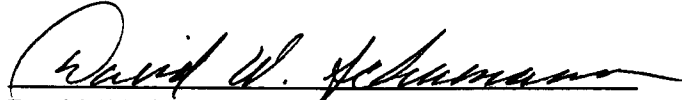


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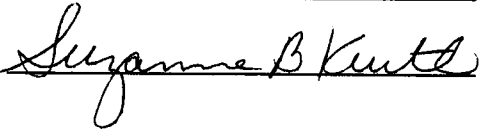
I am submitting herewith a dissertation written by Edward Petkus, Jr. entitled "An Investigation of the Social Psychological Processes Associated with Environmentally Responsible Consumer Behavior." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Business Administration.


David W. Schumann, Major Professor

We have read this dissertation
and recommend its acceptance:







Accepted for the Council:


Associate Vice Chancellor
and Dean of the Graduate School

AN INVESTIGATION OF THE
SOCIAL PSYCHOLOGICAL PROCESSES
ASSOCIATED WITH
ENVIRONMENTALLY RESPONSIBLE
CONSUMER BEHAVIOR

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Edward Petkus, Jr.

May 1993

DEDICATION

I dedicate this dissertation to my uncle, the late Albert Petkus, who instilled in me the value of appreciation of nature, and whose spirit will always guide me; and to three childhood pets: Tyche, for her vitality; Tasha, for her beauty; and Nikki, for her wisdom.

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I thank all my friends and all my students for keeping me energized.
KOYAANISQATSI!

Finally, I thank Lou Reed for the simple elegance of the following:

*Let it be good, do what you should,
and you know it'll be all right*

ABSTRACT

The purpose of this research is to examine the social psychological processes associated with environmentally responsible consumer behavior. The Hierarchy of Sequential Behavioral Determinants (HSBD) Model developed herein integrates self-schema theory, role-identity theory, and research on the attitude-behavior relationship, in the context of environmentally responsible behavior. A survey designed to test the dynamics of the HSBD model was administered to a nationwide random sample of 705 adults. Results indicated that an "environmentally responsible consumer role-identity" construct, composed of self-oriented and other-oriented factors, serves as a link between (1) general environmental concern and susceptibility to normative pressure regarding environmental responsibility, and (2) specific attitudes and subjective norms regarding behavioral intentions toward specific environmentally responsible behaviors. Implications for theory development and for marketing decision-making are discussed.

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CHAPTER ONE

INTRODUCTION

In the classic tale *The Lorax*, Dr. Seuss introduced us to The Once-ler, a ruthless entrepreneur who successfully produced and sold Thneeds. A Thneed was a Fine-Something-That-All-People-Need, and Thneed sales soon skyrocketed as consumers realized their incredible versatility. The Once-ler's success came, however, at the expense of the Truffula Trees, which were needed for the production of Thneeds. In addition to the eradication of the Truffula Trees, the production of Thneeds resulted in the demise of the Bar-ba-loots (who depended on Truffula fruit for their supper) and the Swomee-Swans (who choked on the smog from the Thneed factory). The consumption of Thneeds was clearly having adverse consequences for the environment.

This story, whose real-life analogues are numerous (for example, the *Exxon-Valdez* oil spill; the Union Carbide chemical disaster in Bhopal, India; the controversy over the spotted owl in the Pacific Northwest, etc.), illustrates the fundamental relationships among consumer behavior, marketing and the environment. In the most general sense, the marketing process is made up of a production subprocess and a consumption subprocess. Both of these subprocesses involve inputs and outputs that have environmental implications. Because production and consumption are inexorably

linked in a marketing system, the total environmental implications of a marketing system are the combination of those of the production and consumption subprocesses.

This relationship among consumer behavior, marketing, and the environment has received much recent attention. This attention has been manifest in two ways: increased public awareness of and concern about environmental issues, and the increased incidence of environmentally responsible, or "green," marketing activities. Numerous public opinion surveys indicate increased public environmental awareness and concern, but lesser reported levels of environmentally responsible behavior.

Still, there has been a recent proliferation of green marketing activities. Regardless of whether an environmentally responsible consumer action is in response to green marketing activities or not, the question is raised—*why do people do it?* What are the social psychological constructs that underlie environmentally responsible consumer behavior, and what are the processes involved in the relationships among these constructs?

The purpose of this research is to examine the social psychological processes that are associated with environmentally responsible consumer behavior (hereafter, ERCB). An integrated model of the social psychological processes of ERCB has been developed based on a review of the literature in three major theoretical areas of social psychology: theories related to the self (e.g., Bem 1972; Markus 1977); symbolic interactionism-based role-identity theory (McCall & Simmons 1978); and the attitude-behavior relationship, especially focusing on the theory of reasoned action (e.g., Ajzen & Fishbein 1980; Fishbein & Ajzen 1975). The model delineates relationships among

these theoretical areas, and is designed to facilitate research that will contribute to the explanation and understanding of ERCB.

ENVIRONMENTALLY RESPONSIBLE CONSUMER BEHAVIOR

What is ERCB? For purposes of this research, ERCB is defined as purchase, use, or disposal behavior that is perceived (by the actor and/or by others) to minimize or reduce adverse impact on the environment. Purchase behaviors include buying products that are made by companies who have made efforts to minimize negative environmental impacts or products made by companies who donate resources toward environmentally responsible ends; buying products from retailers who are in some way environmentally responsible; buying products made from recycled, recyclable, and/or biodegradable materials ("precycling"); buying products whose manufacture and/or testing are not harmful to flora or fauna and their habitats; buying products that use less energy; etc. Use behaviors include reducing the amount of product used per use occasion (such as using only half of a paper towel at a time), re-using products, reducing overall levels of consumption of products with environmental implications (such as driving less to save gas, or keeping the thermostat at a level that reduces energy use), etc. The purchase/use distinction is often blurry, because an environmentally responsible purchase (e.g., buying a non-aerosol hair spray) will often involve the subsequent use of the product, which can then also be deemed environmentally responsible. Disposal behaviors include recycling, disposing of hazardous materials in an environmentally benign manner, composting, etc.

ERCB LITERATURE REVIEW

The literature on ERCB is extremely multidisciplinary, and is thus quite diverse in content. In addition to consumer research and marketing, fields such as psychology, sociology, social psychology, economics, environmental management, environmental studies, and agriculture all contain research that has implications for ERCB. The following is a general overview of the ERCB literature, which will be discussed in more detail in Chapter Two.

In the early 1970s, the relationship between consumption and the environment began to be recognized. Weiss (1971) predicted a shift in the U.S. economy from excessive production, consumption, and waste toward more extensive conservation, recycling, and rational levels of consumption and production. Fisk (1973) noted that irresponsible consumption in any geographic area will, at least indirectly, affect the environment elsewhere. An example of this would be the hole in the ozone layer over Antarctica that has resulted from the use of sprays containing chlorofluorocarbons. Responsible consumption would thus involve the rational and efficient use of resources with respect to the global population. In addition, much of the research on socially responsible consumers included environmental-responsibility considerations (e.g., Kassarian 1971; Kinnear, Taylor, & Ahmed 1974).

A considerable amount of research has addressed the consumer implications of the energy crisis of the late 1970s and early 1980s. This extensive literature covers three main areas. First, the effects of energy conservation-related communications and information (such as energy labels and persuasive communications) were researched

(e.g., Reizenstein & Barnaby 1976; Craig & McCann 1978; McNeill & Wilkie 1979; Hutton & Wilkie 1980; Walker 1980; Allen 1982). Second, consumer attitudes toward energy conservation topics were investigated (e.g., Reizenstein & Barnaby 1976; Heslop, Moran, & Cousineau 1981; Bennett & Moore 1981; Taschian, Slama, & Taschian 1984; Haldeman, Peters, & Tripple 1987). Third, specific behaviors related to the energy crisis, such as reduced use of automobiles and thermostat adjustment, have been examined (e.g., Ritchie, McDougall, & Claxton 1981; Leonard-Barton 1981; Verhallen & van Raaij 1981; LaBay & Kinnear 1981; Hutton & McNeill 1981; Warriner 1981; Downs & Freiden 1983).

Extensive research has addressed individual difference variables such as demographics, personality, and lifestyle characteristics of environmentally responsible and environmentally concerned consumers. For example, locus of control (the extent to which a person perceives that he/she has control over events and outcomes) is a personality variable that has received much attention in the ERCB literature. According to Vining and Ebreo (1990), though most studies show environmentally responsible consumers to be highly educated, relatively wealthy, and relatively younger, results are often mixed. Indeed, demographic variables were of limited predictive value in a recent study of recycling behavior (Oskamp et al. 1991).

As green marketing has emerged as an increasingly important decision-making issue, segmentation of environmentally responsible consumers has become an increasingly important research issue as well (O'Neill & Keller 1991). Despite the potential for identification of segments of consumers whose environmental behaviors

will differ, however, it is important to recognize that ERCB occurs to some extent among all demographic groups, as indicated by Oskamp et al. (1991).

