurement issues, presentation of descriptive statistics, correlations, selection of control variables, and results.

#### Characteristics of the Sample

The members of various environmental organizations formed the sampling frame for this study. A total of 231 surveys were received. However, 19 of them were incomplete. It was decided to utilize the 212 completed surveys for analysis.

An analysis was conducted to assess the potential impact of nonresponse bias. There was no indication of nonreponse bias, as discussed in a subsequent section.

As shown in Table 4.1 and 4.2, the sample was about 31 percent male, with a median age of 35-44 years, and with a median household income of \$50,000- 99,999 per year. Of the sample, 3.7 percent had some schooling, 9 per cent had some college experience, 31.1 percent held a college degree, 34.9 percent held a master's degree, and 21.2 per cent held a doctoral degree. Also, 67.9 percent were in a technical or professional occupation, 9.4 percent worked in a managerial capacity, 7.1 percent held

a clerical or sales position, 10.4 per cent were students, and 2.8 per cent were homemakers.

Additionally, as shown in Table 4.2, 17.5 per cent of the respondents were members of various local organizations, 14.2 per cent were members of Audubon, 12.7 percent were members of Department of Natural Resources, 9 per cent were members of Environmental Defense, 8.5 per cent were members of Sierra Club, and 0.9 per cent were members of Greenpeace.

TABLE 4.1. Demographics of Sample

Variable	Category	Frequency	Percentage
Gender	Male	66	31.1
	Female	146	68.9
	Total	212	100.0
Age in years	18-34	13	6.1
	25-34	46	21.7
	35-44	61	28.8
	45-54	58	27.4
	55-64 or more	34	16.0
	Total	212	100.0
	Education	Not a high school graduate	2
High school graduate		6	2.8
Some college		19	9.0
College degree		66	31.1
Master's degree		74	34.9
Doctorate		45	21.2
Total		212	100.0
Household income (\$ per year)	9,999 or less	11	5.2
	10,000-14,999	4	1.9
	15,000- 19,999	11	5.2
	20,000-29,999	18	8.5
	30,000-49,999	65	30.7
	50,000- 99,999	85	40.1
	100,000 and over	18	8.5
	Total	212	100.0

TABLE 4.1 (Continued)

Occupation	Professional/technical	144	67.9
	Manager/official/proprietor	20	9.4
	Clerical/sales	15	7.1
	Operative	2	.9
	Farmer	1	.5
	Retired	2	.9
	Student	22	10.4
	Homemaker	6	2.8
	Total	212	100.0
Membership of Organizations	Local and other organizations	37	17.5
	Audubon	30	14.2
	Department of Natural Resources	27	12.7
	Environmental Defense	19	9.0
	Sierra Club	18	8.5
	Greenpeace	2	.9
	Total	212	100.0

TABLE 4.2. Descriptive Sample Statistics

Variable	Minimum	Maximum	Average
Gender	-	-	Mode: Female
Age in years	18-24	55-64 or more	Median: 35-44
Education	Not a high school graduate	Doctorate	Median: master's degree
Household income (\$ per year)	9,999 or less	100,000 and over	Median: 50,000- 99,000
Occupation	-	-	Mode: Professional/ technical

### Assessment of Potential Non-response Bias

Nonresponse bias is a concern when conducting survey research because it is possible that those who do not respond to the survey may be significantly different from those who do respond to the survey. If this were the case, the study may not

capture data from a relevant population that may react differently from the population that responded, producing biased results and interpretations. One method of assessing nonresponse bias is to compare the responses of the early respondents with those of the late respondents (Armstrong and Overton 1977). It is assumed that late respondents are similar to nonrespondents, hence if no differences are found between early and late respondents, it provides evidence that the results of the study do not suffer from nonresponse bias.

Early and late respondents were compared on the basis of their responses to the focal variables of this study, including demographic or “control” variables. This was accomplished by dividing the sample into two groups, with one group representing the first 106 respondents (early respondents) and the second group representing the last 106 respondents (late respondents). The results of the MANOVA test of differences between group means are given in Table 4.3 below.

On the basis of Table 4.3 (intercept: Hotelling's Trace= 1507,  $F= 1407$ ,  $df= 108$ ,  $p= .000$ ; grouping: Hotelling's trace= .995,  $F= .949$ ,  $df=108$ ,  $p=.606$ ), it was concluded that the early 106 respondents and the late 106 respondents do not differ statistically based on any of the 108 variables examined.

While examining the rest of the data, as a first step, the scoring of negatively worded items was adjusted to reflect the true score. Missing values were replaced by the trend at the given point. Each scale was then tested for psychometric properties, as described in this chapter. Summated scores of the selected items on each scale were used for regression analysis.



TABLE 4.3. Multivariate Test of Non-Response Bias

Between-Subjects Factors		N
grouping for nonresponse bias test in MANOVA	1.00	106
	2.00	106

## Multivariate Tests(b)

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	1.000	1407a	108.000	103.000	.000
	Wilks' Lambda	.000	1407a	108.000	103.000	.000
	Hotelling's Trace	1507	1407a	108.000	103.000	.000
	Roy's Largest Root	1507	1407a	108.000	103.000	.000
	Root					
grouping	Pillai's Trace	.499	.949a	108.000	103.000	.606
	Wilks' Lambda	.501	.949a	108.000	103.000	.606
	Hotelling's Trace	.995	.949a	108.000	103.000	.606
	Roy's Largest Root	.995	.949a	108.000	103.000	.606
	Root					

a Exact statistic

b Design: Intercept+grouping

### Psychometric Assessment of Measurement Scales

Twelve scales based on previously developed measures of constructs provided the measurement models for this study. These included scales previously developed, and adapted by the researcher, in conjunction with three independent judges, who are trained researchers. The scales included purchase behavior (Roberts 1996), search for information (Minton and Rose 1997), conserving behavior (Hallin 1995), supporting intent (Stern, Dietz and Guagnano 1995), environmentally concerned beliefs and attitudes (Minton and Rose 1997), personal norm (Minton and Rose 1997), injunctive

norm (Minton and Rose 1997), collectivist orientation (McCarty and Shrum 1994), perceived consumer effectiveness (Roberts 1996), product involvement (Zaichkowsky 1990), and market mavenship (Feick and Price 1985).

### Factor Analysis

Exploratory factor analysis (Anderson and Gerbing 1988) was undertaken to examine discriminant validity and dimensionality of the scales. Extraction was obtained through the principal components methods, and eigenvalues over 1 were considered. Rotation was done through Varimax method with Kaiser Normalization. By the rule of thumb, the factor loading on the rotated component matrix .4 and over is considered acceptable. Some scales were found to have more than one dimensions. However, these dimensions were found to be highly correlated among themselves. In line with conventional treatment in literature in the area of marketing, these scales were treated as representing one overall construct.

Purchase Behavior Scale. A principle component factor analysis, employing varimax rotation, was conducted on 17 items of the purchase behavior scale. The results of the factor loadings are shown in Table 4.4.

Bartlett's Test of Sphericity (approx Chi-square= 2192.149, df= 136, p= .000) revealed that the data sample was adequate for conducting factor analysis. Furthermore, the total variance explained by the 17 factors, i.e. of 62.654 per cent, was found acceptable. Additionally, examinations of the factor loadings (Appendix B) revealed that all 17 items were over the level of .40. Given this rule of thumb, all 17 items were used in further analysis.

TABLE 4.4. Factor Analysis: Purchase Behavior Scale

Items	Loading Factor 1	Loading Factor 2	Loading Factor 3
PURCHBEH12	.849		
PURCHBEH13	.807		
PURCHBEH3	.805		
PURCHBEH11	.730		
PURCHBEH10	.675		
PURCHBEH5	.646		
PURCHBEH2	.632		
PURCHBEH14	.578		
PURCHBEH4	.537		
PURCHBEH7	.534		
PURCHBEH20	.463		
PURCHBEH16		.934	
PURCHBEH17		.897	
PURCHBEH15		.875	
PURCHBEH19			.749
PURCHBEH22			.638
PURCHBEH6			.585
Bartlett's Test of Sphericity:			
Approx. Chi-square	2192.149		
Df	136		
Sig.	.000		
PURCHBEH= purchase Behavior			

Search for Information Scale. A principle component factor analysis, employing varimax rotation, was conducted on the 6 items of the search for information scale. The results of the factor loadings are shown in Table 4.5.

Bartlett's Test of Sphericity (approx Chi-square= 795.798, df= 15, p= .000) revealed that the data sample was adequate for conducting factor analysis. Furthermore, the total variance explained by the 6 factors, i.e. of 63.068 per cent, was found acceptable. Additionally, examinations of the factor loadings revealed that all 6

items were over the level of .40. Given this rule of thumb, all 6 items were used in further analysis.

TABLE 4.5. Factor Analysis: Search for Information Scale

Items	Loading Factor 1
SCHINFO5	.864
SCHINFO6	.854
SCHINFO3	.830
SCHINFO4	.752
SCHINFO1	.759
SCHINFO2	.702
Bartlett's Test of Sphericity	
Approx. Chi-square	795.798
Df	15
Sig.	.000

SCHINFO = search for information

Conserving Behavior Scale. A principle component factor analysis, employing varimax rotation, was conducted on 10 items of the conserving behavior scale. The results of the factor loadings are shown in Table 4.6.

Bartlett's Test of Sphericity (approx Chi-square= 461.203, df= 45, sig. = .000) revealed that the data sample was adequate for conducting factor analysis. Furthermore, the total variance explained by the 10 factors, i.e. of 47.483 per cent, was found acceptable. Additionally, examinations of the factor loadings revealed that all 9 items were over the level of .40. Given this rule of thumb, these 9 items were used in further analysis.

TABLE 4.6. Factor Analysis: Conserving Behavior

Items	Loading Component 1	Loading Component 2
CONSBEH 8	.749	
CONSBEH5	.643	
CONSBEH 10	.639	
CONSBEH6	-.590	
CONSBEH 9	.516	
CONSBEH7	.500	
CONSBEH 4	.485	
CONSBEH1		.837
CONSBEH 3		.801
CONSBEH2		.777
Bartlett's Test of Sphericity:		
Approx. Chi-square	461.203	
Df	45	
Sig.	.000	

CONSBEH= conserving behavior

Supporting Intent Scale. A principle component factor analysis, employing varimax rotation, was conducted on 8 items of the supporting intent scale. The results of the factor loadings are shown in Table 4.7.

Bartlett's Test of Sphericity (approx Chi-square= 1339.243, df= 28, p= .000) revealed that the data sample was adequate for conducting factor analysis. Furthermore, the total variance explained by the 8 factors, i.e. of 75.041 per cent, was found acceptable. Additionally, examinations of the factor loadings revealed that all 8 items were over the level of .40. Given this rule of thumb, all 8 items were used in further analysis.

Environmentally Concerned Beliefs and Attitudes Scale. A principle component factor analysis, employing varimax rotation, was conducted on 16 items of

the beliefs and attitudes scale. The results of the factor loadings are shown in Table 4.8.

TABLE 4.7. Factor Analysis: Supporting Intent Scale

Items	Loading Factor 1	Loading Factor 2
SUPINT	.894	
SUPINT	.880	
SUPINT	.809	
SUPINT	.788	
SUPINT	.706	
SUPINT		.892
SUPINT		.871
SUPINT		.752
Bartlett's Test of Sphericity		
Approx. Chi-square	1339.243	
Df	28	
Sig.	.000	
SUPINT= supporting intent		

Bartlett's Test of Sphericity (approx Chi-square= 2446.508, df= 120, p= .000) revealed that the data sample was adequate for conducting factor analysis. Furthermore, the total variance of 68.304 explained by the 16 items was found acceptable. Additionally, examinations of the factor loadings revealed that all 16 items were over the level of .40. Given this rule of thumb, all 16 items were used in further analysis.

Personal Norm Scale. A principle component factor analysis, employing varimax rotation, was conducted on 8 items of the personal norm scale. The results of the factor loadings are shown in Table 4.9.

TABLE 4.8. Factor Analysis: Beliefs and Attitudes Scale

Items		Loading Factor 1	Loading Factor 2	Loading Factor 3
ECBA8		.744		
ECBA13		.723		
ECBA11		.715		
ECBA9		.707		
ECBA10		.706		
ECBA7		.515		
ECBA16			.717	
ECBA6			.686	
ECBA4			.649	
ECBA3			.643	
ECBA1			.639	
ECBA2			.605	
ECBA15				.754
ECBA12				.732
ECBA14				.707
ECBA5				.550

## Bartlett's Test of Sphericity:

Approx. Chi-square	2446.508
Df	120
Sig.	.000

ECBA= beliefs and attitudes

Bartlett's Test of Sphericity (approx Chi-square= 1389.030, df= 28, p= .000) revealed that the data sample was adequate for conducting factor analysis. Furthermore, the total variance of 71.036 per cent explained by the single factor was found acceptable. Additionally, examinations of the factor loadings revealed that all 8 items were over the level of .40. Hence, all 8 items on the scale were used in further analysis.

TABLE 4.9. Factor Analysis: Personal Norm Scale

Items	Loading Component 1
PERNOR4	.898
PERNOR5	.893
PERNOR8	.890
PERNOR1	.890
PERNOR7	.843
PERNOR3	.822
PERNOR2	.761
PERNOR6	.727
Bartlett's Test of Sphericity	
Approx. Chi-square	1389.030
Df	28
Sig.	.000
PERNOR= personal norm	

**Injunctive Norm Scale.** A principle component factor analysis, employing varimax rotation, was conducted on 8 items of the injunctive norm scale. The results of the initial PCA extraction are shown in Table 4.10.

Bartlett's Test of Sphericity (approx Chi-square= 1438.934, df= 36, p= .000) revealed that the data sample was adequate for conducting factor analysis. Furthermore, the total variance of 68.462 per cent explained by the 9 items was found acceptable. Additionally, examinations of the factor loadings revealed that 9 items were over the level of .40. However, as INJNORM9 was the only item to load on Factor 2, it was deleted, and only the first 7 items on the scale were used in further analysis.



TABLE 4.10. Factor Analysis: Injunctive Norm Scale

Items	Loading Factor 1
INJNORM1	.840
INJNORM7	.837
INJNORM2	.832
INJNORM5	.826
INJNORM8	.807
INJNORM6	.799
INJNORM3	.714
INJNORM8	.779
Bartlett's Test of Sphericity:	
Approx. Chi-square	1185.908
Df	28
Sig.	.000

Collective Orientation Scale. A principle component factor analysis, employing varimax rotation, was conducted on 5 items of the collective orientation supporting intent scale. The results of the factor loadings are shown in 4.11.

TABLE 4.11. Factor Analysis: Collective Orientation Scale

Items	Loading Factor 1
COLLEC1	.793
COLLEC2	.755
COLLEC3	.747
COLLEC4	.728
COLLEC5	.494
Bartlett's Test of Sphericity:	
Approx. Chi-square	245.463
Df	10
Sig.	.000

COLLEC= collective orientation scale

Bartlett's Test of Sphericity (approx Chi-square= 245.463, df= 10, p= .000) revealed that the data sample was adequate for conducting factor analysis. Furthermore, the total variance of 50.631 per cent explained by the five factors was found acceptable. Additionally, examinations of the factor loadings revealed that four items were over the level of .40. Given this rule of thumb, four items were used in further analysis.

Perceived Consumer Effectiveness Scale. Only one of the four items on this scale was positively worded, and the other three items were reverse-coded, i.e., negatively worded (Herche and Engelland 1996). Moreover, this scale appeared in the last 20 per cent of the questionnaire, resulting in a problem of careless responses (Bickart 1996) and item non-response (Yammarino, Skinners and Childers 1981). In view of this, it was felt necessary to retain in the analysis, the single positively worded item on the scale.

Product Involvement Scale. Of the 10 items on this scale, six items were reverse-coded, i.e., negatively worded (Herche and Engelland 1996). Moreover, this scale appeared in the last 20 per cent of the questionnaire, resulting in the problem of careless responses (Bickart 1996, Schmitt and Stults 1985) and item non-response (Yammarino, Skinner and Childers 1981). In view of this, it was felt necessary to retain in the analysis, only the four positively worded items on the scale. A principle component factor analysis, employing varimax rotation, resulted in the factor loadings as shown in Table 4.12.

TABLE 4.12. Factor Analysis: Product Involvement Scale

Items	Loading Factor 1
PROD5	.744
PROD6	.851
PROD8	.887
PROD10	.826
Bartlett's Test of Sphericity:	
Approx. Chi-square	352.336
Df	6
Sig.	.000

PROD= product involvement

Bartlett's Test of Sphericity (approx Chi-square= 352.336, df= 6, p= .000) revealed that the data sample was adequate for conducting factor analysis. Furthermore, the total variance of 68.633 per cent explained by the single factor was found acceptable. Additionally, examinations of the factor loadings revealed that all 4 items were over the level of .40. Hence, all 4 items on the scale were used in further analysis.

Market Mavenship Scale. All 6 items on the market mavenship scale were subjected to a principle component factor analysis, employing varimax rotation. The results of the PCA component extraction are shown in Table 4.13.

Bartlett's Test of Sphericity (approx Chi-square= 1105.353, df= 15, p= .000) revealed that the data sample was adequate for conducting factor analysis. Furthermore, the total variance of 74.567 per cent explained by the single factor was found acceptable. Additionally, examinations of the factor loadings revealed that all 6 items were over the level of .40. Hence, all 6 items on the scale were used in further analysis.

TABLE 4.13. Factor Analysis: Market Mavenship

Item	Loading Factor 1
MKTMAV1	.642
MKTMAV2	.640
MKTMAV3	.697
MKTMAV4	.801
MKMAV5	.736
MKMAV6	.846
Bartlett's Test of Sphericity	
Approx. Chi-square	1105.353
Df	15
Sig.	.000

MKTMAV= market mavenship

### Reliability Analysis

Reliability analysis was undertaken to confirm the internal consistency of the scales (Churchill 1979, Gerbing and Anderson 1988, Hair, Anderson, and Tatham 1987). Items were retained on the basis of inter-item correlation of .5 and over. Coefficient alpha (Cronbach 1951) of the final scales was calculated, and the range from .700 to .935 was found to be acceptable (Nunnally 1967).

Purchase Behavior Scale. A reliability analysis, employing the alpha method, was conducted on 16 items of the purchase behavior scale. The results of the scale alpha and item-total correlations are shown in Table 4.14.

All 16 items were retained in the final scale, on the basis of item-total correlation  $> .5$ , and scale alpha of .915.

TABLE 4.14. Reliability Estimates: Purchase Behavior Scale

Scale items	Factor 1 Item-to-total Correlation	Factor 2 Item-to-total Correlation	Factor 3 Item-to-total Correlation	Scale Item-to-total Correlation
Purchase behavior				
PURBEH 2	.715			.629
PURBEH3	.750			.659
PURBEH4	.535			.472
PURBEH5	.741			.727
PURBEH7	.680			.730
PURBEH10	.738			.722
PURBEH11	.573			.533
PURBEH12	.745			.717
PURBEH13	.727			.656
PURBEH14	.612			.609
PURBEH 20	.588			.624
PURBEH15		.825		.566
PURBEH16		.883		.541
PURBEH17		.851		.570
PURBEH6			.260	
PURBEH19			.520	.579
PURBEH22			.417	.478
<i>Scale <math>\alpha</math></i>	.918	.928	.583	.915

Search for Information Scale. A reliability analysis, employing the alpha method, was conducted on all 6 items of the search for information scale. The results of the item-total correlations and scale alpha are shown in Table 4.15.

All 6 factors were retained in the final scale, on the basis of item-total correlation  $>.4$ , and scale alpha of .881.