The bulk of the research on ERCB addresses environmental attitudes. The relationship of environmental attitudes to ERCB has been assessed at all levels of specificity, from general attitudes toward the environment, or environmental concern (e.g., Schahn and Holzer 1990), to attitudes toward specific issues such as the energy crisis (e.g., Belk, Painter, and Semenik 1981), to attitudes toward specific actions such as recycling (e.g., Oskamp et al. 1991). Some of these studies applied the Fishbein attitude-behavior model (e.g., Olsen 1981).

Most studies that examine the environmental concern-behavior relationship have found it to be relatively weak (as is also found in many recent public opinion polls). A recent meta-analysis of research on environmentally responsible behaviors found an attitude-behavior correlation of about .35 (Hines, Hungerford, and Tomera 1987).

Normative factors represent another major variable that has been considered in the literature. While social norms were found to have a weak effect on intention to conserve energy (Midden & Ritsema 1983), different types of social norms have been found to influence littering behavior (Cialdini, Reno, & Kallgren 1990). These norms include injunctive norms (what others approve or disapprove) and descriptive norms (what others do). Gill, Crosby, & Taylor (1986) have incorporated norms as intermediate variables in assessing the indirect effects of environmental concern on environmentally related voting behavior.

Practical factors affecting ERCB have also received much attention in the literature. Practical factors include financial and functional constraints and facilitators that can influence ERCB. Financial constraints on ERCB are most likely to occur when environmentally responsible consumption alternatives cost prohibitively more than other alternatives. Financial facilitators include incentives to stimulate energy conservation (Hutton & McNeill 1981; Hutton & Markley 1991). Functional constraints involve lack of availability of environmentally responsible alternatives in some product categories, inadequate dissemination of information about the environmental consequences of consumption behaviors, and diminished performance of some environmentally responsible products. Functional facilitators include proliferation of environmentally responsible alternatives, increased amount and accuracy of information, better performance of some environmentally responsible products, and community programs (such as those that provide recycling bins). While the effects of these types of practical factors are acknowledged, they are only of interest to this research to the extent that they impact the social psychological motivational variables of interest.

Despite the diversity of the ERCB literature, there has been relatively little theory development and application. General relationships among motivational and non-motivational variables have provided some insights into the phenomenon. The diversity of this body of literature also serves to demonstrate the plethora of factors that are involved in understanding ERCB. However, significant gaps in understanding,

and opportunities for integration, still exist, especially in the investigation of specific social psychological constructs and their interrelationships.

There are parallels between the major ERCB motivational variables and several theoretical areas in social psychology. The study of attitudes, particularly the attitude-behavior relationship, is an extremely important area of social psychology that, as mentioned earlier, has attracted a great deal of attention in the ERCB literature. The study of normative influences represents another area in which there is overlap between the ERCB and social psychology literature. These parallels form the basis for the development of a model that integrates social psychological theory and ERCB research.

AN INTEGRATED MODEL OF ENVIRONMENTALLY RESPONSIBLE BEHAVIOR

An integrated model of environmentally responsible behavior model (hereafter referred to as the integrated model) is presented here as an orienting framework that accounts for the general context and factors involved in environmentally responsible behavior (see Figure 1*). The integrated model consists of four major components: the physical environment, the social context, individual difference variables, and situational and behavioral variables. The physical environment and social context represent the external environment in which ERCB is embedded. Individual difference variables are associated with the "person," and include the environmental concern self-schema (and influences on it), the environmentally responsible consumer role-identity,

*All figures appear in Appendix 8.

and other personality variables. Situational and behavioral variables (again, associated with the "person") include attitudes toward the action, subjective norms, intention to act, role-identity salience, task-specific practical factors, and ERCB. In addition, post-ERCB effects (self-support and role support from others) are depicted as part of the social context.

The environmental concern self-schema is influenced by information (which can come from sources such as media, education, and social interaction), knowledge, and values. The environmental concern self-schema can potentially generate several different role-identities: e.g., environmentally responsible parent, environmentally responsible activist, environmentally responsible voter, environmentally responsible employer, environmentally responsible communicator, and environmentally responsible consumer. The environmentally responsible consumer (ERC) role-identity is of course the one of interest to this research. Personality variables in addition to environmental concern (such as those associated with conformity in social situations) will influence the development of the ERC role-identity.

As depicted by the theory of reasoned action, behavioral intentions are generated by attitude toward the action and by subjective norms. In the integrated model, these effects on intention to act will be mediated by ERC role-identity salience. Role-identity salience is the situational importance of a given role-identity, relative to other identities associated with the role (McCall & Simmons 1978). Further, the integrated model also indicates that the effect of intention to act on actual ERCB will be mediated by task-specific practical factors, which include financial and functional

facilitators and constraints that will mediate the actual intention to engage in the act. Task-specific practical factors will also be incorporated into the expectancy-value component in the generation of attitude toward the act.

The theoretical relationships depicted in the model do not end with ERCB. As shown in the integrated model, ERCB will have feedback effects on antecedent constructs through self-support and role-support from others. Thus the integrated model is a system in which the effects of several social psychological variables are hierarchically and cyclically linked.

THE HIERARCHY OF SEQUENTIAL BEHAVIORAL DETERMINANTS MODEL

A subset of the integrated model, the hierarchy of sequential behavioral determinants (HSBD) model of the social psychological processes associated with ERCB is presented in Figure 2. Three major theoretical areas of social psychology are integrated in the HSBD model: self-schema theory; role-identity theory; and the attitude-behavior relationship, focusing on the theory of reasoned action. All these theoretical frameworks make some attempt to predict and explain behavior through social psychological processes. There are both consistencies and discrepancies among the mechanisms and constructs by which behavior is explained in each theory. In addition, gaps in certain mechanisms can be identified in each of the theories.

The HSBD model, by integrating the three theoretical areas, attempts to reconcile some of the inconsistencies and debated issues that exist in the literature on these areas. There are gaps *within* particular theories—for example, the relationship between attitudes and subjective norms in the theory of reasoned action has not yet

been consensually described. There are also theoretical issues that exist *across* theories—for example, normative factors are a significant part of both the theory of reasoned action and the role-identity model, but the two theories conceptualize normative factors differently, the former much more specifically (regarding behavior) than the latter. The HSBD model is designed to address gaps in both the social psychological theories that it integrates, and in the existing knowledge base on ERCB. Before the HSBD model is explained, some brief background on each of the three theoretical areas will be discussed (with more detailed and extensive discussions to come in Chapter Two).

Literature Review—Social Psychological Theories

Self-Schema Theory

The "self" has fascinated people for centuries. Not surprisingly, then, the social sciences have generated a vast literature on the subject. Many early conceptualizations of self were based on social interaction: e.g., an individual has as many social selves as there are individuals who recognize him/her (James 1892); the social self as a "looking glass self" with three elements: an imagined appearance to others, an imagined judgement of that appearance, and an affective self-feeling based on that judgement (Cooley 1902); responses of others provide the key to the definition of the self (Mead 1934).

Despite the plethora of self-related theories over the years, the relatively recent self-schema theory (Markus 1977) appears most appropriate to the investigation of ERCB. Self-schemata are cognitive generalizations about the self, derived from past

experience, that organize and guide the processing of information gained in social experience. These generalizations result from attempts to organize, summarize, or explain one's behavior. Self-schemata facilitate the processing of information about the self (judgements and decisions about the self), contain easily retrievable behavioral evidence, provide a basis for the confident self-prediction of behavior on schema-related dimensions, and make individuals resistant to counterschematic information. Self-schemata also take the form of generalizations derived from repeated categorization and subsequent evaluation of the people's behavior by themselves and by others. These generalizations can relate to specific events (e.g., "I was very generous to my friend this morning," "That was a very creative letter I just wrote," etc.) as well as to more general representations (e.g., "I am generous," "I am creative," "I am independent") (Markus 1977). All of these characteristics can be applied to a self-schema that relates to environmental-responsibility and is expressed as "I am environmentally concerned" or "I am concerned about the environment."

Other relevant issues in self-schema theory include ideal self-schemata (e.g., Hewitt & Genest 1990), the effect of public and private self-consciousness on self-schemata (Nasby 1989), and structural dimensions of self-schemata (Millar & Tesser 1986). Again, these issues can be related to an ERCB context, e.g., whether people see themselves as environmentally concerned in an ideal vs. actual sense, etc.

The review of the literature also yielded some self-related theoretical work for which links can be made to self-schemata. Swann & Read (1981) discuss self-verification processes, by which people use social interactions as opportunities to

verify and confirm their self-conceptions. Markus & Kunda (1986) discuss the situational "working self-concept" that is a subset of a universe of self-schemata. Swann et al. (1987) discuss self-consistency theory, which assumes that people want others to treat them in a predictable manner, and self-enhancement theory, which assumes that people want others to treat them in a positive manner. Sande, Goethals, & Radloff (1988) found that people see themselves as having rich, multifaceted and adaptive personalities—multifaceted selves that enable them to respond adaptively to the requirements of any situation. Sirgy (1982) refers to a multidimensional self-concept that includes actual self-image, ideal self-image, social self-image, and ideal social self-image. Sirgy's (1986) self-congruity theory hypothesizes that self-consistency motivations guide perceptual self-congruity, where emergent perceptions of self are consistent with an existing self-image. Extending this work, Wright, Claiborne, and Sirgy (1992) discuss the effects of product symbolism on self-concept.

Role-Identity Theory

A second important theoretical area of social psychology that is incorporated into the HSBD model is role-identity theory. The role-identity model (McCall & Simmons 1978) seeks to explain human actions based on the perspective of symbolic interactionism. Symbolic interactionism is a broad sociological framework whose fundamental assumptions have been delineated by a multitude of authors. The basic principles of SI, as outlined by McCall and Simmons (1978), can be summarized as follows: People continuously construct plans of action. Plans of action are executed based on the meanings of objects (i.e., things, people, or ideas) encountered; therefore,

people constantly identify and interpret the meanings of objects that are relevant to their plans. The meanings of these objects are the implications of those objects for the plans of action. For social plans of action, meanings of objects must be consensual to the extent that they are sufficiently common to allow mutual adjustment of lines of action. Finally, the most important object whose identity (and its meaning) must be consensually established in any situation is the person him/herself.

The role-identity concept is fundamental to this conceptualization of symbolic interactionism. McCall and Simmons (1978) define role-identities as people's imaginative views of themselves as they like to think of themselves being and acting as occupants of particular social positions, or roles. A role-identity consists of (1) conventional elements (acquired through socialization and past social experiences) that are relatively stable and (2) idiosyncratic elements that arise from interpretations that are tied to specific situations, and are thus dynamic and mutable. Role-identities determine our interpretations of the meanings of situations, events, and people that we encounter in social interactions (McCall & Simmons 1978).

Role-identities are legitimated by role-performance, both internal (imaginative) and overt (behavioral). Role performance in the form of overt behaviors is designed to elicit role-support, which is the implied confirmation by others of an individual's role performance (McCall & Simmons 1978). The elicitation of role-support can be facilitated by role-taking, which affords a person the ability to anticipate the actions or attitudes of others toward the self, and involves internalizing the attitudes, values, and anticipated actions of others associated with the relevant social context (Cuff & Payne

1979). In addition, role "self-support" can be used to maintain a role-identity through a process of self-interaction (McCall & Simmons 1978). Recent conceptual work has delineated the implications of role-identity theory for ERCB. Petkus (1992a) proposes that the study of ERCB can be enhanced by the application of the symbolic interactionist perspective, and discussed research issues based on role-identity theory.

Attitude-Behavior Relationship

The relationship between attitudes and behavior has received an enormous amount of both theoretical and empirical attention in the social psychology and consumer research literatures. The bulk of this research has focused on Fishbein and Ajzen's attitude-behavior model, commonly referred to as the theory of reasoned action (see, e.g., Fishbein & Ajzen 1975; Ajzen & Fishbein 1980). The theory of reasoned action holds that behavior will be a function of behavioral intentions that are determined by a weighted additive combination of attitude toward the act and subjective norms with respect to the act. The attitudinal component is influenced by (1) beliefs about the consequences of performing the act, and (2) an evaluation of the expected consequences (expectancy-value). The normative component is a function of the summated multiplicative combination of (1) normative beliefs (the extent to which an individual believes that an act is expected of him/her by others), and (2) the individual's motivation to comply with the expectation.

The attitude-behavior relationship is particularly relevant to the domain of ERCB, as evidenced by the extensive literature that addresses the topic. This includes research that addresses environmental attitudes (e.g., McGuiness, Jones, & Cole 1977;

Rozendahl, Ester, & Van der Meer 1983) and normative factors (e.g., Horsley 1977; Mielke 1985) separately, as well as literature that addresses ERCB specifically in the context of the theory of reasoned action (e.g., Bowman & Fishbein 1978; Macey & Brown 1983; Olsen 1981).

Dynamics of the Hierarchy of Sequential Behavioral Determinants Model

The HSBD model is designed to predict ERCB through a series of social psychological effects. These effects operate hierarchically—the major dynamics of the model move from broad generalizations about the self (the "environmentally concerned" self-schema), to a more specific "environmentally responsible consumer" role-identity, to even more specific attitudes and subjective norms regarding a particular action.

It is proposed here that different ERC role-identity types will be generated by the interaction of different levels of environmental concern and by susceptibility to normative pressure regarding environmental responsibility. As shown in Figure 3, it is proposed that (1) high levels of both environmental concern and susceptibility to normative pressure regarding environmental responsibility will result in a self/other-oriented ERC role-identity; (2) low levels of environmental concern and high susceptibility to normative pressure regarding environmental responsibility will result in an other-oriented ERC role-identity; (3) high levels of environmental concern and low susceptibility to normative pressure regarding environmental responsibility will result in a self-oriented ERC role-identity; and (4) low levels of both constructs will result in no ERC role-identity at all. Further, it is proposed that susceptibility to

normative pressure regarding environmental responsibility can be mathematically operationalized as a function of two socially oriented perceptions about environmental responsibility (the extent to which significant others are perceived as environmentally responsible and the extent to which environmental responsibility is perceived as socially desirable in general), and a construct associated with social conformity (concern for appropriateness).

Research on the attitude-behavior relationship has clearly demonstrated that the closer the correspondence between the attitude and the behavior, the better the resultant prediction. The objective of the HSBD model is to explain a specific action: ERCB. Therefore, the attitudinal component incorporated in the HSBD model is attitude toward the environmentally responsible action.

STUDY OBJECTIVES

In sum, the HSBD model provides a general depiction of the relationships among constructs that represent social psychological processes associated with ERCB. The major objective of this research is the empirical testing of specific aspects of the HSBD model. This research will focus on three specific questions associated with constructs in the HSBD model:

1. Do different ERC role-identity types emerge from the interaction of different levels of environmental concern and susceptibility to normative pressure regarding environmental responsibility?
2. What effect do different ERC role-identity types have on the relative weighting

of the subjective norm and attitudinal behavioral intentions toward environmentally responsible actions?

3. What effect does perceived general influence of action (a construct related to locus of control) have on the strength of behavioral intention toward environmentally responsible actions under conditions of high environmental concern (self- and self/other-oriented ERC role-identities)?

Specific hypotheses generated from these research questions will be presented in Chapter Three. Survey methodology will be used to collect data. Measures of all constructs will be pretested to assess psychometric properties and reliability.

CONTRIBUTIONS

The major contributions of this research can be outlined as follows:

1. The development of the Hierarchy of Sequential Behavioral Determinants model, with the objective of providing an orienting framework for research that will increase the understanding of the social psychological processes associated with ERCB, a current consumer behavior topic that has strong implications for strategic marketing decisions (especially those involving the segmentation of the environmentally responsible consumer market for the targeting of "green" marketing activities);
2. The empirical examination of several specific constructs associated with ERCB and their interrelationships, knowledge about which will contribute to the effectiveness of "green" marketing activities such as product development, product positioning, and advertising communications;

3. The integration of a diverse social psychology literature, not only of specific social psychological theories, but of general perspectives in social psychology;
4. The potential for generalization of relationships depicted in the HSBD model to other contexts for which self-schemata can be described (e.g., patriotism);
5. The development of measures and operationalizations that will be useful in programmatic research on environmental-responsibility (e.g., the perceptions and personality characteristics that form the operationalization of susceptibility to normative pressure regarding environmental responsibility).

SUMMARY

The main objective of this chapter was to introduce and offer a basic justification for the research to be undertaken. The importance of understanding the social psychological processes associated with ERCB was described, and the phenomenon of ERCB was defined. Relevant research from both the ERCB-related and social psychology literatures was also introduced. Finally, the objectives of the study and the contributions of the research were outlined.

Chapter Two will address some of these same objectives, but in far greater detail and in somewhat different format. The main objectives of Chapter Two are (1) to describe and justify the general structure and dynamics of the HSBD model, and (2) to provide rigorous conceptual development for the specific hypotheses to be tested empirically in this research. To accomplish this, the chapter will be organized according to the relationships of the constructs in the model. The research from both the ERCB literature and the social psychology literature will be discussed in the

context of the HSBD model construct to which it is relevant. Therefore, the organization of Chapter Two is designed to simultaneously present a comprehensive review of the literature *and* describe and justify the structure and dynamics of the HSBD model. Prior research on environmental responsibility can be segmented into two general areas: research addressing individual difference variables associated with the "person," and research addressing situational and behavioral variables associated with the "task." Although there is of course considerable interaction between these two areas, it is useful to organize a review of the literature in this way.