Conserving Behavior Scale. A reliability analysis, employing the alpha method, was conducted on 9 items of the conserving behavior scale. The results of the item-to-total correlations and scale alpha are shown in Table 4.16.2

TABLE 4.15. Reliability Estimates: Search for Information Scale

Scale Items Search for information	Item-to-Total Correlation
SCHINFO1	.638
SCHINFO2	.578
SCHINFO3	.742
SCHINFO4	.643
SCHINFO5	.783
SCHINFO6	.767
<i>Scale <math>\alpha</math></i>	.881

TABLE 4.16. Reliability Estimates: Conserving Behavior Scale

Scale Items	Factor 1 Item-to-Total Correlation	Factor 2 Item-to-Total Correlation	Scale Item-to-Total Correlation
Conserving behavior			
CONSBEH1	.612		.452
CONSBEH2	.575		.490
CONSBEH3	.602		.473
CONSBEH4		.388	.417
CONSBEH5		.482	.476
CONSBEH7		.344	.359
CONSBEH8		.600	.582
CONSBEH9		.298	.251
CONSBEH10		.422	.407
<i>Scale <math>\alpha</math></i>	.756	.669	.741

To retain the psychometric properties of the original scale, all 9 items were retained in the final scale, on the basis of scale alpha of .756.

Supporting Intent Scale. A reliability analysis, employing the alpha method, was conducted on 8 items of the supporting intent scale. The results of the item-to-total correlations and scale alpha are shown in Table 4.17.

All 8 items were retained in the final scale, on the basis of item-to-total correlations >.5, and scale alpha of .756.

TABLE 4.17. Reliability Estimates: Supporting Intent Scale

Scale Items	Factor 1 Item-to-Total Correlation	Factor 2 Item-to-Total Correlation	Scale Item-to-Total Correlation
Supporting intent scale			
SUPINT1	.709		.508
SUPINT2	.781		.616
SUPINT3	.659		.622
SUPINT4		.691	.714
SUPINT5		.775	.769
SUPINT6		.731	.681
SUPINT7		.821	.772
SUPINT8		.812	.737
Scale $\alpha$	.847	.906	.896

Environmentally Concerned Beliefs and Attitudes Scale. A reliability analysis, employing the alpha method, was conducted on 16 items of the beliefs and attitudes scale. The results of the item-to-total correlations and scale alpha are shown in Table 4.18.

All 16 items were retained in the final scale, on the basis of item-to-total correlations  $>.5$ , and scale alpha of .941.

Personal Norm Scale. A reliability analysis, employing the alpha method, was conducted on 16 items of the personal norm scale. The results of the item-to-total correlations and scale alpha are shown in Table 4.19.

All 8 items were retained in the final scale, on the basis of item-to-total correlations  $>.5$ , and scale alpha of .939.

TABLE 4.18. Reliability Estimates: Beliefs and Attitudes Scale

Scale Items	Factor 1 Item-to- Total Correlation	Factor 2 Item-to- Total Correlation	Factor 3 Item-to- Total Correlation	Scale Item-to- Total Correlation
Beliefs and attitudes scale				
ECBA1	.639			.630
ECBA2	.740			.777
ECBA3	.778			.804
ECBA4	.537			.514
ECBA5		.752		.795
ECBA6	.730			.720
ECBA7			.654	.708
ECBA8			.796	.750
ECBA9			.752	.706
ECBA10			.710	.717
ECBA11			.672	.693
ECBA12		.583		.528
ECBA13			.765	.729
ECBA14		.567		.602
ECBA15		.793		.783
ECBA16	.661			.628
<i>Scale <math>\alpha</math></i>	.873	.837	.893	.941

TABLE 4.19. Reliability Estimates: Personal Norm Scale

Scale Items	Scale Item-to-Total Correlation
Personal norm scale	
PERNOR1	.927
PERNOR2	.934
PERNOR3	.933
PERNOR4	.926
PERNOR5	.927
PERNOR6	.941
PERNOR7	.932
PERNOR8	.927
<i>Scale <math>\alpha</math></i>	.940



Injunctive Norm Scale. A reliability analysis, employing the alpha method, was conducted on 8 items of the injunctive norm. The results of the item-to-total correlations and scale alpha are shown in Table 4.20.

All 8 items were retained in the final scale, on the basis of item-to-total correlations  $>.5$ , and scale alpha of .916.

Collective Orientation Scale. A reliability analysis, employing the alpha method, was conducted on 4 items of the collective orientation scale. The results of the item-to-total correlations and scale alpha are shown in Table 4.21.

TABLE 4.20. Reliability Estimates: Injunctive Norm Scale

Scale Items	Scale Item-to-Total Correlation
Personal norm scale	
INJNOR1	.772
INJNOR2	.758
INJNOR3	.619
INJNOR5	.760
INJNOR6	.718
INJNOR7	.776
INJNOR8	.732
<i>Scale <math>\alpha</math></i>	.912

TABLE 4.21. Reliability Estimates: Collective Orientation Scale

Scale Items	Scale Item-to-Total Correlation
Personal norm scale	
COLLEC1	.552
COLLEC2	.548
COLLEC3	.558
COLLEC4	.631
<i>Scale <math>\alpha</math></i>	.767

All 4 items were retained in the final scale, on the basis of item-to-total correlations  $>.5$ , and scale alpha of .770.

Product Involvement Scale. A reliability analysis, employing the alpha method, was conducted on 4 items of the product involvement scale. The results of the item-to-total correlations and scale alpha are shown in Table 4.22.

All 4 items were retained in the final scale, on the basis of item-to-total correlations  $>.5$ , and scale alpha of  $.827$ .

TABLE 4.22. Reliability Estimates: Product Involvement Scale

Scale Items	Scale Item-to-Total Correlation
Product involvement scale	
PROD2	.577
PROD5	.700
PROD8	.755
PROD10	.670
Scale $\alpha$	.827

Market Mavenship Scale. A reliability analysis, employing the alpha method, was conducted on the 6 items of the market mavenship scale. The results of the item-to-total correlations and scale alpha are shown in Table 4.23.

TABLE 4.23. Reliability Estimates: Market Mavenship Scale

Scale Items	Scale Item-to-Total Correlation
Market mavenship scale	
MKTMAV1	.723
MKTMAV2	.768
MKTMAV3	.838
MKTMAV4	.787
MKTMAV5	.872
MKTMAV	.804
Scale $\alpha$	.932

All 6 items were retained in the final scale, on the basis of item-to-total correlations  $>.5$ , and scale alpha of  $.931$ .

## Descriptive Statistics

The descriptive statistics for each of the 11 study variables, and the five control variables, are discussed in this section. The mean, median, mode, range, skewness, and kurtosis for each variable are presented in Table 4.24. Following the table is a discussion of the descriptive statistics for each variable.

TABLE 4.24. Descriptive Statistics for Study Variables

	Range	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
						Statistic	Std. Error	Statistic	Std. Error
purchbeh	5.31	1.19	6.50	4.6756	1.08737	-.743	.167	.497	.333
schinfo	5.83	1.17	7.00	4.4164	1.22179	-.610	.167	-.045	.333
consbeh	5.33	1.33	6.67	4.6771	1.09662	-.535	.167	.195	.333
supint	5.63	1.38	7.00	4.9455	1.36869	-.543	.167	-.404	.333
ecba	4.38	2.63	7.00	5.6317	1.10391	-.741	.167	-.385	.333
pernor	5.6	1.4	7.0	5.407	1.2264	-.864	.167	.699	.333
injnor	6	1	7	4.37	1.251	-.701	.167	.506	.333
collec	4.50	2.50	7.00	5.8010	1.02997	-.621	.167	-.277	.333
pceffe	6.00	1.00	7.00	4.8726	1.51698	-.588	.167	-.230	.333
prod	4.75	2.25	7.00	6.2280	.87256	-1.322	.167	1.791	.333
mktmav	6.00	1.00	7.00	4.0047	1.51010	-.066	.167	-.677	.333
valid n (listwise)	212								

Purchase behavior was measured using a 7-point scale, anchored by 1= never true, and 7= always true. The higher the score, the higher the frequency of the respondent's showing purchase behavior that is friendly toward the environment. The average of the purchase behavior scores for this study was 4.68. This finding suggests that the respondents of this study "often" exhibit purchase behavior that is friendly toward the environment.

Search for information was measured using a 7-point scale, anchored by 1= “never true” and 7= “always true”. The higher the score, the higher the frequency of the respondent’s conducting a search for information about environmentally friendly products and services. The average of the search for information scores for this study was 4.42. This finding suggests that the respondents “often” conduct a search for information on environmentally friendly products and services.

Conserving behavior was measured using a 7-point scale, anchored by 1= “never true” and 7= “always true”. The higher the score, the higher the frequency of the respondent’s performing conserving behavior. The average of the conserving behavior scores for this study was 4.68. This finding suggests that the respondents in this study “often” perform conserving behavior.

Supporting intent was measured using a 7-point scale, anchored by 1= “strongly disagree” and 7= “strongly agree”. The higher the score, the stronger is the respondent’s intention to take actions supporting efforts to preserve the environment. The average of the supporting intent scores for this study was 4.95. This finding suggests that the respondents “quite strongly” intend to support efforts at preserving the environment.

Environmentally concerned beliefs and attitudes was measured using a 7-point scale, anchored by 1= “strongly disagree”, and 7= “strongly agree”. The higher the score, the stronger is the respondent’s environmentally concerned beliefs and attitudes. The average of the environmentally concerned beliefs and attitudes scores for this study was 5.63. This finding suggests that the respondent has “almost strong” environmentally concerned beliefs and attitudes.

Personal norm was measured using a 7-point scale, anchored by 1= “no personal moral obligation”, and 7= “very strong personal moral obligation”. The higher the score, the stronger is the respondent’s felt personal moral obligation toward preserving the environment. The average of the personal norm scores for this study was 5.41. This finding suggests that the respondent feels an “almost strong” personal moral obligation to preserve the environment. It can be said that the personal norm of respondents is “almost strong”.

Injunctive norm was measured using a 7-point scale, anchored by 1= “strongly disagree” and 7= “strongly agree”. Injunctive norm pertains to the respondent’s perception of what environmental actions the reference group wants and expects from the respondent. The higher the score, the stronger is the respondent’s perception that the reference group wants him/her to take certain environmental actions. The average of the injunctive norm scores for this study was 4.37. This finding suggests that the reference group is perceived as feeling “quite strongly” that the respondent should take certain actions to preserve the environment. In other words, the injunctive norm is perceived to be “quite strong”.

Collective orientation was measured was measured using a 7-point scale, anchored by 1= “strongly disagree” and 7= “strongly agree”. The higher the score, the stronger is the respondent’s orientation to group goals, and unity with nature. The average of the collective orientation scores for this study was 5.80. This finding suggests that that the respondents are “almost strongly” oriented to group goals, and to unity with nature. In other words, respondents have an “almost strong” collective orientation.

Perceived consumer effectiveness was measured using a 7-point scale, anchored by 1= “strongly disagree” and 7= “strongly agree”. The higher the score, the stronger is the respondent’s perception of the ability of the individual consumer to affect the environmental problem. The average of the perceived consumer effectiveness scores was 4.87. This finding suggests that that the respondents “quite strongly” perceive the ability of the individual consumer to affect the environmental problem.

Product involvement was measured using a 7-point scale comprising bipolar adjectives, anchored by 1= very low level and 7= very high level of involvement. The higher the score, the higher is the respondent’s involvement with environmental issues. The average of the product involvement scores was 6.23. This finding suggests that that the respondents have a very high level of involvement with environmental issues.

Market mavenship was measured using a 7-point scale, anchored by 1= “strongly disagree” and 7= “strongly agree”. The higher the score, the higher is the respondent’s level of market mavenship, i.e. having information on a variety of products, as well as having a desire to share this information with others. The average of the market mavenship scores was 4.00. This finding suggests that the respondents neither strongly agree nor strongly disagree that they have information on a variety of products, and desire to share this information with others. Therefore we conclude that the level of market mavenship among the respondents is at an average level (neither high nor low).

## Correlations

The correlations among the key variables in the study are presented in Table 4.25. As indicated in the table, all variables are correlated with at least one other variable. In addition, all correlations are significant at the .01 level of significance in a two-tailed test.

Purchase behavior was evidenced to be significantly correlated with search for information ( $r = .768$ ), conserving behavior ( $r = .719$ ), supporting intent ( $r = .614$ ), environmentally concerned beliefs and attitudes ( $r = .576$ ), personal norm ( $r = .710$ ), injunctive norm ( $r = .534$ ), perceived consumer effectiveness ( $r = .574$ ), and product involvement ( $r = .504$ ). Additionally, search for information was found to be significantly correlated with conserving behavior ( $r = .668$ ), supporting intent ( $r = .523$ ), environmentally concerned beliefs and attitudes ( $r = .477$ ), personal norm ( $r = .694$ ), injunctive norm ( $r = .522$ ), perceived consumer effectiveness ( $r = .580$ ), product involvement ( $r = .548$ ), and market mavenship ( $r = .226$ ).

Also, conserving behavior was found to be significantly correlated with supporting intent ( $r = .527$ ), environmentally concerned beliefs and attitudes ( $r = .449$ ), personal norm ( $r = .642$ ), injunctive norm ( $r = .506$ ), perceived consumer effectiveness ( $r = .471$ ), and product involvement ( $r = .414$ ). Supporting intent is significantly correlated with environmentally concerned beliefs and attitudes ( $r = .796$ ), personal norm ( $r = .629$ ), injunctive norm ( $r = .432$ ), collective orientation ( $r = .254$ ), perceived consumer effectiveness ( $r = .419$ ), and product involvement ( $r = .530$ ).

TABLE 4.25 Correlations Among Study Variables

		MEAN of purchase behavior with 16 variables	MEAN of search for information one factor 6 variables	MEAN of conserving behavior one factor 9 variables	MEAN of supporting intent one factor 8 variables	MEAN of environmentally concerned beliefs and attitudes one factor 16 variables	MEAN of personal norm one factor 8 variables	MEAN of injunctive norm one factor 7 variables
MEAN of purchase behavior with 16 variables	Pearson Correlation	1	.768**	.719**	.614**	.576**	.710**	.534**
	Sig. (2-tailed)	.	.000	.000	.000	.000	.000	.000
	N	212	212	212	212	212	212	212
MEAN of search for information one factor 6 variables	Pearson Correlation	.768**	1	.668**	.523**	.477**	.694**	.522**
	Sig. (2-tailed)	.000	.	.000	.000	.000	.000	.000
	N	212	212	212	212	212	212	212
MEAN of conserving behavior one factor 9 variables	Pearson Correlation	.719**	.668**	1	.527**	.449**	.642**	.506**
	Sig. (2-tailed)	.000	.000	.	.000	.000	.000	.000
	N	212	212	212	212	212	212	212
MEAN of supporting intent one factor 8 variables	Pearson Correlation	.614**	.523**	.527**	1	.796**	.629**	.432**
	Sig. (2-tailed)	.000	.000	.000	.	.000	.000	.000
	N	212	212	212	212	212	212	212
MEAN of environmentally concerned beliefs and attitudes one factor 16 variables	Pearson Correlation	.576**	.477**	.449**	.796**	1	.694**	.409**
	Sig. (2-tailed)	.000	.000	.000	.000	.	.000	.000
	N	212	212	212	212	212	212	212
MEAN of personal norm one factor 8 variables	Pearson Correlation	.710**	.694**	.642**	.629**	.694**	1	.564*
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.	.000
	N	212	212	212	212	212	212	212



TABLE 4.25 (Continued)

MEAN of injunctive norm one factor 7 variables	Pearson Correlation	.534**	.522**	.506**	.432**	.409**	.564*	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.
	N	212	212	212	212	212	212	212
MEAN of collective orientation one factor 7 variables	Pearson Correlation	.173*	.147*	.011	.254**	.377**	.277**	.056
	Sig. (2-tailed)	.012	.033	.872	.000	.000	.000	.420
	N	212	212	212	212	212	212	212
Original perceived consumer effectiveness item 2	Pearson Correlation	.574**	.580**	.471**	.419**	.406**	.537**	.426**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	212	212	212	212	212	212	212
MEAN of correct product involvement 2,5, 8,10	Pearson Correlation	.504**	.548**	.414**	.530**	.577*	.634**	.334**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	212	212	212	212	212	212	212
MEAN of market mavenship one factor 6 variables	Pearson Correlation	.110	.226**	.078	.118	.091	.097	.126
	Sig. (2-tailed)	.112	.001	.256	.085	.187	.158	.067
	N	212	212	212	212	212	212	212
TREND(GENDER)	Pearson Correlation	.045	-.053	-.062	.108	.139*	.163*	-.056
	Sig. (2-tailed)	.510	.447	.365	.118	.043	.017	.413
	N	212	212	212	212	212	212	212
TREND(EDUCATION)	Pearson Correlation	.140*	.148*	.263**	.102	.067	.115	.193**
	Sig. (2-tailed)	.042	.031	.000	.137	.328	.094	.005
	N	212	212	212	212	212	212	212
TREND(HHINCOME)	Pearson Correlation	.173*	.232**	.179**	.162*	.137*	.138*	.133
	Sig. (2-tailed)	.011	.001	.009	.018	.047	.045	.053
	N	212	212	212	212	212	212	212

TABLE 4.25 (Continued)

MEAN of purchase behavior with 16 variables	Pearson Correlation	.173*	.574**	.504**	.110	.045	.140*	.173*
	Sig. (2-tailed)	.012	.000	.000	.112	.510	.042	.011
	N	212	212	212	212	212	212	212
MEAN of search for information one factor 6 variables	Pearson Correlation	.147*	.580**	.548**	.226**	-.053	.148*	.173*
	Sig. (2-tailed)	.033	.000	.000	.001	.447	.031	.011
	N	212	212	212	212	212	212	212
MEAN of conserving behavior one factor 9 variables	Pearson Correlation	.011	.471**	.414**	.078	-.062	.263**	.179**
	Sig. (2-tailed)	.872	.000	.000	.256	.365	.000	.009
	N	212	212	212	212	212	212	212
MEAN of supporting intent one factor 8 variables	Pearson Correlation	.254**	.419**	.530**	.118	.108	.102	.162*
	Sig. (2-tailed)	.000	.000	.000	.085	.118	.137	.018
	N	212	212	212	212	212	212	212
MEAN of environmentally concerned beliefs and attitudes one factor 16 variables	Pearson Correlation	.377**	.406**	.577*	.091	.139*	.067	.137*
	Sig. (2-tailed)	.000	.000	.000	.187	.043	.328	.047
	N	212	212	212	212	212	212	212
MEAN of personal norm one factor 8 variables	Pearson Correlation	.277**	.537**	.634**	.097	.163*	.115	.138*
	Sig. (2-tailed)	.000	.000	.000	.158	.017	.094	.045
	N	212	212	212	212	212	212	212
MEAN of injunctive norm one factor 7 variables	Pearson Correlation	.056	.426**	.334**	.126	-.056	.193**	.133
	Sig. (2-tailed)	.420	.000	.000	.067	.413	.005	.053
	N	212	212	212	212	212	212	212

TABLE 4.25 (Continued)

MEAN of collective orientation one factor 7 variables	Pearson Correlation	1	.210**	.340**	.048	.148*	-.164*	.024
	Sig. (2-tailed)	.	.002	.000	.488	.031	.017	.733
	N	212	212	212	212	212	212	212
original perceived consumer effectiveness item 2	Pearson Correlation	.210**	1	.406**	.158*	-.012	.136*	.183**
	Sig. (2-tailed)	.002	.	.000	.021	.858	.048	.008
	N	212	212	212	212	212	212	212
MEAN of correct product involvement 2,5, 8,10	Pearson Correlation	.340**	.406**	1	.104	.174*	.086	.081
	Sig. (2-tailed)	.000	.000	.	.132	.011	.215	.241
	N	212	212	212	212	212	212	212
MEAN of market mavenship one factor 6 variables	Pearson Correlation	.048	.158*	.104	1	.169*	-.012	.113
	Sig. (2-tailed)	.488	.021	.132	.	.014	.867	.101
	N	212	212	212	212	212	212	212
TREND(GENDER)	Pearson Correlation	.148*	-.012	.174*	.169*	1	-.129	-.057
	Sig. (2-tailed)	.031	.858	.011	.014	.	.061	.411
	N	212	212	212	212	212	212	212
TREND(EDUCATION)	Pearson Correlation	-.164*	.136*	.086	-.012	-.129	1	.084
	Sig. (2-tailed)	.017	.048	.215	.867	.061	.	.226
	N	212	212	212	212	212	212	212
TREND(HHINCOME)	Pearson Correlation	.024	.183**	.081	.113	-.057	.084	1
	Sig. (2-tailed)	.733	.008	.241	.101	.411	.226	.
	N	212	212	212	212	212	212	212

\*\* Correlation is significant at the 0.01 level (two-tailed)

\* Correlation is significant at the 0.05 level (two-tailed)

Further, environmentally concerned beliefs and attitudes was significantly related to personal norm ( $r = .694$ ), injunctive norm ( $r = .409$ ), collective orientation ( $r = .377$ ), perceived consumer effectiveness ( $r = .406$ ), and product involvement ( $r = .577$ ). Personal norm was significantly related to injunctive norm ( $r = .564$ ), perceived consumer effectiveness ( $r = .537$ ), and product involvement ( $r = .634$ ). Injunctive norm was significantly related to perceived consumer effectiveness ( $r = .426$ ), and product involvement ( $r = .334$ ). Collective orientation was significantly correlated to perceived consumer effectiveness ( $r = .210$ ) and product involvement ( $r = .340$ ). Also, perceived consumer effectiveness was significantly correlated to product involvement ( $r = .406$ ).