CHAPTER TWO

CONCEPTUAL DEVELOPMENT

INTRODUCTION

Balancing the needs of society with the limitations of the resources of the Earth is a problem that goes back to around 4000 B.C. in Mesopotamia, where the fertile plains that supported the beginning of civilization were soon devastated by the demands of ever-growing numbers of inhabitants. The dilemma has persisted into modern times, where countless manifestations of the struggle have resulted in natural resource depletion, pollution, health problems, species extinction, and other negative externalities.

Some have placed the blame for environmental problems on the underlying philosophies and technological structures of capitalist economies (e.g., Schnaiberg 1980). Others have interpreted the ecological crisis as a crisis in social interest (Brunner 1987), or as a reflection of misguided broader societal concerns about the environment, society, and economy (Diaz-Pineda 1983). Still others have proposed that environmental problems result largely from maladaptive individual behavior (e.g., Maloney & Ward 1973).

Whether driven by general economic structure, social structure, or by individual behavior, the relationships among marketing, consumer behavior, and the environment are indeed fundamental. In the most general sense, the marketing process is made up

of a production subprocess and a consumption subprocess. Both of these subprocesses involve inputs and outputs that have environmental implications. Production inputs include raw materials extracted from the Earth, fossil fuels used for energy, and reduction of natural habitats for production space. Production outputs include airborne exhausts, waterborne effluents, and solid wastes. Consumption inputs include goods and services produced, and energy used to acquire those goods and services. Consumption outputs include post-consumption wastes that enter the air, water, and land. Further, because production and consumption are inexorably linked in a marketing system, both subprocesses contribute to the total environmental implications of a marketing system.

The relationships among consumer behavior, marketing, and the environment have received much recent attention in our society. This attention has been manifested in two ways: increased public awareness of and concern about environmental issues, and the increased incidence of environmentally responsible, or "green," marketing activities. Numerous public opinion surveys indicate increased public environmental awareness and concern (Casale 1992). However, these surveys have indicated that many times this awareness and concern is not fully translated into behavior.

Despite the lack of strong evidence for behavioral effects, increased awareness and concern appear to be adequate incentive for marketing decision makers, as indicated by the recent proliferation of green marketing. Indeed, environmentalism has been called the most important issue for business in the 1990s (Kirkpatrick 1990). Green marketing activities include more conscientious use of raw materials (e.g., using

recyclable and/or recycled materials in production), reduction and/or treatment of production wastes, and designing products to minimize or reduce adverse environmental impact (e.g., pump rather than aerosol sprays). Because marketing decision-makers appear to currently believe that there are competitive advantages to positioning products as environmentally sound, an important aspect of green marketing is the promotion of the product or company as environmentally responsible.

The degree to which green marketing activities are driven by profit motives (i.e., by consumers' desires for environmentally responsible products) or by the actual environmental concern of marketers themselves will vary. However, whether the green marketing trend is driven by marketers' concern for the bottom line or by concern for the environment (or a combination of both), environmentally responsible consumer decisions are crucial to the perpetuation of the trend. If green marketing decisions are driven by profit motive, consumers represent important stakeholders—consumer reactions to the environmentally responsible decisions will affect the performance of the firm, thus impacting the likelihood of subsequent environmentally responsible decisions (Petkus & Woodruff 1992). If a company's green marketing efforts are generated completely by the genuine environmental concern of its decision-makers, the company will want to encourage consumers to choose its products over ones offered by companies that are less environmentally responsible.

Understanding the dynamics of the social psychological motivation of environmentally responsible consumer behavior is important for marketing managers

with respect to decisions about promotions and communications dealing with environmental-responsibility, research and development (with respect to both products and production technologies), and in decisions about packaging, labeling, and product positioning. So that green marketing does not end up being just a "fad," research such as this can give marketers an understanding about how to establish environmentally responsible consumer wants as a consistent phenomenon. If consumer wants more often incorporate environmental responsibility considerations, consumer welfare (in the aggregate sense) would be enhanced at the same time as wants are satisfied (Mulhern 1992). Therefore, understanding the underlying social psychological processes of environmentally responsible consumer behavior may assist in the maximization of social benefit associated with the marketing process.

ENVIRONMENTALLY RESPONSIBLE CONSUMER BEHAVIOR

Although environmentally responsible consumer behavior has been a main focus of previous research, other forms of responsible environmental behavior have received attention in the literature as well. Sia, Hungerford, and Tomera (1985) investigated responsible environmental behavior in general, breaking it down into five "action categories": consumerism, physical intervention (ecomangement), persuasion, legal action, and political action. The variables that were found to be significant predictors of general environmentally responsible behavior were: level of environmental sensitivity, perceived knowledge of environmental action strategies, perceived skill in using environmental action strategies, psychological sex role classification, individual locus of control, group locus of control, and attitude toward

pollution. Hungerford and Volk (1990) discuss "environmental sensitivity" (an empathetic perspective toward the environment) as a prerequisite variable, and knowledge, investment, locus of control, and intention to act as intervening variables, in the prediction of environmental citizenship behavior. Not surprisingly, all of these variables have also been studied with respect to environmentally responsible consumer behavior in particular.

While these other forms of environmentally responsible behavior are certainly important, this research will focus on environmentally responsible consumer behavior (hereafter, ERCB). For purposes of this research, ERCB is defined as purchase, use, or disposal behavior that is perceived (by the actor or by others) to minimize or reduce adverse impact on the environment. ERCB is considered to be a specific type of consumer behavior that involves a decision by an individual to act in a manner that is perceived as environmentally responsible, either by the individual, or by others toward whose normative pressure the individual is reacting. Indeed, a major focus of this research is to identify the conditions under which ERCB will be a function of individual concern, a function of social normative pressures, or a combination of both.

Again, ERCB involves purchase, use, and disposal behaviors. These purchase, use, and disposal behaviors can be addressed in a personal, interpersonal, or cultural/cross-cultural context (Olney & Bryce 1991). Purchase behaviors might include buying products that are made by companies who have made efforts to minimize negative environmental impacts or products made by companies who donate resources toward environmentally responsible ends; buying products from retailers who

are in some way environmentally responsible; buying products made from recycled, recyclable, and/or biodegradable materials ("precycling"); buying products whose manufacture and/or testing are not harmful to flora or fauna and their habitats; buying products that use less energy; avoiding the environmentally-unsafe products in general; etc.

Use behaviors might include reducing the amount of product used per use occasion (such as using only half of a paper towel at a time); re-using products; reducing overall levels of consumption of products with environmental implications (such as driving less to save gas, or keeping the thermostat at a level that reduces energy use); low-impact use of natural environments (such as national parks and wilderness areas); etc. Re-using can reduce overall levels of consumption, and is thus considered to be an important factor in *source-reduction*, the reduction of the total amount of waste materials leaving the home as either trash or recyclables (De Young 1986). The purchase/use distinction is often blurry, because an environmentally responsible purchase (e.g., buying a non-aerosol hair spray) will in many cases be closely followed by use of the product, which can then also be deemed environmentally responsible.

Disposal behaviors might include recycling, disposing of hazardous materials in an environmentally benign manner, composting, etc. Recycling is perhaps the most currently salient of the environmentally responsible consumption behaviors, attracting much attention in many communities. However, when it comes to actual overall

environmental benefit, reduction of consumption levels is most desirable, followed by re-use, followed finally by recycling.

Though the past research on environmental behavior is extensive, significant gaps in theoretical understanding, and opportunities for integration, still exist. Most of the past research has consisted of single-shot studies that involve relatively little theory development and application. The atheoretical nature of most ERCB research is also manifested in the failure of most studies to comprehensively review the vast interdisciplinary body of literature, resulting in a lack of integration in the literature. Much of this research has also been exploratory in nature, and has failed to make well-defined theoretical linkages among constructs. Apart from a few exceptions (e.g., Black, Stern, & Elworth 1985; Gill, Crosby, & Taylor 1986), almost all of the ERCB research examines the predictive value of a variety of variables without grounding these variables in a theoretical framework or model.

More comprehensive explanation of the social psychological processes involved in ERCB is needed. What factors are involved in the development of environmental attitudes and intentions? What is environmental concern, and how does it develop? Under what conditions is ERCB driven by normative factors, whether in lieu of, or in combination with, actual environmental concern? Are there social psychological mechanisms that are specific to environmentally responsible *consumption* behaviors? Does ERCB have effects on subsequent social psychological processes over time?

The general purpose of this research is to examine the social psychological dynamics that are involved in ERCB. An integrated model of environmentally

responsible behavior model has been developed herein based on a review of the ERCB literature, as well as the literature in three major theoretical areas of social psychology: theories related to the self (e.g., Markus 1977; Bem 1972); symbolic interactionism-based role-identity theory (McCall & Simmons 1978); and the attitude-behavior relationship, especially focusing on the theory of reasoned action (e.g., Ajzen & Fishbein 1980; Fishbein & Ajzen 1975). A subset of the integrated model, the Hierarchy of Sequential Behavioral Determinants (HSBD) model, will serve to explicate specific relationships among selected social psychological variables from the integrated model. The HSBD model thus represents a specific theoretical framework that will be tested in this research.