Among the control variables, age was significantly correlated with gender ( $r = -.230$ ), whereas household income was correlated to age ( $r = .360$ ). Occupation was significantly correlated with gender ( $r = .179$ ), age ( $r = -.188$ ), and household income ( $r = -.265$ ). On account of the high correlations among control variables, it was decided to exclude age and occupation from further analysis.

### Hypothesis Testing

The research hypotheses presented in Chapter 3 were tested using Moderated Multiple Regression (MMR), a form of hierarchical regression analysis. A total of 32 hypotheses were tested in this research, with the use of estimation models as described below.

### Purchase Behavior as the Dependent Variable

Model 1. In the first test in the hierarchy, three variables, gender, education, and household income, were used as the control variables and were tested by estimating the following regression equation:

$$\text{PURCHBEH}_1 = B0_1 + B1_1\text{GENDER}_1 + B2_1\text{EDUCAT}_1 + B3_1\text{HHINCO}_1 + E1_1$$

Where  $\text{PURCHBEH}_1$  = purchase behavior

$B0_1$  = intercept for the model

$\text{GENDER}_1$  = gender

$\text{EDUCAT}_1$  = education

$\text{HHINCO}_1$  = household income

$E1_1$  = error.

Model 2. The next test in the hierarchy took into account the direct effects of the predictors (environmental beliefs and attitudes, personal norm, injunctive norm, collectivist orientation, and perceived consumer effectiveness), and mean centered moderators (involvement and market mavenship) on purchase behavior. The moderators were mean centered to keep in check the Variance Inflation Factor or VIF (Aiken and West 1990). The regression equation was in the following form:

$$\begin{aligned} \text{PURCHBEH}_2 = & B0_2 + B1_2\text{GENDER}_1 + B2_2\text{EDUCAT}_1 + B3_2\text{HHINCO} + \\ & B4_2\text{MEEC} + B5_2\text{MEPN} + B6_2\text{MEIN} + B7_2\text{MECO} + B8_2\text{PCEFFE} + B9_2\text{MCPI} + \\ & B10_2\text{MCMM} + E2 \end{aligned}$$

Where the incremental terms were:

MEEC= environmentally concerned beliefs and attitudes

MEPN= personal norm

MEIN= injunctive norm

MECO= collectivist orientation

PCEFFE= perceived consumer effectiveness

MCPI= mean centered product involvement

MCMM= mean centered market mavenship

Model 3. The final test in the hierarchy took into account the direct effects between the interaction of mean centered predictors (environmentally concerned beliefs and attitudes, and collectivist orientation) and mean centered moderators (involvement and market mavenship) on purchase behavior. The regression equation was in the form:

$$\text{PURCHBEH}_3 = B0_3 + B1_3\text{GENDER}_1 + B2_3\text{EDUCAT}_1 + B3_3\text{HHINCO} + B4_3\text{MEEC} + B5_3\text{MEPN} + B6_3\text{MEIN} + B7_3\text{MECO} + B8_3\text{PCEFFE} + B9_3\text{MCPI} + B10_3\text{MCMM} + B11_3\text{ECXPI} + B12_3\text{COXPI} + B13_3\text{ECXMM} + E_3$$

Where the incremental terms were:

ECXPI= interaction of mean centered environmentally concerned beliefs and attitudes and mean centered product involvement

COXPI= interaction of mean centered collective orientation and mean centered product involvement

ECXMM= interaction of mean centered environmentally concerned beliefs and attitudes and mean centered market mavenship.

### Search for Information as the Dependent Variable

Model 1. In the first test in the hierarchy, three variables, gender, education, and household income, were used as the control variables and were tested by estimating the following regression equation:

$$SCHINF_1 = B0_1 + B1_1GENDER\_1 + B2_1EDUCAT\_1 + B3_1HHINCO\_1 + E1_1$$

Where  $SCHINF_1$  = search for information

$B0_1$  = intercept for the model

$GENDER\_1$  = gender

$EDUCAT\_1$  = education

$HHINCO\_1$  = household income

$E1_1$  = error.

Model 2. The next test in the hierarchy took into account the direct effects of the predictors (environmental beliefs and attitudes, personal norm, injunctive norm, collectivist orientation, and perceived consumer effectiveness), and mean centered moderators (involvement and market mavenship) on search for information. The regression equation was in the following form:

$$SCHINF_2 = B0_2 + B1_2GENDER\_1 + B2_2EDUCAT\_1 + B3_2HHINCO + \\ B4_2MEEC + B5_2MEPN + B6_2MEIN + B7_2MECO + B8_2PCEFFE + B9_2MCPI + \\ B10_2MCMM + E$$

Where the incremental terms were:

MEEC = environmentally concerned beliefs and attitudes

MEPN = personal norm

MEIN= injunctive norm

MECO= collectivist orientation

PCEFFE= perceived consumer effectiveness

MCPI= mean centered product involvement

MCMM= mean centered market mavenship

Model 3. The final test in the hierarchy took into account the direct effects between the interaction of mean centered predictors (environmentally concerned beliefs and attitudes, and collectivist orientation) and mean centered moderators (involvement and market mavenship) on purchase behavior. The regression equation was in the form:

$$\begin{aligned} \text{SCHINF}_3 = & B0_3 + B1_3\text{GENDER}_1 + B2_3\text{EDUCAT}_1 + B3_3\text{HHINCO} + \\ & B4_3\text{MEEC} + B5_3\text{MEPN} + B6_3\text{MEIN} + B7_3\text{MECO} + B8_3\text{PCEFFE} + B9_3\text{MCPI} + \\ & B10_3\text{MCMM} + B11_3\text{ECXPI} + B12_3\text{COXPI} + B13_3\text{ECXMM} + E_3 \end{aligned}$$

Where the incremental terms were:

ECXPI= interaction of mean centered environmentally concerned beliefs and attitudes and mean centered product involvement

COXPI= interaction of mean centered collective orientation and mean centered product involvement

ECXMM= interaction of mean centered environmentally concerned beliefs and attitudes and mean centered market mavenship.



### Conserving Behavior as the Dependent Variable

Model 1. In the first test in the hierarchy, three variables, gender, education, and household income, were used as the control variables and were tested by estimating the following regression equation:

$$\text{CONSBEH}_1 = B_{0_1} + B_{1_1}\text{GENDER}_1 + B_{2_1}\text{EDUCAT}_1 + B_{3_1}\text{HHINCO}_1 + E_{1_1}$$

Where  $\text{CONSBEH}_1$  = conserving behavior

$B_{0_1}$  = intercept for the model

$\text{GENDER}_1$  = gender

$\text{EDUCAT}_1$  = education

$\text{HHINCO}_1$  = household income

$E_{1_1}$  = error.

Model 2. The next test in the hierarchy took into account the direct effects of the predictors (environmental beliefs and attitudes, personal norm, injunctive norm, collectivist orientation, and perceived consumer effectiveness), and mean centered moderators (involvement and market mavenship) conserving behavior. The regression equation was in the following form:

$$\begin{aligned} \text{CONSBEH}_2 = & B_{0_2} + B_{1_2}\text{GENDER}_1 + B_{2_2}\text{EDUCAT}_1 + B_{3_2}\text{HHINCO}_1 + \\ & B_{4_2}\text{MEEC} + B_{5_2}\text{MEPN} + B_{6_2}\text{MEIN} + B_{7_2}\text{MECO} + B_{8_2}\text{PCEFFE} + B_{9_2}\text{MEPI} + \\ & B_{10_2}\text{MEMM} + E_2 \end{aligned}$$

Where the incremental terms were:

MEEC= environmentally concerned beliefs and attitudes

MEPN= personal norm

MEIN= injunctive norm

MECO= collectivist orientation

PCEFFE= perceived consumer effectiveness

MCPI= mean centered product involvement

MCMM= mean centered market mavenship

Model 3. The final test in the hierarchy took into account the direct effects between the interaction of mean centered predictors (environmentally concerned beliefs and attitudes, and collectivist orientation) and mean centered moderators (involvement and market mavenship) conserving behavior. The regression equation was in the form:

$$\begin{aligned} \text{CONSBEH}_3 = & B0_3 + B1_3\text{GENDER}_1 + B2_3\text{EDUCAT}_1 + B3_3\text{HHINCO} + \\ & B4_3\text{MEEC} + B5_3\text{MEPN} + B6_3\text{MEIN} + B7_3\text{MECO} + B8_3\text{PCEFFE} + B9_3\text{MCPI} + \\ & B10_3\text{MCMM} + B11_3\text{ECXPI} + B12_3\text{COXPI} + B13_3\text{ECXMM} + E_3 \end{aligned}$$

Where the incremental terms were:

ECXPI= interaction of mean centered environmentally concerned beliefs and attitudes and mean centered product involvement

COXPI= interaction of mean centered collective orientation and mean centered product involvement

ECXMM= interaction of mean centered environmentally concerned beliefs and attitudes and mean centered market mavenship.

### Supporting Intent as the Dependent Variable

Model 1. In the first test in the hierarchy, three variables, gender, education, and household income, were used as the control variables and were tested by estimating the following regression equation:

$$\text{SUPINT}_1 = B0_1 + B1_1\text{GENDER}_1 + B2_1\text{EDUCAT}_1 + B3_1\text{HHINCO}_1 + E1_1$$

Where SUPINT<sub>1</sub> = supporting intent

B<sub>0</sub><sub>1</sub> = intercept for the model

GENDER<sub>1</sub> = gender

EDUCAT<sub>1</sub> = education

HHINCO<sub>1</sub> = household income

E<sub>1</sub> = error.

Model 2. The next test in the hierarchy took into account the direct effects of the predictors (environmental beliefs and attitudes, personal norm, injunctive norm, collectivist orientation, and perceived consumer effectiveness), and mean centered moderators (involvement and market mavenship) on supporting intent. The regression equation was in the following form:

$$\begin{aligned} \text{SUPINT}_2 = & B0_2 + B1_2\text{GENDER}_1 + B2_2\text{EDUCAT}_1 + B3_2\text{HHINCO}_1 + \\ & B4_2\text{MEEC} + B5_2\text{MEPN} + B6_2\text{MEIN} + B7_2\text{MECO} + B8_2\text{PCEFFE} + B9_2\text{MCPI} + \\ & B10_2\text{MCMM} + E_2 \end{aligned}$$

Where the incremental terms were:

MEEC= environmentally concerned beliefs and attitudes

MEPN= personal norm

MEIN= injunctive norm

MECO= collectivist orientation

PCEFFE= perceived consumer effectiveness

MCPI= mean centered product involvement

MCMM= mean centered market mavenship

Model 3. The final test in the hierarchy took into account the direct effects between the interaction of mean centered predictors (environmentally concerned beliefs and attitudes, and collectivist orientation) and mean centered moderators (involvement and market mavenship) on supporting intent. The regression equation was in the form:

$$\begin{aligned} \text{SUPINT}_3 = & B0_3 + B1_3\text{GENDER}_1 + B2_3\text{EDUCAT}_1 + B3_3\text{HHINCO} + \\ & B4_3\text{MEEC} + B5_3\text{MEPN} + B6_3\text{MEIN} + B7_3\text{MECO} + B8_3\text{PCEFFE} + B9_3\text{MCPI} + \\ & B10_3\text{MCMM} + B11_3\text{ECXPI} + B12_3\text{COXPI} + B13_3\text{ECXMM} + E_3 \end{aligned}$$

Where the incremental terms were:

ECXPI= interaction of mean centered environmentally concerned beliefs and attitudes and mean centered product involvement

COXPI= interaction of mean centered collective orientation and mean centered product involvement

ECXMM= interaction of mean centered environmentally concerned beliefs and attitudes and mean centered market mavenship.

## Regression Results

### Regression Assumptions

It was confirmed that the assumptions of linear regression were not violated.

Extreme Values. No more than five percent of the cases were located outside two standard deviations from the mean. This evidenced that there was no significant influence of extreme values on the dependent variables.

Normality. The histogram of regression standardized residuals revealed a normal distribution. All normal p-p plots of the regression standardized residuals indicated that the observed cumulative probability was highly correlated with expected cumulative probability.

Homogeneity of Error Terms. The charted scatterplots revealed no significant relationship between regression standardized predicted values and regression standardized residuals. The plots showed no evidence of significant pattern.

Variance Inflation Factor (VIF). Furthermore, the VIF for all models was found to be well below the cut-off point of 10, evidencing no multicollinearity among the independent variables.

The benefits of the prior purification of the measures through factor analysis and reliability analysis appeared to be in evidence. As there was no violation of the assumptions of regression analysis, the results may be taken as valid.

### Purchase Behavior as the Dependent Variable

The parameter estimates for the best fit model are presented in Table 4.26 (Model 2,  $R^2 = .588$ ,  $R^2$  change = .537,  $F$  change 37.422,  $p \leq .001$   $df = 211$ ;  $F$  model = 28.690,  $p \leq .001$ ). According to this model, at the .001 level of significance, 58.8 per cent of the variance in purchase behavior was explained by environmentally concerned beliefs and attitudes, personal norm, injunctive norm, and perceived consumer effectiveness.

The equation for Model 2 was as follows:

$$\text{PURCHBEH}_2 = .964 + .145\text{MEEC} + .344\text{MEPN} + .116\text{MEIN} + .166\text{PCEFFE}$$

Where:

MEEC= environmentally concerned beliefs and attitudes

MEPN= personal norm

MEIN= injunctive norm

PCEFFE= perceived consumer effectiveness.

Hypothesis H1(a) suggested that environmentally concerned beliefs and attitudes will be significantly and positively related to purchase behavior. The regression results provided support for hypothesis H1(a). Environmentally concerned beliefs and attitudes were evidenced to be significantly and positively related to purchase behavior ( $b = .145$ ,  $t = 2.193$ ,  $p \leq .05$ ).

Hypothesis H2(a) suggested that personal norm will be significantly and positively related to purchase behavior. The regression results provided support for hypothesis H2(a). Personal norm was evidenced to be significantly and positively related to purchase behavior (Model 2,  $b = .344$ ,  $t = 4.944$ ,  $p \leq .001$ ).

TABLE 4.26. Results of Hierarchical Regression Predicting Purchase Behavior for Proposed Model

Variables	Model 1		Model 2		Model 3	
	<i>b</i>	<i>t-value</i>	<i>b</i>	<i>t-value</i>	<i>b</i>	<i>t-value</i>
Constant	3.515	9.648***	.964	1.982*	.931	1.887+
Control variables						
Gender						
Education	.143	1.985*				
Income	.127	2.450**				
Main effects						
Beliefs and attitudes			.145	2.193*	.145	2.189*
Personal Norm			.344	4.944***	.338	4.733***
Injunctive Norm			.116	2.318*	.115	2.291*
Collectivist						
Orientation						
Perceived Consumer Effectiveness			.166	4.111***	.169	4.161***
Involvement						
Market Mavenship						
Interactional effects						
Beliefs and Attitudes X Involvement						
Collectivist X Involvement						
Beliefs and Attitudes X Market Mavenship						
R <sup>2</sup>	.051		.588		.590	
R <sup>2</sup> Change	.051		.537		.002	
F-Change	3.736+		37.422***			
Degrees of freedom	211		211		211	
F-model	3.736*		28.690***		21.941***	
Durbin-Watson					1.866	

\* *significant at*  $\leq .05$  (one-tailed test).

\*\* *significant at*  $\leq .01$  (one-tailed test).

\*\*\* *significant at*  $\leq .001$  (one-tailed test).

+ *significant at*  $\leq .10$  (one-tailed test).

Hypothesis H3(a) suggested that injunctive norm will be significantly and positively related to purchase behavior. The regression results provided support for hypothesis H3(a). Injunctive norm was found to be significantly and positively related to purchase behavior ( $b = .116$ ,  $t = 2.318$ ,  $p \leq .05$ ).

Hypothesis 5(a) suggested that perceived consumer effectiveness will be significantly and positively related to purchase behavior. The regression results provided support for hypothesis H5 (a). Injunctive norm was found to be significantly and positively related to purchase behavior ( $b = .166, t = 4.111, p \leq .001$ ).

No significant interactional effects were found. Parameter estimates for Model 3 indicated that although the model was robust ( $R^2 = .590, F = 21.941, df = 211, p \leq .001$ ), the change statistics over Model 2 were not significant (Model 3:  $R^2$  change = .002,  $F$  change = not significant,  $df = 211$ ).

A summary (Table 4.27) of the hypotheses related to purchase behavior is given below.

TABLE 4.27. Hypotheses Associated With Purchase Behavior

*H1a:	Environmentally concerned beliefs and attitudes will be significantly and positively related to purchase behavior.
*H2a:	Personal norm will be significantly and positively related to purchase behavior.
*H3a:	Injunctive norm will be significantly and positively related to purchase behavior.
H4a:	Collective orientation will be significantly and positively related to purchase behavior.
*H5a:	Perceived consumer effectiveness will be significantly and positively related to purchase behavior.
H6a:	The strength of the direct linkage between environmentally concerned beliefs and attitudes, and purchase behavior, will be higher for consumers with high involvement, and lower for consumers with low involvement.
H7a:	The strength of the direct linkage between collectivist orientation, and purchase behavior, will be higher for higher for consumers with high involvement, and lower for consumers with low involvement.
H8a:	The strength of the direct linkage between environmentally concerned beliefs and attitudes, and purchase behavior, will be higher for higher for consumers with high market mavenship, and lower for consumers with low market mavenship.