AN INTEGRATED MODEL OF ENVIRONMENTALLY RESPONSIBLE BEHAVIOR

An integrated model of environmentally responsible behavior is presented in Figure 1. The overall structure of the integrated model involves four major components: the physical environment, the general social context, the person, and the task. The more specific components, the person and the task, are subsumed within the more general physical environment and the social context. These components will be discussed individually in the following sections.

Physical Environment

Most models of consumer behavior acknowledge the fact that behavior occurs ultimately within an "external environment" or is broadly governed by "environmental influences" (e.g., Engel, Blackwell, & Miniard 1990). These environmental influences

include culture, social class, interpersonal influence, family and household influences, and situational influences.

However, an aspect of the external environment that is usually ignored is the *physical* environment. All behavior occurs within some physical environment. This environment can include both the natural environment and the built, or man-made, environment. The natural environment includes geography, resource diversity and availability, and the status of natural environments (i.e., levels of pollution, environmental health risks, etc.). The built environment includes all man-made structures, as well as structural modifications that have been made to the natural environment (such as modifications made for agricultural purposes, reservoirs created by dams, landfills, etc.). The physical environment thus represents the most general context in which ERCB is embedded.

An important aspect of the physical environment that should be considered here is the degree to which it involves general practical factors that will have an overall influence on ERCB. These include both constraints that hamper the overall extent to which ERCB is possible, and facilitators that enhance the potential for ERCB. Constraints include overall lack of available behavioral alternatives (e.g., lack of infrastructure for recycling) or technological alternatives (e.g., lack of clean-burning fuels), economic considerations linked to resource availability, and distributional or logistical difficulties associated with these. Facilitators include the development of technological advances in production, consumption, and disposal that make environmentally responsible alternatives more readily available or affordable, and

federal, state, and local governmental efforts to improve the infrastructure for environmental responsibility.

Social Context

It is important to recognize the overall societal milieu in which all consumption, and therefore environmentally responsible consumption, ultimately occurs. In many ways, the social context is closely connected to factors involved in the physical environment (e.g., technology, political decision-making that results in improvements in environmentally responsible aspects of national, state, and community infrastructure, economic development, etc.).

Schnaiberg (1980) discusses a *socio-environmental dialectic*, which involves an inherent tension between the development of society and the state of the biosphere. The "thesis" in this dialectic is societal production and expansion, while ecological limits on resources represent the "antithesis." According to Schnaiberg, the dialectical tension between these two elements can result in three possible "syntheses"—an economic synthesis, a managed scarcity synthesis, or an ecological synthesis. The economic synthesis involves maximization of economic growth and societal expansion at the expense of the environment. The managed scarcity synthesis involves moderate economic and societal expansion, with regulations to alleviate the most severe environmental problems. Under this scenario, inequalities in the impact of environmental degradation result in instability of the system. The ecological synthesis involves severely restricted or reduced economic and societal expansion, use of

environmentally appropriate technologies, and the minimization of all environmental degradation.

The social context includes the aforementioned aspects of the "external environment" of behavior (culture, social class, interpersonal relations, and family relations). These can all act as factors that influence the extent to which ERCB occurs. Cultural value systems can incorporate inherent respect for the environment (as is the case in New Zealand, where, for example, there is a national anti-nuclear policy). Social stratification has been examined as a factor in the extent of environmental responsibility (see discussion under Demographics below).

Interpersonal relations have been shown to be important factors in ERCB, and indeed represent a major focus of this research. Social institutions such as family, education, religion, political systems, and economic and occupational patterns also have socializing effects on consumption patterns. This socialization can include environmental responsibility considerations.

In addition, the general social role of "consumer" has subsumed within it a variety of subroles: information gatherer, influencer, decision maker, purchasing agent, and user. These subroles are often discussed within specific group contexts such as the family or the organizational buying center (e.g., Assael 1987). An individual may occupy each of these subroles at various times, and may indeed occupy more than one at a given time.

Each of the aforementioned consumer subroles can afford opportunities for ERCB. As information gatherer, an individual acquires and evaluates information

from various sources. Information about the environmental effects of consumption behaviors can be sought, used, and disseminated. As influencer, an individual establishes decision criteria by which consumption behaviors are evaluated—these decision criteria can incorporate environmental issues. As decision maker, an individual makes the final decision regarding the consumption behavior—again, criteria that incorporate environmental effects can be employed. As purchasing agent, an individual may go against the decision made by the decision maker (if they are not the same person), buying a product or brand that is more or less environmentally-responsible. Finally, as user, an individual can choose to use (or dispose of) products in an environmentally-responsible manner (e.g., keeping a refrigerator at a warmer setting, reusing plastic containers, etc.).

In the early 1970s, the relationship between societal consumption and the environment began to be recognized. Cracco and Rostenne (1971) proposed a *socioecological product* perspective that considers the sum of all positive and negative utility outcomes (both intended and unintended) associated with a set of need satisfactions. According to this perspective, the consumption of goods and services has inevitable impacts on the natural environment, which is itself considered a scarce commodity by this perspective. Weiss (1971) predicted a shift in the functioning of the U.S. economy from excessive production, consumption, and waste toward more extensive conservation, recycling, and rational levels of consumption and production. Kelley (1971) and Feldman (1971) anticipated that the environment would become the

most important social issue to be considered by a more socially-conscious business community.

The effects of environmentally irresponsible consumer behavior are not limited to the geographic area in which the behavior takes place. Fisk (1973) noted that irresponsible consumption in any geographic area will, at least indirectly, affect the environment elsewhere. Responsible consumption would thus involve the rational and efficient use of resources with respect to the global population. Fisk (1974) outlined the potential negative environmental externalities associated with the proliferation of new products, especially increased waste and depletion of natural resources necessary for production. Shuptrine and Osmanski (1975) discussed "clean-up" and "conservation" as aspects of the changing social role of marketing. Nason (1978) suggested that extensive compulsive consumption will eventually lead to resource depletion and other negative environmental effects.

Riesman, Glazer, and Denney (1950) identified three types of social character that were said to ensure conformity to societal norms in different ways. In a *tradition-oriented* society, conformity results from a tendency to follow traditions. In an *inner-directed* society, conformity results from a tendency to follow a set of goals and values that are socialized early in life. In an *other-directed* society, conformity results from a tendency to be susceptible and sensitive to the expectations of others.

Riesman, Glazer, and Denney showed that the United States was evolving from an inner- to an outer-directed society. More recently, Zinkhan and Shermohamad (1986) found some support for this assertion in a study of trends in advertising over a 30 year

period, showing an increase in other-directed ads in selected magazines over time.

Along these lines, it has been asserted that environmental responsibility has become a socially desirable component of the overall set of societal attitudes and values in the United States (Kleiner 1991; Petkus 1992a). Almost every recent public opinion poll that has addressed environmental responsibility confirms this. It appears, then, that environmental responsibility, at least in an attitudinal sense, is becoming a significant aspect of the general social character of the United States. This research will examine issues directly related to the nature of environmental responsibility in the social context, as they are manifested in the attitudes and identities of individuals.

Individual Difference Variables: The Person

This section will discuss the individual difference variables depicted in the integrated model. First, the literature on environmental concern will be reviewed and the conceptualization of environmental concern as a self-schema will be defended. Second, the literature addressing general personality and lifestyle factors, demographics/psychographics, information, knowledge, and values associated with environmental concern and ERCB will be reviewed. Third, role-identity theory and its implications for the study of ERCB will be described. Finally, the personality factors that are proposed to influence the generation of different ERC role-identity types will be discussed in detail. Recall that personality, lifestyle, and demographic variables that have been examined in the literature but are not to be focused on in this research have already been discussed in an earlier section of the chapter.

Environmental Concern

The majority of the research addressing ERCB involves attitudes. The relationship of environmentally related attitudes to ERCB has been assessed at all levels of specificity, from general attitudes toward the environment, or environmental concern (e.g., Schahn & Holzer 1990), to attitudes toward specific issues such as the energy crisis (e.g., Belk, Painter, and Semenik 1981), to attitudes toward specific actions such as recycling (e.g., Oskamp et al. 1991).

Overall results regarding the environmental attitude-behavior relationship have been mixed. Much of the research has revealed low congruence between environmental attitudes and behavior. Some of the factors that have been proposed to cause the attenuation of this relationship include: perception that personal action does not ameliorate environmental problems, perceived inconvenience of behaviors, perception that others who would be expected to be environmentally responsible are not doing so, lack of information or skills, delayed rewards, and lack of social reinforcement (Lipsey 1977; Oskamp et al. 1991). Consumers also appear to overstate environmental concern in comparison to their actual pre-purchase considerations (Suchard & Polonsky 1991).