\*supported



### Search for Information as the Dependent Variable

The parameter estimates for the best model fit are presented in Table 4.28 below (Model 2,  $R^2 = .622$ ,  $R^2$  change =  $.551$ ,  $df = 211$ ,  $F$  change =  $41.912$ ,  $p \leq .001$ ,  $F$  model =  $33.129$ ,  $p \leq .001$ ). According to Model 2, at the  $.001$  level of significance, 62.2 per cent of the variance in search for information was explained by personal norm, injunctive norm, collectivist orientation, perceived consumer effectiveness, involvement, and market mavenship. The equation for this model was:

$$\text{SCHINF}_2 = 1.497 - .415\text{GENDER}_1 + .074\text{HHINCO} + .457\text{MEPN} + .96\text{MEIN} - .071\text{MECO} + .167\text{PCEFFE} + .284\text{MCPI} + .114\text{MCMM}$$

where:

GENDER\_1 = gender

HHINCO\_1 = household income

MEPN = personal norm

MEIN = injunctive norm

MECO = collectivist orientation

PCEFFE = perceived consumer effectiveness

MCPI = mean centered product involvement

MCMM = mean centered market mavenship

Hypothesis H2(b) suggested that personal norm will be significantly and positively related to search for information. The regression results provided support for hypothesis H2(b). Personal norm ( $b = .457$ ,  $t = 6.105$ ,  $p \leq .001$ ) was evidenced to be significantly and positively related to search for information.

Hypothesis H3(b) suggested that injunctive norm will be significantly and positively related to search for information. The regression results provided support for hypothesis H3(b). Injunctive norm ( $b = .096$ ,  $t = 1.791$ ,  $p \leq .05$ ) was found to be significantly and positively related to search for information.

Hypothesis H5(b) suggested that perceived consumer effectiveness will be significantly and positively related to search for information. The regression results provided support for Hypothesis H5(b). Perceived consumer effectiveness ( $b = .167$ ,  $t = 3.860$ ,  $p \leq .001$ ) was found to be significantly and positively related to search for information.

Additionally, product involvement ( $b = .284$ ,  $t = 3.430$ ,  $p \leq .001$ ), and market mavenship ( $b = .114$ ,  $t = 3.166$ ,  $p \leq .001$ ), were found to be significantly and positively related to search for information. It may be noted here that involvement and market mavenship were proposed as having a moderating role; however, results evidenced involvement and market mavenship as determinants of search for information.

It may also be noted that although Model 3 was found to be robust ( $R^2 = .531$ ,  $F_{\text{model}} = 25.876$ ,  $p \leq .001$ ), the change statistics ( $R^2 \text{ change} = .007$ ,  $F \text{ change} = \text{not significant}$ ,  $df = 211$ ) indicated a superiority of Model 2. However, Model 3 shed some further light on the processes responsible for search for information.

Hypothesis H 4(b) proposed that collectivist orientation will be significantly and positively related to search for information. However, collectivist orientation was found to be negatively related to search for information (Model 3,  $b = -.086$ ,  $t = -1.455$ ,  $p \leq .10$ ).

TABLE 4.28. Results of Hierarchical Regression Predicting Search for Information for Proposed Model

Variables	Model 1		Model 2		Model 3	
	<i>b</i>	<i>t-value</i>	<i>b</i>	<i>t-value</i>	<i>b</i>	<i>t-value</i>
Constant	3.131	7.731***	1.497	2.861**	1.419	2.692**
Control variables						
Gender	-.415	3.358***	-.415	3.358***	-.438	3.530***
Education	.150	1.878*				
Income	.189	3.281***	.074	1.945*	.076	1.980*
Main effects						
Beliefs and attitudes						
Personal Norm			.457	6.105***	.475	6.228***
Injunctive Norm			.096	1.791*	.101	1.881*
Collectivist Orientation					-.086	-1.455+
Perceived Consumer Effectiveness			.167	3.860***	.170	3.913***
Involvement			.284	3.343***	.283	3.192***
Market Mavenship			.114	3.116**	.105	2.859**
Interactional effects						
Beliefs and Attitudes X Involvement					.102	1.524+
Collectivist X Involvement					-.079	-1.439+
Beliefs and Attitudes X Market Mavenship						
R <sup>2</sup>	.071		.622		.629	
R <sup>2</sup> Change	.071		.551		.007	
F-Change	5.317**		41.912***			
Degrees of freedom	211		211		211	
F-model	5.317		33.129***		15.251***	
Durbin-Watson					2.004	

\* significant at  $\leq .05$  (one-tailed test).

\*\* significant at  $\leq .01$  (one-tailed test).

\*\*\* significant at  $\leq .001$  (one-tailed test).

+ significant at  $\leq .10$  (one-tailed test).

Hypothesis H6 (b) suggested that the strength of the direct linkage between environmentally concerned beliefs and attitudes and search for information, will be

higher for consumers with higher product involvement, and lower for consumers with low product involvement. The regression results supported hypothesis H6 (b). A significant interactional effect of product involvement was evidenced on the direct linkage between environmentally concerned beliefs and attitudes, and search for information (Model 3,  $b = .102$ ,  $t = 1.524$ ,  $p \leq .10$ ).

Hypothesis H7 (b) suggested that the strength of the direct linkage between collective orientation and search for information, will be higher for consumers with higher product involvement, and lower for consumers with low product involvement. The regression results supported hypothesis H7 (b). A significant interactional effect of product involvement was evidenced on the direct linkage between collectivist orientation, and search for information (Model 3,  $b = -.079$ ,  $t = 1.439$ ,  $p \leq .10$ ).

It would be in order to note here that the control variable, gender was found to be significantly and negatively related to search for information (Model 3,  $b = -.438$ ,  $t = -3.530$ ,  $p \leq .001$ ), that is, being female was associated with a lower level of search for information. Also, the control variable household income was found to be significantly and positively related to search for information ( $b = .076$ ,  $t = 1.980$ ,  $p \leq .05$ ). That is, the higher the income level, the greater the search for information. A summary of the hypotheses related to search for information is given in Table 4.29.

### Conserving Behavior

The parameter estimates for the best fit model are presented in Table 4.30 below (Model 2,  $R^2 = .517$ ,  $R^2$  change =  $.422$ ,  $df = 211$ ,  $F$  change =  $25.071$ ,  $p \leq .001$ ,  $F$  model =  $21.474$ ,  $p \leq .001$ ). According to this model, at the .001 level of significance, 51.7 per cent of the variance in conserving behavior was explained by personal norm,

injunctive norm, collective orientation, and perceived consumer effectiveness. The equation was in the form:

$$\text{CONSBEH}_2 = 1.706 - .260\text{GENDER}_1 + .123\text{EDUCAT}_1 + .439\text{MEPN} \\ + .101\text{MEIN} - .166\text{MECO} + .092\text{PCEFFE}$$

Where:

GENDER\_1= gender

EDUCAT\_1= education

MEPN= personal norm

MEIN= injunctive norm

MECO= collectivist orientation

TABLE 4.29. Hypotheses Associated with Search for Information

H1b	: Environmentally concerned beliefs and attitudes will be significantly and positively related to search for information.
*H2b:	Personal norm will be significantly and positively related to search for information.
*H3b:	Injunctive norm will be significantly and positively related to search for information.
H4b:	Collective orientation will be significantly and positively related to search for information.
*H5b:	Perceived consumer effectiveness will be significantly and positively related to search for information.
*H6b:	The strength of the direct linkage between environmentally concerned beliefs and attitudes, and search for information, will be higher for higher for consumers with high involvement, and lower for consumers with low involvement.
*H7b:	The strength of the direct linkage between collectivist orientation, and search for information, will be higher for higher for consumers with high involvement, and lower for consumers with low involvement.
H8b:	The strength of the direct linkage between environmentally concerned beliefs and attitudes, and search for information, will be higher for higher for consumers with high market mavenship, and lower for consumers with low market mavenship.

\* supported

Hypothesis H2(c) suggested that personal norm will be significantly and positively related to conserving behavior. The regression results provided support for hypothesis H2(c). Personal norm ( $b = .439$ ,  $t = 5.776$ ,  $p \leq .001$ ), was found to be significantly and positively related to conserving behavior.

Hypothesis H3(c) suggested that injunctive norm will be significantly and positively related to conserving behavior. The regression results provided support for hypothesis H3(c). As can be seen, injunctive norm ( $b = .101$ ,  $t = 1.845$ ,  $p \leq .05$ ), was found to be significantly and positively related to conserving behavior.

Hypothesis H4(c) suggested that collective orientation will be significantly and positively related to conserving behavior. The regression results evidenced that collective orientation ( $b = -.166$ ,  $t = -2.797$ ,  $p \leq .01$ ) was significantly and negatively related to conserving behavior.

Hypothesis H5(c) suggested that perceived consumer effectiveness will be significantly and positively related to conserving behavior. The regression results provided support for hypothesis H5(c). Perceived consumer effectiveness ( $b = .092$ ,  $t = 2.101$ ,  $p \leq .05$ ) was found to be positively and significantly related to conserving behavior.

It may also be noted that although Model 3 was found to be robust ( $R^2 = .531$ ,  $df = 211$ ,  $F_{\text{model}} = 17.270$ ,  $p \leq .001$ ), the change statistics ( $R^2 \text{ change} = .015$ ,  $F_{\text{change}}$  not significant,  $df = 211$ ) indicated a superiority of Model 2. However, Model 3 shed some light on some interactional effects responsible for the creation of conserving behavior.

TABLE 4.30. Results of Hierarchical Regression Predicting  
Conserving Behavior for Proposed Model

Variables	Model 1		Model 2		Model 3	
	<i>b</i>	<i>t-value</i>	<i>b</i>	<i>t-value</i>	<i>b</i>	<i>t-value</i>
Constant	3.254	9.066***	1.706	3.211***	1.693	3.181***
Control variables						
Gender			-.260	-2.074*	-.267	-2.132*
Education	.262	3.694***	.123	2.249*	.129	2.355**
Income	.121	2.379**				
Main effects						
Beliefs and attitudes						
Personal Norm			.439	5.776***	.433	5.627***
Injunctive Norm			.101	1.845*	.099	1.829*
Collectivist Orientation			-.166	-2.797**	-.171	-2.860**
Perceived Consumer Effectiveness			.092	2.101*	.103	2.351**
Involvement						
Market						
Mavenship						
Interactional effects						
Beliefs and Attitudes X Involvement						
Collectivist X Involvement						
Beliefs and Attitudes X Market					.077	2.424**
Mavenship						
R <sup>2</sup>	.094		.517		.531	
R <sup>2</sup> Change	.094		.422		.015	
F-Change	7.226***		25.071***			
Degrees of freedom	211		211		211	
F-model	7.226***		21.474***		17.270***	
Durbin-Watson					1.889	

\* significant at  $\leq .05$  (one-tailed test).

\*\* significant at  $\leq .01$  (one-tailed test).

\*\*\* significant at  $\leq .001$  (one-tailed test).

+ significant at  $\leq .10$  (one-tailed test).

Hypothesis H8(c) suggested that the strength of the direct linkage between environmentally concerned beliefs and attitudes and conserving behavior, will be

higher for consumers with higher market mavenship, and lower for consumers with low market mavenship. The regression results supported hypothesis H8(c). There was a significant interactional effect of market mavenship on the direct linkage between environmentally concerned beliefs and attitudes, and conserving behavior (Model 3,  $b = .077$ ,  $t = 2.424$ ,  $p \leq .01$ ).

It is of note that, among the control variables, gender was found to be significantly and negatively related to conserving behavior ( $b = -.267$ ,  $t = -2.132$ ,  $p \geq .95$ ), that is, being female was found to lower the level of conserving behavior. Additionally, education was found to be significantly and positively related to conserving behavior ( $b = .129$ ,  $t = 2.355$ ,  $p \leq .01$ ), that is, a higher level of education was found to result in a higher level conserving behavior. A summary of the hypotheses related to conserving behavior is given in Table 4.31.

### Supporting Intent as the Dependent Variable

The parameter estimates for best model fit are shown in Table 4.32 below (Model 2,  $R^2 = .813$ ,  $R^2$  change =  $.611$ ,  $F$  change =  $51.830$ ,  $p \leq .001$ ,  $F$  model =  $39.303$ ,  $p \leq .001$ ). According to this model, at the  $.001$  level of significance, 81.3 per cent of the variance in supporting intent was explained by environmentally concerned beliefs and attitudes, injunctive norm, and product involvement. The equation was in the form:

$$\text{SUPINT}_2 = .850\text{ECBA} + .078\text{MEIN} + .112\text{MCPI}$$



where:

ECBA= environmentally concerned beliefs and attitudes

MEIN= injunctive norm

MCPI= mean centered product involvement

TABLE 4.31. Hypotheses Associated with Conserving Behavior

H1c:	Environmentally concerned beliefs and attitudes will be significantly and positively related to conserving behavior.
*H2c:	Personal norm will be significantly and positively related to conserving behavior.
*H3c:	Injunctive norm will be significantly and positively related to conserving behavior
H4c:	Collective orientation will be significantly and positively related to conserving behavior.
*H5b:	Perceived consumer effectiveness will be significantly and positively related to conserving behavior.
H6c:	The strength of the direct linkage between environmentally concerned beliefs and attitudes, and conserving behavior, will be higher for higher for consumers with high involvement, and lower for consumers with low involvement.
H7c:	The strength of the direct linkage between collectivist orientation, and conserving behavior, will be higher for higher for consumers with high involvement, and lower for consumers with low involvement.
*H8c:	The strength of the direct linkage between environmentally concerned beliefs and attitudes, and conserving behavior, will be higher for higher for consumers with high market mavenship, and lower for consumers with low market mavenship.
*supported	

Hypothesis H1(d) suggested that environmentally concerned beliefs and attitudes will be significantly and positively related to supporting intent. The regression results provided support for hypothesis H1(d). As can be seen, environmentally concerned beliefs and attitudes ( $b = .850$ ,  $t = 11.306$ ,  $p \leq .001$ ) was found to be positively and significantly related to supporting intent.

TABLE 4.32. Results of Hierarchical Regression Predicting Supporting Intent for Proposed Model

Variables	Model 1		Model 2		Model 3	
	<i>b</i>	<i>t-value</i>	<i>b</i>	<i>t-value</i>	<i>b</i>	<i>t-value</i>
Constant	3.535	7.708***				
Control variables						
Gender	.389	1.912*				
Education	.141	1.550+				
Income	.154	2.365**				
Main effects						
Beliefs and attitudes			.850	11.306***	.851	11.276***
Personal Norm						
Injunctive Norm			.078	1.373+	.074	1.300+
Collectivist Orientation						
Perceived Consumer Effectiveness						
Involvement Market Mavenship			.112	1.275+	.159	1.686*
Interactional effects						
Beliefs and Attitudes X Involvement						
Collectivist X Involvement					.086	1.465+
Beliefs and Attitudes X Market Mavenship						
R <sup>2</sup>	.226		.813		.816	
R <sup>2</sup> Change	.051		.611		.004	
F-Change	3.716**		51.830***			
Degrees of freedom	211		211		211	
F-model	3.716*		39.303***		30.378***	
Durbin-Watson					1.942	

\* significant at  $\leq .05$  (one-tailed test).

\*\* significant at  $\leq .01$  (one-tailed test).

\*\*\* significant at  $\leq .001$  (one-tailed test).

+ significant at  $\leq .10$  (one-tailed test).

Hypothesis H3(d) suggested that injunctive norm will be significantly and positively related to supporting intent. The regression results provided support for

hypothesis H3(d). As can be seen, injunctive norm ( $b = .078$ ,  $t = 1.373$ ,  $p \leq .10$ ) was found to be positively and significantly related to supporting intent.

As can be seen, product involvement was evidenced to be a determinant of supporting intent. Product involvement was found to be significantly and positively related to supporting intent ( $b = .112$ ,  $t = 1.275$ ,  $p \leq .10$ )

It may also be noted that although Model 3 was found to be robust ( $R^2 = .816$ ,  $df = 211$ ,  $F_{\text{model}} = 30.378$ ,  $p \leq .001$ ), the change statistics (Model 3,  $R^2$  change = .004,  $F$  change not significant,  $df = 211$ ) indicated a superiority of Model 2. However, Model 3 shed some light on some interactional effects responsible for the creation of supporting intent.

Hypothesis H7 (d) suggested that the strength of the direct linkage between collective orientation and supporting intent, will be higher for consumers with high product involvement, and lower for consumers with low product involvement. The regression results supported hypothesis H7 (d). A significant interactional effect of product involvement was evidenced on the direct linkage between collectivist orientation, and supporting intent (Model 3,  $b = .086$ ,  $t = 1.465$ ,  $p \leq .10$ ).

It may be noted that in no control variables were found to have a significant impact on supporting intent. Further, unlike the other dependent variables, there was no evidence of an intercept, or minimum level of supporting intent, explained by environmental variables. A summary of the hypotheses related to supporting intent is given below (Table 4.33).

TABLE 4.33. Hypotheses Associated with Supporting Intent

*H1d:	Environmentally concerned beliefs and attitudes will be significantly and positively related to supporting intent
H2d:	Personal norm will be significantly and positively related to supporting intent.
*H3d:	Injunctive norm will be significantly and positively related to supporting intent.
H4d:	Collective orientation will be significantly and positively related to supporting intent.
H5d:	Perceived consumer effectiveness will be significantly and positively related to supporting intent.
*H6d:	The strength of the direct linkage between environmentally concerned beliefs and attitudes, and supporting intent, will be higher for higher for consumers with high involvement, and lower for consumers with low involvement.
*H7d:	The strength of the direct linkage between collectivist orientation, and supporting intent, will be higher for higher for consumers with high involvement, and lower for consumers with low involvement.
H8d:	The strength of the direct linkage between environmentally concerned beliefs and attitudes, and supporting intent, will be higher for higher for consumers with high market mavenship, and lower for consumers with low market mavenship.

\*supported

TABLE 4.34. Consolidated Results of Hierarchical Regression Analysis Predicting Dimensions of ECCB

Variables	Purchase behavior		Search for Information		Conserving Behavior		Supporting intent	
	b	t-value	b	t-value	b	t-value	b	t-value
Model 2: Constant	.964	1.982*	1.49 7	2.861**	1.70 6	3.211***		
Control variables								
Gender			-.415	- 3.358***	-.260	-2.074*		
Education					.123	2.249*		
Income			.074	1.945*				
Main Effects								
ECBA	1.45	2.193*	ns		ns		.850	11.306** *
Personal norm	.344	4.944***	.457	6.105***	.439	.5776***	ns	
Injunctive norm	.116	2.318*	.096	1.791*	.101	1.845*	.078	1.373+
Collectivist Orientation	ns		ns		-.166	-2.797**	ns	

TABLE 4.34 (Continued)

Perceived Consumer Effectiveness	.166	4.111***	.167	3.860***	.092	2.101*	ns
Product involvement	-		.284	3.343***	-		.112 1.275+
Market mavenship	-		.114	3.116**	-		-
R square		.588		.622		.517	.813
R square change		.537		.551		.422	.611
F change		37.422**		41.912**		25.071**	51.830**
		*		*		*	*
df		211		211		211	211
F model		28.690**		33.129**		21.474**	39.303**
		*		*		*	*
Durbin-Watson		1.866					
Model 3:							
MECO			-.086	-1.455+			
ECXPI	ns		.102	1.524+	ns		ns
COXPI	ns		-.079	-1.439+	ns	.086	1.465+
ECXMM	ns		ns		.077	2.424**	ns
R square				.629		.531	.816
R square change				.007		.015	.004
F change				-		-	-
df				211		211	211
F model				15.251**		17.270**	30.378**
				*		*	*
Durbin-Watson				2.004		1.889	1.942

\* significant at  $\leq .05$  (one-tailed test).

\*\* significant at  $\leq .01$  (one-tailed test) Ns= not supported

\*\*\* significant at  $\leq .001$  (one-tailed test).

+ significant at  $\leq .10$  (one-tailed test).

Additionally, a summary of all the hypotheses related to all the four dimensions of environmentally concerned consumer behavior, viz. purchase behavior, search for information, conserving behavior, and supporting intent, is given in Tables 4.34 and 4.35.