A recent meta-analysis of research on environmentally responsible behaviors found an overall attitude-behavior correlation of about .35 (Hines, Hungerford, & Tomera 1986-87). A stronger relationship (though the actual correlation was not reported) was said to be found for attitude toward environmental action than for attitude toward the environment in general, as would be expected (e.g., Fishbein &

Ajzen 1975). Other researchers have also recognized the importance of specificity in assessing the relationship between environmental attitudes and behaviors (e.g., Oskamp et al. 1991; Van Liere & Dunlap 1980).

For the purposes of this research, *environmental concern* will refer to concern for the environment in general. In contrast, *environmental attitudes* will refer to attitudes directed toward specific environmental topics or actions, and will be discussed later in this chapter. This substantive distinction between environmental concern and environmental attitudes will be maintained in this paper regardless of the interchangeable use of the terms in the literature.

The literature addressing environmental concern is extensive, mostly involving the development and/or application of *operationalizations* of environmental concern. Empirical evidence has shown that no generalized environmental concern factor underlies all types of ERCB, and that different environmentally responsible behaviors are associated with different antecedent variables (Cook & Berrenberg 1981; Siegfried, Tedeschi, & Cann 1982; Tracy & Oskamp 1983-84; Van Liere & Dunlap 1981). The literature to be reviewed in this section is that which involves general issues dealing with the operationalization and conceptualization of environmental concern. The literature that addresses a variety of *influences* on environmental concern will be reviewed in the appropriate sections later in this chapter.

Environmental concern has been addressed from a variety of perspectives (Petkus 1992b). Concerns about the use/abuse of nature, environmentally responsible behaviors, values, moral reasoning, awareness and knowledge of environmental

problems and issues, support for environmental reforms and regulations, support for increased environmental funding, membership in environmental advocacy organizations, and commitment to mastery over nature have all been addressed in the environmental concern literature. In addition, specific concerns for a plethora of environmental topics have been addressed, including overpopulation, many types of pollution, littering, energy conservation, wildlife conservation, recycling, etc. Environmental concern has been considered in terms of fear of technological hazards (Ewert 1986; Pilisuk & Acredolo 1988). Some treatments of environmental concern have simply measured the level of "environmental concern" in general, operationalizing the construct as a general attitudinal variable (e.g., Burrus-Bammel 1978; Buttel & Flinn 1978; Pettus 1976).

While all measures of environmental concern are designed to in some way discern a level of intensity, Ramsey and Rickson (1976) explicitly addressed the intensity of environmental concern. They identified a need to distinguish the "passionately interested" from the those with "weaker" attitudes, relating level of intensity to knowledge of environmental principles and trade-off costs associated with environmental benefits. Four levels of intensity were measured: (1) passionate environmentalism (unqualified support for programs of action that would eliminate pollution); (2) favorability (support to pollution abatement programs that are modified to minimize trade-off costs); (3) resignation (concern for problems of air and water pollution, but approval for solutions only when trade-off costs are minimized); and (4)

trade-off cost priority (militant statements against pollution abatement programs because of trade-off costs).

Most studies of environmental concern have employed some combination of operationalizations. In measuring the level of children's environmental concern, Horvat and Voelker (1976) used a 25-item scale that measured attitudes toward the use/abuse of nature and overpopulation, general environmental concern, and environmentally responsible consumer behavior. Concern for environmental degradation, environmental action, and overpopulation were measured by Lounsbury and Tornatzky (1977).

Arbuthnot (1977) used selected items from scales that measured economic orientations, legalism, environmental powerlessness, technology orientation, and future orientation to construct a "pro-ecology attitudes" scale designed to reflect attitudes that favored environmental protection over immediate rewards. Measures of environmental cynicism (where the individual sees him/herself as responsible, but as having little aggregate impact) and ecological responsibility (reflecting a feeling of personal responsibility to address environmental problems) were also used. Results indicated that recyclers scored higher on the environmental cynicism and ecological responsibility scales than did non-recyclers, but there was no difference on the pro-ecological attitudes scale.

Weigel and Weigel (1978) developed a 16-item environmental concern scale that covers attitudes toward government spending, regulation, pollution, predator elimination, personal behaviors, willingness to pay, industry, and environmental

organizations. Environmental concern was operationalized as awareness of environmental problems and support for environmental reforms by Buttel and Flinn (1978). In addition to a "thermometer" scale measuring general environmental concern, Tucker (1978) used several behavioral measures to indicate environmental concern: membership in the Sierra Club, selection of a soft drink in cans vs. returnable bottles, phosphate content of chosen laundry detergent, self-reports of purchase behavior, and self-reports of behavioral intentions. In developing a scale to measure socially responsible consumption behavior, Antil and Bennett (1979) used a 40-item scale in which all the items were environmentally-related. The items ranged in specificity from general environmental attitudes to willingness to pay for specific environmental outcomes.

Van Liere and Dunlap (1981) assessed the multidimensional nature of environmental concern. They investigated the consistency among six environmental concern subscales, measuring attitudes toward overpopulation, pollution, natural resources, environmental regulation, environmental spending, and self-reports of environmentally responsible behavior. The results suggested that environmental concern is a broad concept that is best represented by concern about pollution and natural resources. This same operationalization was also used by Dunlap and Van Liere (1984) and Hand and Van Liere (1984). Milbrath (1984) combined an environmentalism (attitudinal) scale and an environmental behavior index, both of which included several items related to the environmental movement. Commitment to

energy conservation and self-reports of energy conservation behavior were used by Neuman (1986).

Most recently, Schahn and Holzer (1990) developed a measure of environmental concern that combined measurable concepts with environmental topics to generate scale items. The concepts used were affect, verbal commitment, self-reported actual commitment, and knowledge. The topics used were residential energy conservation, conservation of transportation energy, water conservation, political involvement for the environment, recycling of solid wastes and waste reduction, environmentally aware purchases, and protection of health against toxic sources from the environment. For each scale item, a concept and a topic were combined; for example, "I am disappointed because much more money is spent on building new highways than on public transportation" combines the concept "affect" with the topic "conservation of transportation energy."

In sum, the major strengths of the past treatments of environmental concern are (1) the multidimensional perspective from which the construct has been approached and (2) the importance of intensity as an aspect of environmental concern. However, it can also be argued that the multidimensionality of the construct as it has been treated in the literature also represents a weakness (Petkus 1992b). Certainly, the multiplicity of environmental issues and contexts that are relevant to environmental concern is an important factor that a measure must accommodate. However, the failure to conceptually define environmental concern as a construct has resulted in such a potpourri of operationalizations that it is difficult to separate actual

environmental concern from *indicants* and *correlates* of environmental concern. For example, many environmental concern measures incorporate environmentally responsible behaviors as part of the measure. But such behaviors can be driven by factors other than concern, such as economic incentives or social pressures.

The review and analysis still leaves the question: what is environmental concern? A major problem with much of the research addressing environmental concern is the lack of a conceptual definition of the construct. Recognizing this problem, Petkus (1992b) offers a definition that is based on (1) a review of the environmental concern literature, and (2) the results of a qualitative investigation of environmental concern:

Environmental concern is the degree to which an individual affectively and cognitively cares about the condition of the natural environment.

By incorporating both affective and cognitive factors, this definition acknowledges recent efforts in the literature to measure environmental concern (e.g., Schahn & Holzer 1990) and accounts for the two main categories of responses that were generated by a series of interviews in the qualitative investigation. It accounts for the degree to which care for the environment involves affective responses related to "good feeling," and for the degree to which care for the environment involves cognitive responses associated with "responsibility" or "duty."

In addition, the above definition addresses another problem that is characteristic of past operationalizations of environmental concern—what specific environmental issues should be included? Van Liere and Dunlap (1981) recognized that existing measures of environmental concern differed greatly in the degree to which they

addressed different environmental issues and topics. With respect to defining and operationalizing environmental concern, it has been argued that (1) it is infeasible to attempt an exhaustive incorporation of all environmental issues and topics that are relevant to people, (2) the levels of specificity (i.e., global versus local threat) will vary greatly, and (3) the issues are constantly changing—new issues arise, and the importance of existing issues shifts (Petkus 1992b). For example, as mentioned above, Van Liere and Dunlap (1981) state that concerns about pollution and natural resources are among the more important environmental concern issues; however, these issues are apparently not as salient as they used to be, because people are currently identifying other issues such as ozone depletion, global warming, and landfill overflow as more important environmental issues (Petkus 1992b). By incorporating the "natural environment" in general, the above definition can account for the wide variety of dynamic contexts and topics that are relevant to ERCB.

Most importantly, this definition treats environmental concern as a general orienting attitude characteristic of the person, not as a behavioral manifestation or an attitude toward some action. Environmental concern is thus considered to be a characteristic that is, to varying degrees, linked to the self. The next section will discuss the implications of self-schema theory (Markus 1977) for the conceptualization of environmental concern.