### Conclusion

This chapter provided information regarding the empirical analysis of the hypotheses proposed in Chapter 3. Information about the sample used in this study was reported. In addition, the possibility of nonresponse bias was examined. The chapter also addressed the psychometric assessment of the measuring instruments,

which was followed by a presentation of the descriptive statistics and correlations. Finally, the chapter closed by presenting results of the hypothesis tests, in which 16 of the hypotheses were supported. Additionally, there was support for two constructs that were hypothesized as moderators, but which were supported as determinants of environmentally concerned consumer behavior. A discussion of the above findings, along with managerial and research implications, follows in Chapter 5.

## CHAPTER 5

### DISCUSSION AND IMPLICATIONS

Prior research offered an incomplete picture of the processes that are responsible for creating environmentally concerned consumer behavior. As discussed in Chapter 1, previous research in this area is limited. In particular, the determinants and dimensions of environmentally concerned consumer behavior have been treated as subsets in the literature. Moreover, studies in the area of environmentally concerned consumer behavior are limited by study design issues, in addition to offering conflicting results. Finally, although the effects of some determinants on environmentally concerned consumer behavior are theorized in the literature, empirical results reveal a low explanatory power and conflicting results.

The primary objective of this study was to broaden knowledge regarding the processes responsible for creating environmentally concerned consumer behavior. In an effort to accomplish this objective, the first purpose of this study was to empirically test a model of environmentally concerned consumer behavior, showing the main effects of three key psychological determinants (environmentally concerned beliefs and attitudes, personal norm, and perceived consumer effectiveness), two key socio-cultural determinants (injunctive norm and collective orientation), on four dimensions of environmentally concerned consumer behavior (purchase behavior, search for

information, conserving behavior, and supporting intent). All the direct linear linkages have not yet been examined in a single study. The second purpose of this study was to examine the moderating effects of product involvement and market mavenship on some of the above-mentioned linear relationships in the model.

### Research Findings

A discussion of the research findings is offered in this section. It begins by addressing the hypothesized main effects of the key determinants on dimensions of environmentally concerned consumer behavior. This is followed by a discussion of the hypothesized interactional effects of the moderators on the direct linkages in the model.

#### Main Effects of Environmentally Concerned Beliefs and Attitudes

Despite the several conceptual contributions in the area of environmentally concerned beliefs and attitudes, there is a paucity of empirical evidence in its support as an explanation of environmentally concerned consumer behavior. Several studies showed inconsistent results (e.g. Hallin 1995) or low explanatory potential (e.g. Balderjahn 1988, Crosby, Gill and Taylor 1981, Hallin 1995, McCarty and Shrum 1994, Maloney and Ward 1973, Roberts 1996).

Hypothesis H1(a) suggested environmentally concerned beliefs and attitudes will be significantly and positively related to purchase behavior. Empirical results supported this hypothesis. It was evidenced that a unit increase in environmentally concerned beliefs and attitudes would result in a .145 units increase in purchase behavior at the .05 level of significance. This finding supports extant literature



(Balderjahn 1988, Crosby, Gill and Taylor 1981, Chan 1996, Ling-yee 1997, Minton and Rose 1997, Roberts 1996).

Hypothesis H1(b) suggested that environmentally concerned beliefs and attitudes will be significantly and positively related to search for information. Empirical results did not support this hypothesis. The hypothesis was based on extant literature in which the studies were conducted on samples comprising lay consumers (Ling-yee 1997, Minton and Rose 1997). It may be concluded that for a highly environmentally concerned set of respondents, in relation to the other determinants in the model, environmentally concerned beliefs and attitudes may not be an important determinant of search for information (in this case, there was an overarching influence of personal norms on search for information).

Hypothesis H1(c) suggested that environmentally concerned beliefs and attitudes will be significantly and positively related to conserving behavior. Empirical results did not support this hypothesis. The hypothesis was based on extant literature, in which the studies were conducted on samples comprising lay consumers (Crosby, Gill and Taylor 1981, Gooch 1995, Hallin 1995, Minton and Rose 1997). It may be concluded that for a highly environmentally concerned set of respondents, in relation to the other determinants in the model, environmentally concerned beliefs and attitudes may not be an important determinant of conserving behavior, (in this case, there is an overarching influence of personal norms on conserving behavior).

Hypothesis H1(d) suggested that environmentally concerned beliefs and attitudes will be significantly and positively related to supporting intent. Empirical results supported this hypothesis. This finding supports extant literature (e.g.

Balderjahn 1988, Stern, Dietz and Guagnano 1995, Minton and Rose 1997). In fact, results revealed that a unit increase in environmentally concerned beliefs and attitudes would result in .851 units increase in supporting intent at the .001 level of significance—the highest main effect that any determinant has on any dimension of environmentally concerned consumer behavior in this study.

Based on the preceding, it may be concluded that environmentally concerned beliefs and attitudes is a significant determinant of two dimensions of environmentally concerned consumer behavior, and has a greater impact on supporting intent.

It is also found pertinent to point out that in the environmental context, as determinants of environmentally concerned consumer behavior, environmentally concerned beliefs and attitudes and personal norms have been treated at the same level. However, conventional marketing literature models norms as a higher-order or “upstream” determinant, and as an antecedent to beliefs and attitudes (e.g. Howard and Sheth 1969). It is a possibility that, in the current study, the potential main effects of environmental beliefs and attitudes on some dimensions of environmentally concerned consumer behavior, have been masked by the inclusion of personal norm at the same level. For future research, it is therefore felt necessary to examine the mediating role of environmental beliefs and attitudes, on the direct linkages between the determinant personal norm, and three dimensions of environmentally concerned consumer behavior, notably purchase behavior, search for information, and conserving behavior.

### Main Effects of Personal Norm

Hypothesis H2(a) suggested that personal norm will be significantly and positively related to purchase behavior. Empirical results supported this hypothesis.

Results revealed that a unit increase in personal norm would result in .344 units increase of purchase behavior at the .001 level of significance. This finding is consistent with extant literature (e.g. Minton and Rose 1997, Schwartz 1977).

Hypothesis H2(b) suggested that personal norm would be significantly and positively related to search for information. Empirical results supported this hypothesis. Results revealed that a unit increase in personal norm would increase search for information by .457 units at the .001 level of significance. This finding is consistent with extant literature (e.g. Minton and Rose 1997, Schwartz 1977).

Hypothesis H2(c) suggested that personal norm would be significantly and positively related to conserving behavior. Empirical results supported this hypothesis. Results revealed that a unit increase in personal norm would increase conserving behavior by .439 units, at the .001 level of significance. This finding is consistent with extant literature (e.g. Minton and Rose 1997, Schwartz 1977).

Hypothesis H2(d) suggested that personal norm would be significantly and positively related to supporting intent. Empirical results did not support this hypothesis. It might be inferred that the role of personal norm in this context was overshadowed by the strong influence of environmentally concerned beliefs and attitudes.

It may be concluded that personal norm is among the most significant determinants of all the four dimensions of environmentally concerned consumer behavior, and has its highest impact on search for information.

### Main Effects of Injunctive Norm

Hypothesis H3(a) suggested that injunctive norm will be significantly and positively related to purchase behavior. Empirical results supported this hypothesis. It was observed that a unit increase in injunctive norm would result in a .116 units increase in purchase behavior at the .05 level of significance. This finding is consistent with extant literature (Minton and Rose 1997, Schwartz 1977).

Hypothesis H3(b) suggested that injunctive norm will be significantly and positively related to search for information. Empirical results supported this hypothesis. It was observed that a unit increase in injunctive norm would result in a .096 units increase in search for information at the .05 level of significance. This finding is consistent with extant literature (Minton and Rose 1997, Schwartz 1977).

Hypothesis H3(c) suggested that injunctive norm will be significantly and positively related to conserving behavior. Empirical results supported this hypothesis. It was observed that a unit increase in injunctive norm would result in a .101 units increase in conserving behavior at the .05 level of significance. This finding is consistent with extant literature (Minton and Rose 1997, Schwartz 1977).

Hypothesis H3(d) suggested that injunctive norm will be significantly and positively related to supporting intent. Empirical results supported this hypothesis. It was observed that a unit increase in injunctive norm would result in a .078 units increase in conserving behavior at the .10 level of significance. This finding is consistent with extant literature (Minton and Rose 1997, Schwartz 1977).

It may be concluded that injunctive norm is an important determinant of all the four dimensions of environmentally concerned consumer behavior, and has its greatest impact on purchase behavior.

### Main Effects of Collectivist Orientation

Based on extant literature, four hypotheses were theorized regarding the main effects of collectivist orientation. None of the four hypotheses was supported by empirical results. I will list these hypotheses, and then enter into a general discussion on plausible explanations for the same.

Hypothesis H4(a) suggested that collectivist orientation will be significantly and positively related to purchase behavior. Empirical results did not support this hypothesis.

Hypothesis H4(b) suggested that collectivist orientation will be significantly and positively related to search for information. Empirical results evidenced the opposite to be true, i.e., a unit increase in collectivist orientation would result in a .086 units decrease in search for information at the .10 level of significance.

Hypothesis 4(c) suggested that collectivist orientation will be significantly and positively related to conserving behavior. Empirical results evidenced the opposite to be true, i.e., a unit increase in collectivist orientation would result in .166 units decrease in conserving behavior at the .01 level of significance.

Hypothesis 4(d) suggested that collectivist orientation will be significantly and positively related to supporting intent. Empirical results did not support this hypothesis.

All the hypotheses relating to collectivist orientation were grounded in extant literature, which was based on a general population of consumers. Moreover, the study conducted by Ling-yee (1997) was on a sample of Chinese consumers. It may be concluded that the highly environmentally concerned set of respondents in the U.S.A. might have highly accentuated individualistic character (e.g. Hofstede 1980). Their environmentally friendly behaviors are internally driven, by psychological determinants, e.g. beliefs and attitudes, personal norm, and perceived consumer effectiveness, rather than externally driven by sociological determinants, e.g. collectivist orientation (e.g. Hofstede 1980). The preceding discussion on personal norm and injunctive norm support the above. In the light of this, personal norm may be interpreted to play a similar role in western societies, as collective orientation does in oriental societies.

Notwithstanding the foregoing discussion, a point of interest is that the mean score for collectivist orientation was 5.8 on a 7-point scale, which is indicative of an “almost strong” collectivist orientation- the highest mean score among all the five hypothesized independent variables. This anomaly might be explained by the fact that the respondents of this study comprised individuals who were highly educated (about 61 per cent holding a master’s degree or doctorate) and well-placed (about 78 per cent in technical, professional or managerial positions). Their self-report of orientation to group goals might stem from social desirability bias, i.e. projection based on a desire for social acceptance (Crowne-Marlowe 1960, Fisher 1993). This phenomenon may also be interpreted to reflect the “careless respondent” who “infers what is sought” (Mick, 1996, Schmitt and Stults 1985).

Additionally, current literature in organizational behavior underlines the sharing of vision, mission, objectives, strategy and implementation at the group level as opposed to individual goals and achievements alone (Flores 1992, Prussia and Kinicki 1996). As stated above, about 78 per cent of the sample held technical, professional or managerial positions. Their interpretation of and response to group orientation might be related to their orientation to organizational group goals, rather than to the environment per se. Furthermore, the high score on collectivist orientation may also be a reflection of economic uncertainty prevailing in the U.S.A. (Brown and Starkey 2000, Hogg and Terry 2000).

In sum, the empirically tested main effects of collectivist orientation did not conform to those hypothesized, and the anomalous high score on this construct would bear closer research scrutiny.

#### Main Effects of Perceived Consumer Effectiveness

Hypothesis H5(a) suggested that perceived consumer effectiveness will be significantly and positively related to purchase behavior. Empirical results supported this hypothesis. It was evidenced that a unit increase in perceived consumer effectiveness would result in a .166 units increase in purchase behavior at the .001 level of significance. This finding is consistent with extant literature (e.g. Balderjahn 1988, Roberts 1996).

Hypothesis H5(b) suggested that perceived consumer effectiveness will be significantly and positively related to search for information. Empirical results supported this hypothesis. It was evidenced that a unit increase in perceived consumer

effectiveness would result in a .167 units increase in search for information at the .001 level of significance.

It may be noted that the direct linkage between perceived consumer effectiveness and search for information has not been examined earlier in the literature, and comprises a research contribution of this study.

Hypothesis H5(c) suggested that perceived consumer effectiveness will be significantly and positively related to conserving behavior. Empirical results supported this hypothesis. It was evidenced that a unit increase in perceived consumer effectiveness would result in .092 units increase in search for information at the .05 level of significance. This finding is consistent with extant literature (e.g. Balderjahn 1988, Roberts 1996).

Hypothesis H5(d) suggested that perceived consumer effectiveness will be significantly and positively related to supporting intent. Empirical results did not support for this hypothesis. The role of perceived consumer effectiveness appeared to be overshadowed by the strong influence of environmentally concerned beliefs and attitudes.

Overall, it may be said that perceived consumer effectiveness is an important determinant in creating three of the four dimensions of environmentally concerned consumer behavior, and has its largest impact on purchase behavior and search for information.

### Main Effects of Product Involvement

Based on extant literature, the main effects of product involvement were not hypothesized in the original model. However, empirical results reveal that product



involvement has a main effect on search for information. A unit increase in product involvement would result in a .284 units increase in search for information, at the .001 level of significance.

Additionally, product involvement was not hypothesized as a determinant of supporting intent. Results supported product involvement as a determinant of supporting intent. A unit increase in product involvement would result in a .112 units increase in supporting intent, at the .10 level of significance.

It may be inferred from the above that, as the current study was conducted among a sample of highly environmentally aware respondents, product involvement is a determinant and not a moderator in creating environmentally concerned consumer behavior. This construct would bear a deeper study in the environmental context.

### Interactional Effects of Product Involvement

Based on extant literature, there were eight hypotheses pertaining to product involvement. The hypotheses are given below.

Hypothesis H6(a) suggested that the strength of the direct linkage between environmentally concerned beliefs and attitudes and purchase behavior, will be higher for consumers with high product involvement, and lower for consumers with low product involvement. This hypothesis was not supported by the regression results.

Hypothesis H6(b) suggested that the strength of the direct linkage between environmentally concerned beliefs and attitudes and search for information, will be higher for consumers with high product involvement, and lower for consumers with low product involvement. Empirical results offered some support for this hypothesis. A unit increase in the interaction of environmentally concerned beliefs and attitudes,

and product involvement would result in .102 units increase in search for information at the .10 level of significance. This supports the findings of Ling-yee (1997).

Hypothesis H6(c) suggested that the strength of the direct linkage between environmentally concerned beliefs and attitudes and conserving behavior, will be higher for consumers with high product involvement, and lower for consumers with low product involvement. Empirical results did not support this hypothesis.

Hypothesis H6(d) suggested that the strength of the direct linkage between environmentally concerned beliefs and attitudes and supporting intent, will be higher for consumers with high product involvement, and lower for consumers with low product involvement. Empirical results did not support this hypothesis.

However, contrary to extant literature, environmentally concerned beliefs and attitudes were evidenced in this study to have an overarching influence as a determinant, in its own right, of supporting intent, as discussed in a preceding section.

It may also be mentioned here that, in the environmental context, researchers have modeled search for information and purchase behavior on the same level, as the dimensions of environmentally concerned consumer behavior. However, conventional marketing literature models search for information as an antecedent of purchase behavior. For future research, it is therefore felt necessary to examine the potential mediating role of search for information on the direct linkage between product involvement and purchase behavior.

Hypothesis H7(a) suggested that the strength of the direct linkage between collectivist orientation and purchase behavior, will be higher for consumers with high

product involvement, and lower for consumers with low product involvement. Empirical results did not support this hypothesis.

Hypothesis H7(b) suggested that the strength of the direct linkage between collectivist orientation and search for information, will be higher for consumers with high product involvement, and lower for consumers with low product involvement. Empirical results offered some support for this hypothesis. A unit increase in the interaction of collectivist orientation and product involvement would result in a .079 units increase in search for information, at the .10 level of significance. This supports the findings of Ling-ye (1997).

Hypothesis H7(c) suggested that the strength of the direct linkage between collectivist orientation and conserving behavior, will be higher for consumers with high product involvement, and lower for consumers with low product involvement. Empirical results did not support this hypothesis.

Hypothesis H7(d) suggested that the strength of the direct linkage between collectivist orientation and supporting intent, will be higher for consumers with high product involvement, and lower for consumers with low product involvement. Empirical results offered some support for this hypothesis. A unit increase in the interaction of collectivist orientation and product involvement would result in a .086 units increase in supporting intent at the .10 level of significance. The above finding is a research contribution of this study.

It may be inferred, as suggested in the foregoing sections, that in the context of the highly environmentally concerned sample of respondents, product involvement proved to be a determinant of environmentally concerned consumer behavior, in its

own right, and also has a moderating role. Additionally, as discussed in the foregoing sections, there are cultural factors (e.g. Hofstede 1980) responsible for a lack of importance of collectivist orientation in determining environmentally concerned consumer behavior. By extension, it might be inferred that the potential interactional effect of product involvement, has some significant impact on the weak or negative relationship between collectivist orientation and the dimensions of environmentally concerned consumer behavior.

### Main Effects of Market Mavenship

Based on extant literature, the main effects of market mavenship were not hypothesized in the original model. However, empirical results revealed that market mavenship had a main effect on search for information. A unit increase in market mavenship would result in a .114 units increase in search for information, at the .001 level of significance. It may be inferred that, as the current study was conducted among a sample of highly environmentally aware respondents, market mavenship is a determinant of environmentally concerned consumer behavior.

The market mavenship construct has never before been examined in the literature in the environmental context, and is a contribution of this study. As this study is exploratory in nature, the role of market mavenship calls for a deeper research investigation.

### Interactional Effects of Market Mavenship

Hypothesis H8(a) suggested that the strength of the direct linkage between environmentally concerned beliefs and attitudes and purchase behavior, will be higher for consumers with high market mavenship, and lower for consumers with low market mavenship. Empirical results did not support this hypothesis.

Hypothesis H8(b) suggested that the strength of the direct linkage between environmentally concerned beliefs and attitudes and search for information, will be higher for consumers with high market mavenship, and lower for consumers with low market mavenship. Empirical results did not strictly support this hypothesis. However, market mavenship was evidenced to be a determinant of search for information as discussed in a preceding section.

Hypothesis H8(c) suggested that the strength of the direct linkage between environmentally concerned beliefs and attitudes and conserving behavior, will be higher for consumers with high market mavenship, and lower for consumers with low market mavenship. Empirical results offered some support for this hypothesis. A unit increase in the interaction of market mavenship and environmentally concerned beliefs and attitudes was found to account for an increase of .077 units of conserving behavior, at the .01 level of significance. The above finding constitutes a research contribution of this study. Additionally, this finding supports the theoretical basis in extant literature (e.g. Fishbein and Ajzen 1975, Feick and Price 1987).

Hypothesis H8(d) suggested that the strength of the direct linkage between environmentally concerned beliefs and attitudes and supporting intent, will be higher for consumers with high market mavenship, and lower for consumers with low market

mavenship. Empirical results did not support this hypothesis. However, contrary to extant literature, environmentally concerned beliefs and attitudes were evidenced in this study to have an overarching influence as a determinant of supporting intent, as discussed in a preceding section, without the intervention of any moderator in the process.

It may also be mentioned here that, in the environmental context, researchers have modeled search for information and purchase behavior on the same level, as dimensions of environmentally concerned consumer behavior. However, conventional marketing literature models search for information as an antecedent of purchase behavior (e.g. Howard and Sheth 1969). For future research, it is therefore felt necessary to examine the potential mediating role of search for information on the direct linkage between market mavenship and purchase behavior.

### Societal and Managerial Implications

As discussed in Chapter 1, the understanding of the processes responsible for environmentally concerned consumer behavior is of importance to consumers, business and marketing, educationists, policy makers, thinkers and academicians. I will first discuss the societal and managerial implications of this study the results of this study, and later outline its research implications.

A major contribution of this study is the bringing to light of the differential effects of key determinants on various dimensions of environmentally concerned consumer behavior. This would imply a differential strategy for different societal stakeholders in their efforts towards environmental preservation (Barney 1996: 43-46).

### Implications of the Role of Control Variables

Some of the findings of this study pertain to the impact of the control variables, gender, household income and education, on some of the dependent variables. This has implications for the segmentation and targeting strategy of the various stakeholders, as discussed below.

This study evidenced a significant and negative direct linkage between gender and search for information. Therefore in their communications, business and marketing should send direct, “maintenance” oriented communications to the male audience. For the female audience, however, communications would have higher frequency, and focused on more informational and “reason-why” message content, with the objective of growing the market.

Similarly, a significant and positive direct linkage was evidenced between household income and search for information. This would imply that in the short run, business and marketing should target their offerings at higher income group. Also, there is a need to undertake a concerted awareness campaign for environmentally friendly products among the middle income group. In the long run, however, attempts should be made to grow the market, and reap economies of scale, to make environmentally friendly products accessible across more income groups.

Additionally, a significant and negative direct linkage was found between gender and conserving behavior. This finding would warrant concerted efforts by local agencies and environmental organizations, especially oriented towards females. Also, a direct linkage was evidenced between education and conserving behavior. The finding might call for the enlisting of well-educated persons in the community, as

environmental ambassadors for conservation programs. It could also be hoped that the spread of education among the masses will bring out a concomitant increase in conservation behavior.

### Implications of the Role of Study Variables

In this section, I will discuss some implications of the impact of the determinants on the dimensions of environmentally concerned consumer behavior.

This study has evidenced a significant and positive linkage between environmentally concerned beliefs and attitudes, and purchase behavior. This study has also evidenced a significant and positive linkage between environmentally concerned beliefs and attitudes, and search for information. Business and marketing might reinforce environmentally concerned beliefs and attitudes through building into personal and nonpersonal promotions, strong elements of source credibility and source attractiveness (Kellman 1961). This would assist potential consumers in their search for information, and also enhance purchase behavior.

Furthermore, this study has evidenced a significant and positive direct linkage between product involvement and search for information. This study has also underscored the significant and positive interactional effect of product involvement on the direct linkages between environmentally concerned beliefs and attitudes and search for information, and between collectivist orientation and search for information. This finding would have implications for business and marketing, in the personal and nonpersonal promotion of environmentally friendly products and services. Techniques like the Elaboration Likelihood Model would be of particular relevance in this context. The central route to persuasion would be suitable for



consumers with high product involvement. However, the peripheral route to persuasion would be more effective for consumers with low product involvement (Petty and Cacioppo 1983). Also, this study has evidenced the importance of product involvement as a determinant of supporting intent, as well as having a moderating role on the direct linkage between collectivist orientation and supporting intent. Hence, the above approach might prove useful for environmental organizations to garner support for their activities (Petty and Cacioppo 1983).

Additionally, this study has evidenced a significant and positive direct linkage between market mavenship and search for information. In the light of this, business and marketing might profit from identifying and recruiting market mavens as an integral element of their promotional program. “Market mavens appear to be good targets for general messages about marketing mix changes, messages spanning multiple product classes, *and messages about products that may not have much inherent appeal*. Market mavens may be especially important to retailers, as they often tend to communicate information about a large assortment of goods”. (Feicke and Price 1987; italics mine).

Further, this study has evidenced an interactional effect of market mavenship on the direct linkage between environmentally concerned beliefs and attitudes and conserving behavior. In view of this, environmental groups and local agencies might consider enlisting the cooperation and support of such people “of good will” (Dichter 1966) to secure support for core direct efforts at preserving the environment, such as recycling. This is especially relevant in the light of the statement, “Market mavens

may also be good targets for information programs on low involvement products *or for information not based on products*” (Feicke and Price 1987; italics mine).

In addition, this study has evidenced a significant and positive direct linkage between environmentally concerned beliefs and attitudes, and supporting intent. This finding would have implications for environmental organizations in garnering support for their non-core activities, like letter writing campaigns to mobilize public opinion. For such purposes, factors like source credibility and source similarity need to be built into nonpersonal promotion, to reinforce consumers’ environmentally concerned beliefs and attitudes (Kellman 1961).

Further, this study has evidenced that the determinants of conserving behavior include personal norm and injunctive norm. Injunctive norm is a socio-cultural determinant, and personal norm is an internalized psychological determinant, with socio-cultural roots. This would have implications for public policy makers and local agencies. In order to gain compliance for conservation efforts from their numerous publics, such bodies would do well to invoke source power and societal needs in the formulation and communication of conservation programs (Kellman 1961).

Additionally, perceived consumer effectiveness was evidenced to have a significant and positive direct linkage with three dimensions of environmentally concerned consumer behavior, viz. purchase behavior, search for information, and conserving behavior. This finding has implications for business and marketing, environmental groups, as well as public policy makers and local agencies. The “well-baby” approach would be an effective tool, i.e. reinforcing the perception that individual efforts can, and do, impact the environment. Environmental compliance

would be better achieved through the portrayal of a positive and achievable vision of the environment (Roberts 1996), as opposed to doomsday predictions (Carson 1962). The protection-motivation model might be relevant in this context (Tanner, Hunt and Eppright 1991).

Furthermore, the key determinants and dimensions of environmentally concerned consumer behavior described in this study were based on a sample that was highly oriented to environmental issues. The results of this study might be utilized in academe in business and other disciplines, to ascertain the environmental awareness, attitudes and behaviors of their constituents, e.g. students, teachers, and administrative staff. Conducting such research may help make a case for the inclusion of environmental education within the broad curricular grid at different levels in higher education (AACSB 2000). Additionally, such research might assist academic institutions to take on a catalytic role in the formulation and implementation of conservation programs at both campus and community level.

The findings of this research have wider societal implications beyond the preceding, and a concerted and synergistic effort among business, marketing, environmental organizations, academicians and policy makers would be necessary to achieve a sustainable society.

### Limitations

This section offers possible limitations to this study. The results of the study should be interpreted with these limitations in mind.

### Response Rate

This study was conducted online among members of various environmental groups in the U.S.A. It was therefore not possible to evaluate the response rate for the study. However, some steps were taken to test for the integrity of the research: 1. the sample was randomly drawn from a national population of members of environmental organizations. 2. there was no evidence of nonresponse bias, and 3. the number of observations satisfied the rules of thumb for the various statistical tests conducted.

### Measurement and Research Design

This study drew its respondents from among a highly specialized set of environmentally concerned people, selected as “role models” that are worthy of emulation. Therefore, the results can by no means be generalized to a lay population of consumers.

The collectivist orientation measure appeared to be an inaccurate reflection of the true score of the respondents. This measure appeared to be contaminated by social desirability bias, the projection of professional role, and/or environmental uncertainty. The results of the study should be interpreted with caution in this respect.

The inclusion of negatively worded items in some scales appeared to create some problems for the respondents. A policy decision was taken to eliminate all negatively coded items that appeared toward the end of the questionnaire. As a result, the product involvement scale was truncated, and the perceived consumer orientation scale was reduced to the use of a single item for the measure. This fact could potentially bias results.

On account of the complexity of the hypothesized model, this study did not include a measure of consumer intentions. It would be of managerial and research interest to examine the role played by consumer intentions in the process of environmentally concerned consumer behavior.

The final limitation is the cross-sectional design of the study. Cross-sectional studies do not allow for the examination of cause and effect relationships. Therefore, caution must be taken in the interpretation of results.

### Research Implications

This study proposes several areas of future research, as discussed below.

This study comprised an exploratory empirical investigation of a model of environmentally concerned consumer behavior. In general, its replication over different contexts and subjects is therefore warranted.

This is the first study to examine the role of market mavenship in the environmental context. Further research is needed in this area. Additionally, this study restricted itself to investigating the role of market mavenship in creating environmentally concerned consumer behavior, among a highly environmentally oriented group of individuals. It would be fruitful to study the impact of market mavens in inducing environmentally concerned behaviors of lay consumers also.

Furthermore, this study sought to examine the potential role of market mavenship as a moderator in creating environmentally concerned consumer behavior. The empirical results, however, are indicative of an “upstream” role for market mavenship in the model; i.e., market mavenship is a determinant of environmentally

concerned consumer behavior. There is a need to investigate this construct in greater depth.

Similarly, this study sought to examine the potential role of product involvement as a moderator in creating environmentally concerned consumer behavior. The empirical results, however, are indicative of an “upstream” role for product involvement in the model; i.e., product involvement is a determinant of environmentally concerned consumer behavior. There is a need to investigate this construct in greater depth.

Additionally, this is the first study that has theorized and empirically evidenced a significant and positive interactional effect of product involvement on the direct linkage between collectivist orientation and supporting intent. It would be important to conduct a replication to establish generalizability of this finding.

Furthermore, this is the first study to evidence a significant and positive main effect of perceived consumer effectiveness on search for information. This area of environmentally concerned consumer behavior calls for replication to establish generalizability.

Also, the possible contamination of measures by social desirability bias (SDB) would be a subject of future research. For instance, the results of this study indicate an effect of SDB on collectivist orientation scores of the sample. In the case of a sample of lay consumers, SDB might cause an inflation of the environmentally concerned beliefs and attitudes score, which prior research has evidenced to bear little relationship with environmentally concerned consumer behavior. The use of the Crowne-Marlowe scale (1960) might shed further light on this issue.

In similar vein, market mavenship was the only measure on the questionnaire, which was linked with self-image. SDB might well have the potential to encourage respondents to understate their market mavenship score, in an effort to appear humble and modest. The use, for instance, of the Crowne- Marlow scale (1960) might shed further light on this issue.

As mentioned previously, future research might also incorporate the impact of consumer intentions in the process of environmentally concerned consumer behavior.

Finally, there is scope to refine the current model in terms of the precedence relationships between constructs in alignment with conventional marketing literature (e.g. Howard and Sheth 1969). For instance, it would be more correct to treat personal norm as an antecedent of environmentally concerned beliefs and attitudes. Similarly, search for information would be considered as an antecedent of purchase behavior. A more refined model needs to be theorized as well as tested empirically.

### Contributions

This research has made numerous contributions to the body of knowledge, and I shall proceed to list them in this section.

### Model

First, prior research had treated various determinants and dimensions of environmentally concerned consumer behavior in subsets. This study offers a more complete picture of the processes that create environmentally concerned consumer behavior. The study has integrated into a model of environmentally concerned consumer behavior, and examined the concurrent effects therein, five determinants (viz. environmentally concerned beliefs and attitudes, personal norm, injunctive norm,

collectivist orientation, and perceived consumer effectiveness), on four dimensions of environmentally concerned consumer behavior (viz. purchase behavior, search for information, conserving behavior, and supporting intent).

Specifically, this study has made the following contributions:

### Environmentally Concerned Beliefs and Attitudes

This study has: 1. extended research in clarifying previously inconsistent results, by supporting a significant and positive main effect of environmentally concerned beliefs and attitudes on purchase behavior, and 2. extended research by clarifying previously inconsistent results, by supporting a significant and positive main effect of environmentally concerned beliefs and attitudes on supporting intent.

### Personal Norm

This study has: 1. supported and strengthened previous research, by replicating the findings of a significant and positive main effect of personal norm on purchase behavior. 2. supported and strengthened previous research, by replicating the findings of a significant and positive main effect of personal norm on search for information. 3. supported and strengthened previous research, by replicating the findings of a significant and positive main effect of personal norm on conserving behavior.

### Injunctive Norm

This study has: 1. supported and strengthened previous research, by replicating the findings of a significant and positive main effect of injunctive norm on purchase behavior. 2. supported and strengthened previous research, by replicating the findings of a significant and positive main effect of injunctive norm on search for information.



3. supported and strengthened previous research, by replicating the findings of a significant and positive main effect of injunctive norm on conserving behavior, and 4. supported and strengthened previous research, by replicating the findings of a significant and positive main effect of injunctive norm on supporting intent.

### Collectivist Orientation

This study has supported and strengthened previous research, by replicating the findings of a significant and negative main effect of collectivist orientation on conserving behavior, in the context of U.S.A. Despite the fact that empirical evidence did not support the four hypothesized relationships, this finding itself is significant.

### Perceived Consumer Effectiveness

This study has: 1. supported and strengthened previous research, by replicating the findings of a significant and positive main effect of perceived consumer effectiveness on purchase behavior. 2. extended previous research, by theorizing and supporting a significant and positive main effect of perceived consumer effectiveness on search for information. 3. supported and strengthened previous research, by replicating the findings of a significant and positive main effect of perceived consumer effectiveness on conserving behavior.

### Product Involvement

This study has: 1. added to the body of knowledge by examining and empirically establishing the main effect of product involvement on search for information. 2. added to the body of knowledge by examining and empirically establishing the main effect of product involvement on supporting intent. 3. extended research by examining and supporting a significant and positive interactional effect of

product involvement on the direct linkage between environmentally concerned beliefs and attitudes and search for information. 4. extended research by examining and supporting a significant and positive interactional effect of product involvement on the direct linkage between collectivist orientation and search for information. 5. added to the body of knowledge by theorizing and supporting a significant and positive interactional effect of product involvement on the direct linkage between collectivist orientation and supporting intent. The model was hypothesized on the basis of prior research, which considered product involvement as having only a moderating role between the main effects of two determinants, environmentally concerned beliefs and attitudes, and collective orientation, on four dimensions of environmentally concerned consumer behavior. Despite the fact that some of the hypotheses were not supported by empirical findings, the lack of significance is in itself significant.

### Market Mavenship

Market mavenship has not been used in prior literature in the area of environmentally concerned consumer behavior, and comprises a research contribution. This study has: 1. added to the body of knowledge by examining and empirically establishing the main effect of market mavenship on search for information. 2. added to the body of knowledge by theorizing and supporting a significant and positive interactional effect of market mavenship on the main effect of environmentally concerned beliefs and attitudes on conserving behavior. Whereas three of the four hypothesized relationships were evidenced to be insignificant, this finding itself is of significance.

## Study Measurement and Design

This study has: 1. extended research by drawing on measurement instruments scattered in prior literature, and integrating them into a single instrument. 2. extended research by conducting the study among highly environmentally oriented individuals, viz., members of environmental organizations, whose behavior might be utilized as a model for the larger body of consumers. 3. extended research by modeling environmentally concerned consumer behavior among a large random national sample of highly environmentally oriented individuals, viz., members of environmental organizations.

## Summary of Knowledge Development

This study has extended research by attempting to chart the development of knowledge in the area of environmentally concerned business, marketing and public policy. This will hopefully facilitate the comprehension of the scope of environmentally concerned consumer behavior among consumers, business and marketing, environmental groups, educationists, academicians, government, and thinkers.

## Conclusion

This chapter provided a discussion of the empirical research findings listed in Chapter 4. Some potential societal and managerial implications of the research findings were discussed. This was followed by a listing of the research limitations. Additionally, some potential areas for future research were proffered. Finally, the chapter closed with a presentation of the contributions of this study. It may be

concluded that as a result of the findings, this study has contributed to extending knowledge regarding the processes responsible for the creation of environmentally concerned consumer behavior.

**APPENDIX A**

**COVER LETTER**

## APPENDIX A

### Environmental Doctoral Research Project

#### Background

Popular concern for the environment has grown rapidly in the last decade. However, there is a need for sustained attempts to inform and educate the general public and to adopt environmentally concerned behaviors in their daily lives. Through a doctoral study at Louisiana Technical University, we are trying to understand the attitudes and actions of environmentally concerned persons. The results will be useful primarily to environmental organizations for educations. We are seeking answers to some key questions, some of which are detailed below.

What are the various behaviors of environmentally concerned persons, like supporting environmental organizations, obtaining information on green products, purchasing green products, and recycling? What are their environmentally concerned beliefs and attitudes? What are some of the social influences on environmental concern, e.g. family, friends, and community elders? Do environmentally concerned persons believe that their individual efforts can really make a difference? Are environmentally concerned person highly involved with green products? Do they actively collect information on green products, like reading *Consumer Reports*? Do they share this information with family and friends?

This information should prove valuable to environmentalist organizations and educationists. To gather information, we have developed a questionnaire that is simple, easy to understand and fill out, and not very time consuming. We ask your help in undertaking this important research.

#### How You Can Help

“How can people be encouraged to be more responsible toward the natural environment?”

You can help answer this question by participating in an important research project being undertaken by the Louisiana Tech University. This research requires a substantially large response to a questionnaire, which has been drafted to give an insight into the attitudes and behaviors of concerned persons toward the natural environment.

The survey is confidential, and requires very little time to complete. The results will be helpful to organizations like the Missouri Department of Natural Resources. Additionally, by completing the questionnaire posted on [www.latech.edu/~kjo003](http://www.latech.edu/~kjo003), you will qualify for a cash prize of \$500 to be selected randomly. We urge you to participate in this important study of environmentally concerned citizens such as yourself.

If you have any concerns, please call or write to the researchers, Prof. (Dr.) S.N. Bhuiyan ([sbhuaian@cab.latech.edu](mailto:sbhuaian@cab.latech.edu)), or Ms. Kishwar Joonas ([kjooonas@cab.latech.edu](mailto:kjooonas@cab.latech.edu)), at the Department of Management and Marketing, College of Administration and Business, Louisiana Tech University, P.O. Box 10318, Ruston, LA 71272, phone (318) 257-4012.

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**APPENDIX B**

**SURVEY OF ENVIRONMENTALLY CONCERNED  
CONSUMER BEHAVIOR**

## APPENDIX B

In today's consumer society, we need to encourage people to be more responsible toward the natural environment. To do so, we must understand the factors that are responsible for environmentally concerned consumer behavior. The present study represents an attempt in that direction.

I ask that you please complete this questionnaire and submit it. The questionnaire is designed to take about 30 minutes of your time to complete. By submitting the questionnaire, you will automatically qualify to enter a random drawing, for a cash prize of \$500. Your responses are very important, and will be kept strictly confidential.

I wish to express my sincere appreciation for your time and efforts, toward the preservation of the environment.

Kishwar Joonas  
 Doctoral Candidate  
 College of Administration and Business  
 Louisiana Tech University

### Section I

The following questions are designed to evaluate your purchase and use of products that are friendly to the environment, and limiting the purchase and use of products that are harmful to the environment. Circle the response that most closely matches how you feel.

Never True=1, Always True=7

How true are the following statements?

1. I normally make a conscious effort to limit my use of products that are made of or use scarce resources.....1 2 3 4 5 6 7
2. I will not buy products which have excessive packaging...1 2 3 4 5 6 7
3. When there is a choice, I always choose that product which contributes to the least amount of pollution.....1 2 3 4 5 6 7
4. If I understand the potential damage to the environment That some products can cause, I do not purchase those products.....1 2 3 4 5 6 7
5. I have switched products for ecological reasons.....1 2 3 4 5 6 7
6. I use a recycling center or in some way recycle some of my household trash .....1 2 3 4 5 6 7
7. I make every effort to buy paper products made from recycled paper .....1 2 3 4 5 6 7
8. I use a low-phosphate detergent (or soap) for my laundry .1 2 3 4 5 6 7
9. I have convinced members of my family or friends not to buy some products which are harmful to the environment.1 2 3 4 5 6 7
10. I have purchased products because they cause less pollution .....1 2 3 4 5 6 7
11. Whenever possible, I buy products packaged in reusable containers .....1 2 3 4 5 6 7
12. When I purchase products, I always make a conscious effort to buy those products that are low in pollutants.....1 2 3 4 5 6 7



## Section 3

The following questions are designed to measure your attempts to preserve the environment, after the purchase, use or consumption of a product. Please read the statements below, and circle the response that you think most closely matches your actions.