Environmental Concern as a Self-Schema

It appears that there is an unclear connection between the self (whether conceptualized as self-concept, self-image, etc.) and behavior. Markus and Wurf

(1987, p. 328) assert that the relationship between self and behavior is not well-understood: "A significant gap in our understanding concerns when and how self-representations will control behavior." Stryker (1987, p. 91) indicates that the mechanisms by which the self influences behavior are vague:

[T]he processes by which self impacts on role performance—the "mechanisms" of that linkage—remain relatively unelucidated and therefore essentially mysterious, implying that theoretical progress requires a more satisfactory specification of how the hierarchical structures of identities comprising the self work to produce given behavioural "outcomes."

In the context of environmentally responsible behavior, the integrated model proposes that the link between self and behavior is facilitated by the relationships between self-schema, role-identity, and behavioral intention. The self-schema (Markus 1977) is proposed to be an appropriate self-oriented theoretical construct for the study of ERCB because of its explicitly delineated association with information, evaluation, and perceptions. Stryker (1987, p. 95) suggests that self-schema theory as outlined by Markus (1977) is "directly pertinent" to the investigation of the relationship between identity and behavior. Also, the "environmental concern" construct, which is so well-established in the ERCB literature, can be clearly and logically expressed as a self-schema, as will be discussed below.

Self-schemata are cognitive generalizations about the self, derived from past experience, that organize and guide the processing of information gained in social experience (Markus 1977). These generalizations result from attempts to organize, summarize, or explain one's behavior. Self-schemata facilitate the processing of information about the self (judgements and decisions about the self), contain easily

retrievable behavioral evidence, provide a basis for the confident self-prediction of behavior on schema-related dimensions, and make individuals resistant to counterschematic information. Individuals are sensitized to cues from their surroundings in accordance to their self-schemata. Self-schemata also take the form of generalizations derived from repeated categorization and subsequent evaluation of the people's behavior by themselves and by others. These generalizations can relate to specific events, as well as to more general representations (e.g., "I am generous," "I am creative," "I am independent") (Markus 1977).

The establishment of environmental concern as a self-schema represents one of the most important relationships between the ERCB literature and the social psychology literature. Recall that Petkus's (1992b) definition of environmental concern treats the construct as a general orienting attitude that is consistently characteristic of a person, not an attitude toward an action. All of the aspects of self-schemata discussed above can be applied to a self-schema that relates to environmental responsibility. Individuals can have a self-schema in which they cognitively generalize themselves as environmentally concerned. This self-schema can be expressed by the individual in the following ways: "I am environmentally concerned" or "I am concerned about the environment," etc. These represent ways in which the individual processes information about him/herself, and can organize and guide the processing of information that the individual encounters in social experience. Consistent with the conceptualization of self-schema presented by Markus, an environmental concern self-

schema can also result in categorization by others (e.g., when others refer to the individual as environmentally concerned, etc.).

Markus and Wurf (1987) discuss the self-schema as having a "dual nature"—simultaneously having the characteristics of both structure and process, of being both "known" and "knower". This idea supports the concept of environmental concern as a self-schema, because an individual may *know* that he/she is environmentally concerned, and will likely have other knowledge and perceptions associated with that generalization.

Greenwald and Pratkanis (1984) make the distinction between the private self (which involves traits, states, and behaviors) and the public self (which involves cognitions about how the self is perceived by some generalized other). Like the self-schema, the private self can be expressed as "I am ____." The public self is expressed as "People think I am ____." Along these lines, individuals will articulate both public and private components of a self-schema (Nasby 1989). Overt, public information about the self is cognitively organized by the public component, while covert, private information is organized by the private component. Private components of the self-schema are expressed as "characteristic of how I typically see myself," while public components are expressed as "characteristic of how I think most others typically see me" (Nasby 1989, p. 119-20). In an ERCB context, a person can see him/herself as environmentally concerned, and can think others see him/her as environmentally concerned, as part of the environmental concern self schema.

Individual Difference Variables Influencing The Self-Schema

Despite the extensive literature addressing environmental concern, very little attention has been given to factors that cause environmental concern. Most of the research has looked at correlates, without making designations about where environmental concern comes from. In the integrated model, environmental concern is proposed to be a function of information, knowledge and perceptions, and values. In addition, there is a significant literature relating environmental responsibility to personality, lifestyle, and demographics/psychographics, which represent variables associated with the person that are indirectly related to environmental concern. The literature dealing with all of these factors in the context of ERCB will be discussed in the following sections.

Personality and Lifestyle

A number of personality and lifestyle variables associated with general environmental responsibility have been addressed in the literature. Kinnear, Taylor, and Ahmed (1974) identified ecologically concerned consumers as scoring high in perceived consumer effectiveness, openness to new ideas, need to satisfy intellectual curiosity, and need to realize personal safety. A study by Arbuthnot (1977) suggested that recyclers were well-informed generally, were less bound to past beliefs and actions, and had a strong sense of their own capability. Environmentally concerned females were found to be more extraverted and leadership-oriented than non-environmentally concerned females, while the opposite relationship held for males (Borden & Francis 1978). Opinion leadership, complaint tendency, readiness to voice

consumer interests, and media habits have been found to be useful ecological responsibility segmentation criteria (Meffert & Bruhn 1978). Individuals who were more environmentally concerned were found to be more active in outdoor and physical activities, more liberal, more self-assured, and less dogmatic than those less environmentally concerned (Belch 1979). Membership in youth organizations and participation in nature-oriented activities among South Africans were correlated with environmental concern (Grieve & Van Staden 1985). A comparison of university students' environmental attitudes between 1971 and 1981 indicated that changes toward a more materialistic lifestyle were associated with lower levels of environmental/energy concern (Thompson & Gasteiger 1985). Finally, well-organized, self-controlled, and goal-oriented subjects were more likely to be environmentally responsible (Pettus & Giles 1987).

Milstein (1979) suggests that cynicism, materialism, and faith in technological solutions to problems represent barriers to energy conservation. A "voluntary simplicity" lifestyle, characterized by attempts to be self-sufficient and decreased levels of consumption, was found to be predictive of energy conservation and intention to purchase solar equipment (Leonard-Barton 1981). Results of another study indicated that the extent to which people had made lifestyle cutbacks was related to temporary, but not permanent, energy conservation actions (Dillman, Rosa, & Dillman 1983).

Anderson, Henion, and Cox (1974) found that there were differences between socially responsible consumers in general and environmentally responsible consumers

in particular, suggesting that the two do not constitute a single market segment.

Socially responsible consumers appeared to subscribe to more societal conventions, yet be less personally competent, than environmentally responsible consumers, who were more societally alienated but more personally competent. Their study suggests that environmentally responsible consumers may be more self-actualizing and thus less sensitive to social sanction. However, results of several other studies investigating the relationship of alienation to environmentally responsible behaviors have been mixed (e.g., Anderson & Cunningham 1972; Balderjahn 1988; Pickett, Grove, & Kangun 1992; Webster 1975). Finally, one of the more unique studies showed that while people who had had "mystical experiences" were more concerned about societal problems in general, there was no effect for environmental concern in particular (Smurthwaite & McDonald 1987).

Demographics/Psychographics

A great deal of the research addressing ERCB has focused on demographics. The demographic characteristics of socially conscious consumers in general (defined as consumers who tend to consider the effects of their purchases on society as a whole, or at least on certain aspects of the social world) have been examined by several researchers. Anderson and Cunningham (1972) profiled the high social-consciousness consumer as a pre-middle age adult with relatively high occupational and socio-economic status, who was more cosmopolitan, less dogmatic, less conservative, less status conscious, and less alienated than a consumer exhibiting low social consciousness. Webster (1975) characterized the socially conscious consumer as a

member of the upper-middle class "counterculture" who is willing to engage in purchase behaviors that are consistent with personal standards of responsibility, even though the behaviors may not be "popularly accepted." The socially conscious consumer was also characterized as "self-actualizing" (Brooker 1976).

Most early studies of the demographics of environmental responsibility found a fairly consistent profile—young, better educated, higher income, and liberal (Hummel, Levitt, & Loomis 1978). (Indeed, the charge that environmentalism is "elitist" has been examined (Morrison & Dunlap 1986)). Consistent with this profile, Reizenstein, Hills, and Philpot (1974) found that people most willing to pay for the improvement of the environment tended to have characteristics of people who are informed about issues (e.g., better educated, professional or managerial occupation, higher income). Those unwilling to pay for environmental improvements had characteristics generally typical of less informed people (e.g., less educated, blue collar/housewife, lower income). A study of recycling behaviors showed that those from higher income households recycled more (McGuire 1984). However, contrary to these results, Pilisuk and Acredolo (1988) found higher levels of environmental concern among lesser educated people.