How often do you...	Never=1,	Always=7
1. Recycle newspaper.....	1	2 3 4 5 6 7
2. Recycle glass.....	1	2 3 4 5 6 7
3. Recycle aluminum cans .....	1	2 3 4 5 6 7
4. Take own bags for groceries .....	1	2 3 4 5 6 7
5. Buy environmentally safe detergents.....	1	2 3 4 5 6 7
6. Use chemical pesticides in the garden .....	1	2 3 4 5 6 7
7. Compost yard waste.....	1	2 3 4 5 6 7
8. Buy environmentally safe or recycled products.....	1	2 3 4 5 6 7
9. Walk or bicycle on errands of under half a mile.....	1	2 3 4 5 6 7
10. Contribute to an environmental organization .....	1	2 3 4 5 6 7

## Section 4

The following questions are designed to evaluate your intention to take actions that help preserve the environment. Please read the statements below, and circle the response that you think most closely matches your feelings.

How strongly do you agree with the following statements?	Strongly disagree=1,	Strongly agree=7
1. I would not be willing to invest in a company that pollutes the environment.....	1	2 3 4 5 6 7
2. I would not be willing to take a job with a company that Pollutes.....	1	2 3 4 5 6 7
3. I would boycott the products of a company that pollutes ...	1	2 3 4 5 6 7
4. I would sign a petition for tougher environmental laws .....	1	2 3 4 5 6 7
5. I would be willing to pay extra income tax to preserve tropical forests.....	1	2 3 4 5 6 7
6. I would be willing to pay extra gasoline tax to reduce the use of fossil fuels.....	1	2 3 4 5 6 7
7. I would write a letter to members of Congress or to the white House to support policies to stop the loss of tropical forests .....	1	2 3 4 5 6 7
8. I would write a letter to members of Congress or to the White House to support policies to reduce the use of fossil fuels.....	1	2 3 4 5 6 7

## Section 5

The following questions are designed to assess your environmentally concerned beliefs and attitudes. Please read the following statements, and circle the response that most closely matches your feelings.

Strongly disagree=1, Strongly agree=7

How strongly do you agree with the following statements?

1. I think we are not doing enough to save scant natural resources from being used up .....1 2 3 4 5 6 7
  2. Natural resources must be preserved even if people must do without some products .....1 2 3 4 5 6 7
  3. I feel sorry that the government does not do more to help control pollution of the environment .....1 2 3 4 5 6 7
  4. Much fuss is being made about air and water pollution than is really justified.....1 2 3 4 5 6 7
  5. I feel angry and frustrated when I think about the harm being done to plant and animal life by pollution .....1 2 3 4 5 6 7
  6. I think the government should devote more money toward supporting conservation and environmental programs .....1 2 3 4 5 6 7
  7. Consumers should be interested in the environmental consequences of the products they purchase .....1 2 3 4 5 6 7
  8. Consumers should pay higher prices for the products which pollute the environment .....1 2 3 4 5 6 7
  9. Non-recyclable containers should be taxed to reduce waste .....1 2 3 4 5 6 7
  10. The government should be required to use recycled materials in their operations whenever possible.....1 2 3 4 5 6 7
  11. Manufacturers should be required to use recycled materials in their operations whenever possible.....1 2 3 4 5 6 7
  12. Commercial advertising should be required to mention the disadvantages of products .....1 2 3 4 5 6 7
  13. Products which pollute the environment during manufacturing or consumption should be taxed .....1 2 3 4 5 6 7
  14. Public schools should require all students to take a course dealing with the environment and conservation problems .1 2 3 4 5 6 7
  15. I feel angry and frustrated when I think of the ways industries are polluting the environment .....1 2 3 4 5 6 7
  16. Environmental issues are overrated and do not concern me .....1 2 3 4 5 6 7
-

## Section 6

The following questions are designed to measure what you feel is a personal, moral obligation toward preserving the environment. Please read the following statements, and circle the response that most closely matches your feelings.

No personal obligation=1, Very strong personal obligation=7

1. Do you feel a personal, moral obligation to buy environmentally friendly products for your household?.....1 2 3 4 5 6 7
  2. Do you feel a personal, moral obligation to recycle household waste?.....1 2 3 4 5 6 7
  3. Do you feel a personal, moral obligation to pay attention to advertisements about products which are safe for the environment?.....1 2 3 4 5 6 7
  4. Do you feel a personal, moral obligation to read and compare package labels for environmentally safe ingredients when you shop?.....1 2 3 4 5 6 7
  5. Do you feel a personal, moral obligation to buy products made with recycled ingredients?.....1 2 3 4 5 6 7
  6. Do you feel a personal, moral obligation to buy larger size products in order to reduce waste?.....1 2 3 4 5 6 7
  7. Do you feel a personal, moral obligation to do whatever you can to help improve the environment?.....1 2 3 4 5 6 7
  8. Do you feel a personal, moral obligation to buy products made by companies known for being environmentally responsible?.....1 2 3 4 5 6 7
- 

## Section 7

The following questions are designed to evaluate what people around you should do in relation to the environment. Please read the statements below, and circle the response that you think most closely matches their feelings.

Strongly disagree=1, Strongly agree=7

1. Most of my friends think I should use household products that are safe for the environment .....1 2 3 4 5 6 7
  2. Most of my friends think I should recycle household Garbage.....1 2 3 4 5 6 7
  3. Most of my neighbors think I should use environmentally friendly household products.....1 2 3 4 5 6 7
  4. Most of my neighbors think I should recycle .....1 2 3 4 5 6 7
  5. Most of my co-workers think I should recycle .....1 2 3 4 5 6 7
  6. Most of my family members think I should use environmentally friendly products .....1 2 3 4 5 6 7
  7. Most of my family members think I should recycle .....1 2 3 4 5 6 7
  8. The leaders of my community encourage all of us to be good to the environment .....1 2 3 4 5 6 7
-

## Section 8

The following questions are designed to assess your orientation to group goals, and unity with nature. Please read the statements below, and circle the response that you think most closely matches your feelings.

Strongly disagree=1, Strongly agree=7

How strongly do you agree with the following statements?

1. Human beings need to understand the rule of nature and act accordingly .....1 2 3 4 5 6 7
  2. We should do unto others what we would do unto ourselves .....1 2 3 4 5 6 7
  3. We should love each other to maintain harmony and unity! 2 3 4 5 6 7
  4. We should pursue the conscience inherent in human nature.....1 2 3 4 5 6 7
  5. For the sake of the public interest, private interest can be curbed.....1 2 3 4 5 6 7
- 

## Section 9

The following questions are designed to measure your perception of the ability of individual consumers to affect environmental resource problems. Please read the statements below, and circle the response that you think most closely matches your feelings.

Strongly agree=1, Strongly disagree=7

How strongly do you agree with the following statements?

1. It is worthless for the individual to do anything about Pollution.....1 2 3 4 5 6 7
  2. When I buy products, I try to consider how my use of them will affect the environment and other consumers .....1 2 3 4 5 6 7
  3. Since one person cannot have any upon pollution and natural resource problems, it doesn't make any difference what I do .....1 2 3 4 5 6 7
  4. Each consumer's behavior cannot have a positive effect on society by purchasing products sold by socially responsible companies .....1 2 3 4 5 6 7
-

## Section 10

On each of the descriptive scales below, circle the appropriate figure, to indicate how you perceive environmental issues.

I feel that environmental issues (are):

- |                |   |   |   |   |   |   |   |             |
|----------------|---|---|---|---|---|---|---|-------------|
| 1. important   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | unimportant |
| 2. boring      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | interesting |
| 3. relevant    | 1 | 2 | 3 | 4 | 5 | 6 | 7 | irrelevant  |
| 4. exciting    | 1 | 2 | 3 | 4 | 5 | 6 | 7 | unexciting  |
| 5. mean        |   |   |   |   |   |   |   | mean        |
| nothing to me  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | a lot to me |
| 6. appealing   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | unappealing |
| 7. fascinating | 1 | 2 | 3 | 4 | 5 | 6 | 7 | mundane     |
| 8. worthless   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | valuable    |
| 9. involving   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | uninvolving |
| 10. not needed | 1 | 2 | 3 | 4 | 5 | 6 | 7 | needed      |
- 

## Section 11

The following questions are designed to assess your having information on a wide variety of products, and liking to share this information with others. Please indicate how strongly you agree with the statements below, by circling the response that you think most closely matches your feelings.

Strongly disagree=1, Strongly agree=7

How strongly do you agree with these statements?

- |  |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|
| 1. I like introducing new brands and products to my friends.....   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. I like helping people by providing them with information about many kinds of products .....   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. People ask me for information about products, places to shop, or sales.....   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. If someone asked me where to get the best buy on several types of products, I could tell him or her where to shop.....  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. My friends think of me as a good source of information when it comes to new products or sales.....  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. Think about a person who has information on a variety of products, and likes to share this information with others. This person knows about new products, sales, stores, and so on, but does not necessarily feel he or she is an expert on one particular product. How well would you say that this description fits you?..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
-

By completing this questionnaire, you have been entered in the random drawing for a cash prize of \$500. If you are the winner, we will inform you through e-mail. We will send you the prize through your environmental organization. You are free to leave any of the following items blank, and again, all responses will be kept strictly confidential.

#### Section 12

Finally, please share with us some background information about yourself. Circle the response that most closely describes you.

1. Gender:

Male .....0

Female...1

2. Age:

18-24 years .....0

25-34 years .....1

35-44 years .....2

45-54 years .....3

55-64 years .....4

65 years and over .....5

3. Education:

Not a high school graduate .....0

High school graduate .....1

Some college .....2

College degree .....3

Master's degree .....4

Doctorate .....5

4. Household Income:

\$9,999 or less .....0

\$10,000-14,999 .....1

\$15,000-19,999 .....3

\$20,000-29,999 .....2

\$30,000-49,000 .....3

\$50,000-99,000 .....4

\$100,000 and over.....5

## 5. Occupation:

- Professional/technical .....0  
 Manager/official/proprietor.....1  
 Clerical/sales .....2  
 Craftsperson .....3  
 Foreperson.....4  
 Operative.....5  
 Farmer.....6  
 Retired.....7  
 Student .....8  
 Homemaker.....9  
 Unemployed.....10

## 6. Environmental organization(s) of which you are a member (you may circle more than one, as applicable):

- |                                       |                    |
|---------------------------------------|--------------------|
| Department of Natural Resources.....0 | Membership # _____ |
| Greenpeace.....1                      | Membership # _____ |
| Sierra Club .....2                    | Membership # _____ |
| Audubon..... 3                        | Membership # _____ |
| Environmental Defense.....4           | Membership # _____ |
| Other (specify) _____5                | Membership # _____ |

---

You participation in this survey is greatly appreciated.

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## APPENDIX C

### SCALES CODING AND INTERPRETATION



## APPENDIX C

**Purchase behavior: How true are the following statements?**

- 1= never true
- 2= almost never true
- 3= not often true
- 4= can't say
- 5= often true
- 6= almost always true
- 7= always true

**Search for information: How often do you...**

- 1= never true
- 2= almost never true
- 3= often not true
- 4= can't say
- 5= often true
- 6= almost always true
- 7= always true

**Conserving behavior: How often do you....**

- 1= never
- 2= almost never
- 3= often do not/ do not often
- 4= can't say
- 5= often
- 6= almost always
- 7= always

**Supporting intent: How strongly do you agree with the following statements?**

- 1= strongly disagree
- 2= almost strongly disagree
- 3= quite strongly disagree
- 4= neither agree nor disagree
- 5= quite strongly agree
- 6= almost strongly agree
- 7= strongly agree

**EC Beliefs and attitudes: How strongly do you agree with the following?**

- 1= strongly disagree
- 2= almost strongly disagree
- 3= quite strongly disagree
- 4= neither agree nor disagree
- 5= quite strongly agree
- 6= almost strongly agree
- 7= strongly agree

**Personal norm: Do you feel a personal moral obligation to...**

- 1= no personal obligation
- 2= very little moral obligation
- 3= little
- 4= neither weak nor strong
- 5= quite strong
- 6= strong
- 7= very strong personal moral obligation

**Injunctive norm: Most of my friends... think that I should.....**

- 1= strongly disagree
- 2= almost strongly disagree
- 3= quite strongly disagree
- 4= neither agree nor disagree
- 5= quite strongly agree
- 6= almost strongly agree
- 7= strongly agree

**Collectivist Orientation: How strongly do you agree with the following?**

- 1= strongly disagree
- 2= almost strongly disagree
- 3= quite strongly disagree
- 4= neither agree nor disagree
- 5= quite strongly agree
- 6= almost strongly agree
- 7= strongly agree

**Perceived consumer effectiveness: How strongly do you agree with the following...**

- 1= strongly disagree
- 2= almost strongly disagree
- 3= quite strongly disagree
- 4= neither agree nor disagree
- 5= quite strongly agree
- 6= almost strongly agree
- 7= strongly agree

**Product involvement: I feel that environmental issues (are)...**

Bipolar adjectives: lowest= 1.....7= highest

**Market mavenship: How strongly do you agree with the statements below...**

- 1= strongly disagree
- 2= almost strongly disagree
- 3= quite strongly disagree
- 4= neither agree nor disagree
- 5= quite strongly agree
- 6= almost strongly agree
- 7= strongly agree

**Gender:**

0= Male  
1= female

**Age:**

0= 18-24 years  
1= 25-34 years  
2= 35-44 years  
3= 45-54 years  
4= 55-64 years

**Education:**

0= Not a high school graduate  
1= high school graduate  
2= some college  
3= college degree  
4= master's degree  
5= doctorate

**Household income (in dollars per year):**

0= 99,999 or less  
1= 0,000- 14,999  
2= 15,000- 19,999  
3= 20,000- 29,999  
4= 30,000-49,999  
5= 50,000-99,999  
6= 100,000 and over

**Occupation:**

0= professional/ technical  
1= manager/ official/ proprietor  
2= clerical/sales  
3= operative  
4= farmer  
5= retired  
6= student  
7= homemaker

## EPILOGUE OF HOPE

All around me

russet, brown

Autumn

in a realm

unknown

to wilt

in Winter shroud

But from my ashes

lush and supple

green will sprout

and blossom forth

to herald Spring

and conquer Summer

Kishwar Joonas

November 5, 1998

## REFERENCES

- Achieving quality and continuous improvement through self-evaluation and peer review: Standards for business and accounting accreditation manual. *St. Louis, MO: AACSB Communications, AACSB International Association for Management Education. June 2000.*
- Aiken, L.S., and S.G. West. 1991. *Multiple regression: Testing and interpreting interactions.* Newbury Park, CA: Sage Publications.
- Ajzen, I. 1985. From intentions to actions: A theory of planned behavior. In J. Kuhl and J. Beckman (Eds), *Action control: From cognition to behavior*, pp 11-39. Heidelberg: Springer.
- \_\_\_\_\_, 1988. *Attitudes, personality, and behavior.* Chicago: The Dorsey Press.
- \_\_\_\_\_, and M. Fishbein. 1980. *Understanding attitudes and predicting social behavior.* Englewood-Cliffs: Prentice-Hall.
- Anderson, J.A., and D.W. Gerbing. 1988. Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3): 411-411.
- Anderson, W.T., K.E. Henion, and E.P. Cox. 1974. Socially versus ecologically responsible consumers. *AMA Combined Conference Proceedings*, 36(Spring and Fall): 304-311.
- Andersson, L. M., and T. S. Bateman. 2000. Individual environmental initiative: Championing natural environmental issues in U.S. business organizations. *Academy of Management Journal*, 43(4): 658-570.
- Antil, J.H. 1978. The construction and validation of an instrument to measure socially responsible consumer behavior: A study of the socially responsible consumer. *Doctoral Dissertation*, Department of Marketing, The Pennsylvania State University.
- Antil, J.H. 1984. Socially responsible consumers: Profile and implications for public policy. *Journal of Macromarketing*, 4(Fall): 18-39.

- Aragon-Correa, J. A. 1998. Strategic proactivity and firm approach to the natural environment. *Academy of Management Journal*, 41(5): 556–567.
- Armstrong, J.S., and T.S. Overton. 1977. Estimating non-response bias in mail surveys. *Journal of Marketing Research*, 14(August): 496-402.
- Atkin, C. 1972. Anticipated communication and mass media information seeking. *Public Opinion Quarterly*, 36(Summer): 188-189.
- Bagozzi, R. P. 2000. On the concept of intentional social action in consumer behavior. *Journal of Consumer Research*, 27(3): 388–396.
- Balderjahn, I. 1988. “Personality variables and environmental attitudes as predictors of ecologically responsible consumption patterns. *Journal of Business Research*, 17: 51-56.
- Bansal, P., and K. Roth. 2000. Why companies go green: A model of ecological responsiveness. *Academy of Management Journal*, 43(4): 717–736.
- Barney, J.B. 1996. *Gaining and sustaining competitive advantage*. Reading, MA: Addison-Wesley Publishing Company.
- Barone, J.J., A.D. Miyazaki, and K.A. Taylor. 2000. The influence of cause-related marketing and consumer choice: Does one good turn deserve another? *Journal of the Academy of Marketing Science*, 28(2): 248-262.
- Bettman, J.R. 1979. *An information processing theory of consumer choice*. Reading, MA: Addison-Wesley Company.
- Bei, L., and R. Widdows. 1999. Product knowledge and product involvement as moderators of the effects of information on purchase decisions: A case study using the perfect information frontier approach. *The Journal of Consumer Affairs*, 33(1): 165-186.
- Bhuiyan, S.N. 1997. Consumer environmental beliefs and attitudes in Saudi Arabia. *Proceedings of the Fourth Annual International Business Conference, Northern State University and Monash University, Rapid City, South Dakota*: 2-9.
- Bickart, B.A. 1993. Carryover and backfire effects in marketing research. *JMR, Journal of Marketing Research*, 30(1)(February): 52-62.
- Broderick, A.J., and R.D. Mueller. 1999. A theoretical and empirical exegesis of the consumer involvement construct: The psychology of the food shopper. *Journal of Marketing Theory and Practice*, Fall: 97-108.

- Brown, D.A., and K. Starkey. 2000. Organizational identity and learning: A psychodynamic perspective. *Academy of Management. The Academy of Management Review, Mississippi State*, 25(1)(January): 102-120.
- Brown, J.D. and R.G. Wahlers. 1998. The environmentally concerned consumer: An exploratory study. *Journal of Marketing Theory and Practice*, 6(2): 39-47.
- Burnett, J.J., and V.R. Wood. 1988. A proposed model of the donation decision process. In E. Hirschman and J.N. Sheth (Eds.), *Research in Consumer Behavior*. Greenwich, CT: Jai Press, 1-47.
- Carlson, L., S.J. Grove, N. Kangun, and M.J. Polonsky. 1996. An international comparison of environmental advertising: Substantive versus associative claims. *Journal of Macromarketing*, 16(2): 57-68.
- Carson, R. 1962. *Silent Spring*. Houghton-Mifflin, Boston, MA.
- Chan, T.S. 1996. Concerns for environmental issues and consumer purchase preferences: A two-country study. *Journal of International Consumer Marketing*, 9(1): 43-45.
- Chaudhuri, A. 2000. A macro-analysis of the relationship of product involvement and information search: The role of risk. *Journal of Marketing Theory and Practice*, Winter: 1-14.
- Chronbach, L.J. 1951. Coefficient alpha and the internal structure of tests. *Psychometrika*, (16): 297-334.
- Churchill, G. 1979. A paradigm for better measures of marketing constructs. *Journal of Marketing Research*, 16(February): 64-73.
- Cialdini, R. B., C. A. Kallgren, and R. R. Reno. 1991. A Focus Theory of Normative Conduct: A Theoretical Refinement and Reevaluation of the Role of Norms in Human Behavior. *Advances in Experimental Social Psychology*, 24: 201-234.
- \_\_\_\_\_, R. R. Reno, and C. A. Kallgren. 1990. A Focus Theory of Normative Conduct: Recycling the Concept of Norms to Reduce Littering in Public Places. *Journal of Personality and Social Psychology*, 58: 1015-1026.
- Cohen, D. 1974. The concept of unfairness as it relates to advertising. *Journal of Marketing*, 38(July): 8-13.
- Cohen, J., and P. Cohen. 1978. *Applied Regression Analysis/Correlation Analysis for the Behavioral Sciences*, New York: John Wiley and Sons.

- \_\_\_\_\_, 1983. *Applied Regression Analysis/Correlation Analysis for the Behavioral Sciences*, 2nd ed. Hillsdale, NJ: Erlbaum.
- Crosby, L.A., J.D. Gill, and J.R. Taylor. 1981. Consumer-voter behavior in the passage of the Michigan Container Law. *Journal of Marketing*, 45(Spring): 19-32.
- Crowne, D.P., and David Marlowe 1960. A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, 24(4), 349-354.
- Delery, J.E., and Doty, D.H. 1996. Modes of theorizing in strategic human resource management: Tests of universalistic, contingency, and configurational performance predictions. *Academy of Management Journal*, 39(4): 802- 835.
- Dichter, E. 1966. How word- of- mouth advertising works. *Harvard Business Review*, 44 (November-December): 147-166.
- DiMaggio, P.J. 1988. Interest and agency in institutional theory. In L.G. Zucker (Ed.), *Institutional Patterns and Organizations: Culture and Environment*. Cambridge, MA: Ballinger pp 3-21.
- Doty, D.H., and W.H. Glick. 1994. Typologies as a unique form of theory building: Toward improved understanding and modeling. *Academy of Management Review*, 19(2): 230-251.
- Drumwright, M.E. 1996. Company advertising with a social dimension: The role of noneconomic criteria. *Journal of Marketing*, 60(October): 71-87.
- Dubinsky, A.J., and F.J. Yammarino, M.A. Jolson, and W.D. Spangler. 1995. Transformational leadership: An initial investigation in sales management. *Journal of Personal Selling and Sales Management*, 15(2): 17-31.
- Dunlap, R.E., and K.D. Van Liere. 1978. The New Environment Paradigm: A proposed measuring instrument and preliminary results. *Journal of Environmental Education*, 9: 10-19.
- Easterbrooke, G. 1995. *A Moment on Earth: The coming of age of environmental optimism*. New York: Viking Press.
- Egri, C. P., and S. Herman. 2000. Leadership in the North American environmental sector: Values, leadership styles, and contexts of environmental leaders and their organizations. *Academy of Management Journal*, 43(4): 571–604.



- Engelland, B.T., C.D. Hopkins, and D.A. Larson. 2001. Market mavenship as an influencer of service quality evaluation. *Journal of Marketing Theory and Practice*, 9(4): 15-26.
- Erickson, R. 1985. Energy use in cultural context: An ethnographic comparison of households in Minnesota and Sweden. *University of Minnesota*. University Microfilms, Ann Arbor, MI.
- Feick, L. F. and L.L. Price. 1987. The market maven: A diffuser of marketplace information. *Journal of Marketing*, 51(January): 83-97.
- Festinger, L. A. 1950. Informal social communication. *Psychological Review*, 57: 271-282.
- \_\_\_\_\_. 1957. *Theory of cognitive dissonance*. Evanston, IL: Row Peterson.
- Fishbein, M., and I. Ajzen. 1975. *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison Wesley.
- Fisher, R.J. 1993. Socially desirable responding and the validity of indirect questioning. *Journal of Consumer Research*, 20:303-315.
- Flores, F.P. 1992. Team building and leadership. *Supervisory management*, April: 8.
- Freedman, J.L. 1964. Involvement, discrepancy and change. *Journal of Abnormal and Social Psychology*, 69(September): 290-295.
- Gooch, G.D. 1995. Environmental beliefs and attitudes in Sweden and the Baltic States. *Environment and Behavior*, 27(4): 513-539.
- Goodstein, J. 1999. Greening the boardroom: Corporate governance and business sustainability. *Administrative Science Quarterly*, 44(3): 636-638.
- Gronroos, J.C.M., and J.L. Bowyer. 1999. Assessment of the market potential for environmentally certified wood products in new homes in Minneapolis/St. Paul and Chicago. *Forest Products Journal*, 49(6): 28-34.
- Hair, J.F., R.E. Anderson, and R.L. Tatham. 1987. *Multivariate Data Analysis: With Readings*. New York: Macmillan.
- Hallin, P.O. 1995. Environmental concern and environmental behavior in Foley, a small town in Minnesota. *Environment and Behavior*, 27(4): 558-578.
- Heberlein, T.A. 1981. Environmental attitudes. *Zeitschrift Umweltpolitik*, 4: 241-270.

- \_\_\_\_\_. 1989. Attitudes and environmental management. *Journal of Social Issues*, 45: 37-57.
- Heizman, S., and T. Stubbs. 1999. *The Complete Guide to Environmental Careers in the 21<sup>st</sup> Century*. The Environmental Careers Organization. Washington, D.C.: Island Press.
- Henion, K.E. *Ecological Marketing*. Grid, Inc., Columbus, Ohio. 1976.
- \_\_\_\_\_, and W.H. Wilson. 1976. *The ecologically concerned consumer and locus of control*. American Marketing Association Series, Austin, TX, pp 131-144.
- Henriques, I., and P. Sadorsky. 1999. The relationship between environmental commitment and managerial perceptions of stakeholder importance. *Academy of Management Journal* 42(1): 87-99.
- Hersche, J., and B. Engelland. 1996. Reversed polarity items and scale unidimensionality. *Journal of the Academy of Marketing Science*, 24(4): 366-374.
- Hofstede. 1980. *Cultures consequences: International differences in work-related values*. Beverly Hills, CA: Sage.
- \_\_\_\_\_. 1997. *Software of the mind: Intercultural cooperation and its importance for survival*. Beverly Hills, CA: Sage.
- \_\_\_\_\_. 2001. *Cultures consequences: Comparing values, behaviors, institutions, and organizations across nations, 2<sup>nd</sup> Edition*. Beverly Hills, CA: Sage.
- Hogg, M.A., and D.J. Terry. 2000. Social identity and self-categorization processes in organizational contexts. *Academy of Management. The Academy of Management Review, Briarcliff Manor*, 25(1)(January): 121- 140.
- Howard, I.A., and J. Sheth. 1969. *The theory of buyer behavior*. New York: John Wiley and Sons, Inc.
- Hunt, V.R. Wood, and L.B. Chonko. 1989. Corporate ethical values and organizational commitment in marketing. *Journal of Marketing*, 53(3): 79-81.
- Kassarjian, H.H. 1981. "Low Involvement: A Special Look", in *Advances in Consume Research*, Vol. 8, Kent B. Monroe (Ed.) Ann Arbor, MI: Advances in Consumer Research, 31-34.

- Keesling, G., and S.A. Kaynama. 2003. An exploratory investigation of ecologically conscious consumers' efforts to control water contamination: Lawn care and the use of nitrogen fertilizers and pesticides. *Journal of Marketing Theory and Practice*, 11(1)(Winter): 52-61.
- Kellman, H.C. 1961. Processes of opinion change. *Public Opinion Quarterly*, 25(Spring): 57-78.
- Kilbourne, W.E. 1995. Green Advertising: Salvation or oxymoron? *Journal of Advertising*, 24(2): 7-19.
- King, A. A., and M. J. Lennox. 2000. Industry self-regulation without sanctions: The chemical industry's responsible care program. *Academy of Management Journal*, 43(4): 698-716.
- Kinnear, T.C., J.R. Taylor, and S.A. Ahmed. 1974. Ecologically concerned consumers: Who are they? *Journal of Marketing*, 38(April): 20-24.
- Klassen, R. D., and D. C. Whybark. 1999. The impact of environmental technologies on manufacturing performance. *Academy of Management Journal*, 42(6): 599-615.
- Kotler, P. 1972. What consumerism means for marketers. *Harvard Business Review*, 50 (May-June): 48-57.
- \_\_\_\_\_, 1975. *Marketing for Non-profit Organizations*. Englewood-Cliffs, N.J.: Prentice-Hall, Inc.
- \_\_\_\_\_, 1994. *Marketing Management: Analysis, Planning and Control*, 10<sup>th</sup> Ed. Englewood-Cliffs, NJ: Prentice-Hall.
- Krebs, D. L. (1970): Altruism— An Examination of the Concept and a Review of the Literature. *Psychological Bulletin*, 73: 258-302.
- Ling-ye, L. 1997. Effect of collectivist orientation and ecological attitude on actual environmental commitment: The moderating role of consumer demographics and product involvement. *Journal of International Consumer Marketing*, 9(4): 31-53.
- Luzar, E.J., A. Diagne, C.E.C. Gan and B.R. Henning. 1998. Profiling the nature-based tourist: A multinomial logit approach. *Journal of Travel Research*, August: 48-55.
- Maloney, M.P., and M.P. Ward. 1973. Ecology: Let's hear it from the people: an objective scale of measurement of ecological attitudes and knowledge. *American Psychologist*, July: 787-790.

- McCarty, J.A., and L.J. Shrum. 1994. The recycling of solid wastes: Personal values, value orientations, and attitudes about recycling as antecedents of recycling behavior. *Journal of Business Research*, 30:56-62.
- Meadows, D.H., D.L. Meadows, and J. Randers. 1962. *Beyond the Limits*. Port Mills, VT: Chelsea Green Publishing Corporation.
- Menon, Ajay and Anil Menon. 1997. Enviropreneurial marketing strategy: The emergence of corporate environmentalism as marketing strategy. *Journal of Marketing*, 61(January): 51-67.
- Menon, Anil, Ajay Menon, J. Chaudhury and J. Jankovich. 1999. Evolving paradigm for environmental sensitivity in marketing programs: A synthesis. *Journal of Marketing Theory and Practice*, 7(2): 1-15.
- Mick, D.G. 1996. Are studies of dark side variables confounded by socially desirable responding? *Journal of Consumer Research*, 23(September): 106-119.
- Minton, A.P. and R.L. Rose. 1997. The effects of environmental concern on environmentally friendly consumer behavior: An exploratory study. *Journal of Business Research*, 40:37-48.
- Neter, J., Kutner, M.H., Nachtsheim, C.J., and Wasserman, W. 1996. *Applied Linear Statistical Models*, (4<sup>th</sup> ed.). Illinois: Irwin Press.
- Nunally, J.C. 1967. *Psychometric Theory*. London: McGraw-Hill.
- Osterhus, T.L. 1997. Pro-social consumer influence strategies: When and how do they work? *Journal of Marketing*, 61(Winter): 16-29.
- Pendergrast, G., and R. Thompson. 1997. Cynical segmentation of environmental markets: The product of marketers' dispositions or corporate demands? *Journal of Euro- Marketing*, 6(4): 17-34.
- Petty, R.E., and J.T. Cacioppo. 1983. Central and Peripheral routes to persuasion: Application to Advertising. In *Advertising and Consumer Psychology*, ed. Larry Percy and Arch Woodside. Lexington, MA: Lexington Books, pp 3-23.
- Polonsky, M. J. 2001. Strategic bridging within firm-environmental group alliances: Opportunities and pitfalls. *Journal of Marketing Theory and Practice*, 9(1): 38-47.
- Price, L.L., L.F. Feick, and R.A. Higie. 1987. Information sensitive consumers and market information. *Journal of Consumer Affairs*, 21(2): 328-341.

- Prothero, A., and J.A. Fitchett. 2000. Greening capitalism: Opportunities for a green community. *Journal of Macromarketing*, 20(1): 46-55.
- Prussia, G. E., and A. Kinicki. 1996. A motivational investigation of group effectiveness using social-cognitive theory. *Journal of Applied Psychology*, 81(2) (April): 187-198.
- Research Alert. 1990. *Environmentalism and Americans: A guide to the foremost trends of our time*. Long Island City, NY: Research Alert.
- Richard, O.C. 2000. Racial diversity, business strategy, and firm performance: A resource-based view. *Academy of Management Journal*, 43(2):164-177.
- Roberts, J.A. 1996. Green consumers in the 1990's: Profile and implications for advertising. *Journal of Business Research*, 36: 217-231.
- \_\_\_\_\_, and D.R. Bacon. 1997. Exploring the subtle relationships between environmental concern and ecologically conscious consumer behavior. *Journal of Business Research*, 40: 79-89.
- Rokeach, M. 1973. *The nature of human values*. New York, NY: The Free Press.
- Roper Organization. 1990. *The environment: Public attitudes and individual behavior*. Commissioned by S.C. Johnson and Son, Inc.
- Ross, J.K. II, L.T. Patterson, and M.A. Stutts. 1992. Consumer perceptions of organizations that use cause-related marketing. *Journal of the Academy of Marketing Science*, 20(1): 93-97.
- Russo, M. V. 2001. Institutions, exchange relations, and the emergence of new fields: Regulatory policies and independent power producing in America, 1978-1922. *Administrative Science Quarterly*, 46(1): 57-86.
- \_\_\_\_\_, and P. A. Fouts. 1997. A resource-based perspective on corporate environmental performance and profitability. *Academy of Management Journal*, 40(3): 534-559.
- Rotter, J.B. 1954. *Social learning and clinical psychology*. New York: Prentice-Hall.
- \_\_\_\_\_, 1966. Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and applied*: 80, No.1 (Whole No. 609).
- \_\_\_\_\_, 1975. Some problems and misconceptions related to the construct of internal versus external control of reinforcement. *Journal of Consulting and Clinical Psychology*, 43: 56-67.

- \_\_\_\_\_, 1990. Internal versus external control of reinforcement: A case history of a variable. *American Psychologist*, 45: 489-493.
- \_\_\_\_\_, M. Seeman, and S. Liverant. 1962. Internal versus external control of reinforcements: A major variable in behavioral theory. In N.F. Washburne, (Ed). *Decisions, values, and groups: Proceedings of a conference held at the University of New Mexico*. New York: Pergamon. pp 473-516.
- Scammon, D.L., and R.N. Mayer. 1995. Agency review of environmental marketing claims: A case-by-case decomposition of the issues. *Journal of Marketing*, 24(2): 33-43.
- Schmitt, N. and Stults, D.M. 1985. Factors defined by negatively keyed items: The results of careless respondents? *Applied psychology measurement*, 9(4)(December): 367-373.
- Schwartz, S. 1977. Normative Influences on Altruism. In Leonard Berkowitz (Ed.), *Advances in Experimental Social Psychology*. Academic Press, New York 19: 221-279.
- Sharma, S. 2000. Managerial interpretations and organizational context as predictors of corporate choice of environmental strategy. *Academy of Management Journal*, 43 (4): 681-697.
- Sherif, M. 1936. *The psychology of social norms*. New York: Harper and Row.
- \_\_\_\_\_, and C. Hovland. 1953. Judgmental phenomena and scale of attitude measurement: Placement of items with individual choice of names of categories. *Journal of Abnormal and Social Psychology*, 48 (January): 135-141.
- \_\_\_\_\_, and C.W. Sherif. 1969. *Social Psychology*. New York: Harper and Row.
- \_\_\_\_\_, and H. Cantril. 1947. *The psychology of ego involvement*. New York: John Wiley Press.
- Shrivastava, P. 1995. The role of corporations in achieving ecological sustainability. *The Academy of Management Review* 20(4): 936-955.
- Shrum, L.J., J.A. McCarty, and T.M. Lowrey. 1995. Buyer characteristics of the green consumer and their implications for advertising strategy. *Journal of Advertising*, 24(2): 71-82.
- Sieber, S.D. 1974. Toward a theory of role accumulation. *American Sociological Review*, 39(August): 567-578.

- Staub, E. 1972. Instigation to goodness: The role of social norms and interpersonal influence. *Journal of Social Issues*, 28(3): 131-150.
- \_\_\_\_\_. 1978. *Positive social behavior and morality. Vol.1.* New York: Academic Press
- Stern, P.C., T.S. Dietz, and G.A. Guagnano. 1995. The new ecological paradigm in socio-psychological context. *Environment and Behavior*, 27(6): 723-743.
- Tanner, J.F., J.B. Hunt, and D.R. Eppright. 1991. The protection-motivation model: A normative mode of fear appeals. *Journal of Marketing*, 55(July): 36-45.
- Van Liere, K.D., and R.E. Dunlap. 1980. The social bases of environmental concern: A review of hypothesis, explanations, and empirical evidence. *Public Opinion Quarterly*, 44: 181-197.
- Varadarajan, P.R. 1992. Marketing's contribution to strategy: The view from a different looking glass. *Journal of the Academy of Marketing Science*, 20(Fall): 323-343.
- \_\_\_\_\_, and P.N. Thirunarayana. 1990. Consumer's attitudes towards marketing practices, consumerism and government regulations: Cross-national perspectives. *European Journal of Marketing*, 24(6): 6-23.
- \_\_\_\_\_, S.G. Bharadwaj, and P.N. Thirunarayana. 1994. Executives' attitudes toward consumerism and marketing: An explanation of theoretical and empirical linkages in an industrializing country. *Journal of Business Research*, 29: 83-100.
- Webster, Jr. F. E. 1975. Determining the characteristics of the socially conscious consumer. *Journal of Consumer Research*, 2(December): 188-196.
- Whitehead, W.R. 1994. Biz schools plan for "greener" MBA's. *Environment Today*, 5(10): 3.
- World Resources, 1998-99.* World Resources Institute, The United Nations Environment Program, The United Nations Development Program, and The World Bank. New York: Oxford University Press.
- Yammarino, F.J., S. J. Skinner, and T.L. Childers. 1991. Understanding mail survey response behavior: A meta-analysis. *Public Opinion Quarterly*, 55(4)(Winter): 613- 639.
- Zaichkowsky, J.L. 1985. Measuring the involvement construct. *Journal of Consumer Behavior*, December: 341-352.

\_\_\_\_\_. 1990. "The Personal Involvement Inventory: Reduction, revision and application to Advertising". *Discussion Paper Series, Faculty of Business Administration, Simon Frazer University, BC, Canada*. Scale reported in *Handbook of Marketing Scales*, W.O. Bearden and R. Netemeyer (Eds), Second Edition. Thousand Oaks, CA: Sage Publications.

Zimmer, M.R., T.F. Stafford, and M.R. Stafford. 1994. Green issues: Dimensions of environmental concern. *Journal of Business Research*, 30: 63-74.

Zinkhan, G.M., and L. Carlson. 1995. Green advertising and the reluctant customer. *Journal of Advertising*, 24(2): 1-6.

Internet sources:

Mahfood, Steve. Environmental Doctoral Research Project (online appeal letter). Accessed on 19 June 2003. Available from <http://www.dnr.mo.gov/research.htm>.

Webmaster. History and Mission (official web site). Accessed on 15 January 2002. Available from [http://www.greenpeaceusa.org/bin/view/pl/5476/cms\\_category/32.html](http://www.greenpeaceusa.org/bin/view/pl/5476/cms_category/32.html).

Webmaster. MEconSc (Public Policy in Environmental Economics) (official web site). Accessed 8 January 2004. Available from <http://www.ucd.ie/envist/envstud/MEcon.html>.

Webmaster. Inside Sierra Club (official web site). Accessed on 8 January 2002. Available from <http://www.sierraclub.org.inside>.

Webmaster. About UCS (official web site). Accessed on 15 January 2002. Available from <http://www.ucsusa.org/ucs/about/index.cfm>.