Several researchers have addressed racial differences in environmental concern, with mixed results. Many early studies found that blacks showed lower levels of environmental concern than whites, though the reasons may have been due to practical factors (Taylor 1989). Murphy, Kangun, and Locander (1978) found that black consumers expressed lower levels of environmental sensitivity than white consumers,

even when other demographic variables were consistent. Pilisuk and Acredolo (1988) found higher levels of environmental concern among minorities. Noe and Snow (1989-90) found no difference in environmental concern between Hispanics and non-Hispanics.

Many studies have assessed the demographics associated specifically with energy conservation. Investigations of the relationship between energy conservation and income have had very mixed results (Downs & Freiden 1983). Some studies found a direct relationship between energy conservation and income (e.g., Talarzyk & Omura 1975; Morrison & Gladhart 1976; Cunningham & Joseph 1978). Other studies have found an inverse relationship (e.g., Barnaby & Reizenstein 1975; Walker & Draper 1975; Reizenstein & Barnaby 1976; Pitts, Willenborg, & Sherrell 1979; Downs & Freiden 1983), a curvilinear relationship (Kilkeary (1975), and no relationship (Murray et al. 1975). Despite these mixed results, Downs and Freiden (1983) speculate that as the energy crisis began to wane as a social issue, the relationship between income and energy conservation may have become more consistently inverse.

Investigation of the relationship between energy conservation and age has also yielded inconsistent results. Several studies have found an inverse relationship (e.g., Barnaby & Reizenstein 1975; Talarzyk & Omura 1975; Taschian, Taschian, & Slama 1983), while others have found a direct relationship (e.g., Reizenstein & Barnaby 1976; Pitts, Willenborg, & Sherrell 1979; Downs & Frieden 1983). A direct relationship between education and energy conservation has been consistently found (e.g., Barnaby & Reizenstein 1975; Talarzyk & Omura 1975; Good 1979). Studies of

the relationship between both sex and occupation and energy conservation have mostly found little or no relationship (Downs & Freiden 1983).

A few studies have examined sex differences in environmental concern and behavior. Women were found to have higher levels of concern than men (Pilisuk & Acredolo 1988). Another study found that women are more likely to express environmental concern through personal, daily behaviors, while men are more likely to express environmental concern by trying to influence the behaviors of others (McStay & Dunlap 1983).

Political ideology has been examined as a sociodemographic variable associated with environmental concern. The environmental movement appeared to cut across political parties in the late 1960s and early 1970's, representing a significantly non-partisan issue (Buttel & Flinn 1978a). An exception is found in a study by Arbuthnot (1977), who found that general conservatism was negatively related to recycling behavior. Indeed, several early studies found no association between political party affiliation and environmental concern (Samdahl & Robertson 1989). However, when liberal ideology was broken down into "anti-laissez-faire" liberalism (reflecting a belief in government intervention for protection of the collective well-being) and "welfare state" liberalism (reflecting a belief in government assistance for citizens' maintenance of a minimal standard of living), a stronger association was found between "anti-laissez-faire" liberalism and environmental concern (Buttel & Flinn 1978a). Self-proclaimed politically liberal college students were found to have higher levels of

environmental attitudes than other groups (Wysor 1983). Samdahl and Robertson (1989) found similar results for predicting support for environmental regulation.

Mixed results have been found for the effect of social class on environmental concern and behavior. A study by Murphy (1976) indicated that social class had varying effects on environmental variables for different products. Tucker (1978) found that social class was a good predictor of environmental concern; however, Buttel and Flinn (1978b) found that it was not. In addition, no class bias was found for environmentalism in Australia (Ray 1981).

As green marketing has emerged as an increasingly important decision-making issue, segmentation of environmentally responsible consumers has become an increasingly important research issue. Results are once again mixed. Vining and Ebreo (1990) found that demographic characteristics were not useful in distinguishing between recyclers and nonrecyclers. Pickett, Grove, & Kangun (1992) found the combined ability of demographic variables to discriminate between conservers and non-conservers to be limited. However, a recent study divided environmentally responsible consumers into five segments based on degree of environmentally responsible behavior, and described their key demographic characteristics (O'Neill & Keller 1991). These segments are described as "True-Blue Greens" (whose actual behavior is consistent with their strong environmental concerns), "Greenback Greens" (who are willing to pay more for green products but have little time to spare for environmental causes), "Sprouts" (whose environmental behaviors are ambiguous), "Grouzers" (who rationalize non-environmentally responsible behavior by accusing

others), and "Basic Browns" (who are indifferent or apathetic about environmental behaviors). These segments are also described demographically, with the more environmentally responsible groups matching closely to the "typical" environmentally responsible profile described above.

Despite the potential for identification of these types of segments, it is important to recognize that ERCB occurs to some extent among all demographic groups. Tognacci et al. (1972) suggested that increases in overall environmental concern reflected sharply increased commitment by a minority rather than increased environmental responsibility among the general public. However, more recent literature is at odds with this conclusion. Van Liere and Dunlap (1980) concluded that research into sociodemographic variables had shown limited usefulness in explaining environmental concern. They suggest that this is the result of the pervasiveness of public environmental concern (Van Liere & Dunlap 1981). As numerous public opinion polls indicate, this still appears to be the case today.

Information

The cognitive generalizations that comprise self-schemata are developed from information processed by the individual. Self-schemata serve a selective function, determining attention to information and its importance. The accumulation of related information over time can strengthen the self-schema (Markus 1977).

It follows logically, then, that environmentally related information would be a significant factor in the development of an environmental concern self-schema. An important source of environmental information is environmental labeling. This can

take the form of manufacturers' environmental responsibility claims that are incorporated into the packaging and labeling of the product. In addition, many countries are implementing special environmental logo programs. Some of these programs are privately run, such as the *Green Cross* and *Green Seal* programs in the United States. Others, such as Germany's *Blue Angel* and Canada's *Environmental Choice* programs, are government-sponsored.

Other sources of environmental information include news media, advertising, books, TV and radio programs, schools, other people, etc. Though one study found general public distrust of the media regarding environmental issues (Ostman & Parker 1986-87), previous research has addressed the influences of environmentally related information in a variety of contexts. Results have mostly indicated a positive relationship between environmentally related information and environmental attitudes, behaviors, etc.

Kassarjian (1971) found that people who were more concerned about air pollution had a greater awareness of and were more receptive to an advertising campaign introducing a low-polluting gasoline. Informing consumers of detergent phosphate content resulted in a relative loss of market share for brands high in phosphate and a gain for brands low in phosphate (Henion 1972). High source credibility was found to increase requests for energy conservation information and to reduce actual consumption of energy, but repetition of information had no effects (Craig & McCann 1978).

McNeill and Wilkie (1979) found that energy labels were useful in

communicating information, but did not result in behavioral changes. Hutton and Wilkie (1980) showed that life-cycle energy cost information had an effect on the energy-efficiency of consumer choices. A study by Walker (1980) indicated that energy conservation appeals appeared to result in overall reduction in household energy use that was greater than that which could be explained by changes in price. Antil (1984) found that information about environmental effects of disposal and conservation behaviors can have a significant influence on those behaviors. Persuasive communication was found to have a positive effect on community recycling behaviors (Burn & Oskamp 1986).

Energy labels were shown to significantly influence the use of energy efficiency as an evaluative criterion in appliance purchases (Dyer & Maronick 1988). Awareness, knowledge, attitudes, and intentions were positively influenced by a 5-year campaign to reduce air pollution in Denver, Colorado, even though behavior changes were insignificant (Hutton & Ahtola 1991). Information (combined with prompting) was found to have a significant effect on household recycling behavior (Hopper & Nielsen 1991). Interestingly, Ostman and Parker (1987) found that TV use was negatively associated with knowledge of environmental information.

A model of the role of pro-conservation information in the process of influencing the purchase of energy-conserving devices has been developed by Costanzo et al. (1986). In this model, pro-conservation information has a direct influence on psychological variables such as perceptions. Following purchase and use, perceived payoffs from the energy-saving device may result in diffusion of pro-

conservation information to others. The authors suggest that social diffusion of information may be more effective than mass media appeals in encouraging conservation behaviors.

McClelland and Canter (1981) provide an in-depth look at types of informational approaches to encourage energy conservation. These include: "how-to-save" energy information; explanation of energy-benefits balance; cost information; feedback; explication of long-term social costs; and explanations of balance-modifying acts (e.g., purchase of energy efficient appliances). The authors identify obstacles to the success of these approaches: believability and acceptability, dependence on existing motives, and gaining the attention of the audience.

Knowledge and Perceptions

The cognitive approach to learning holds that learning occurs through changes in knowledge. This cognitive learning involves the learning of information—the transfer of information to long-term memory (Engel, Blackwell, & Miniard 1990). As cognitive generalizations, self-schemata involve a process of cognitive learning about the self—the self-schema "implies that information about the self in some area has been categorized or organized and that the result of this organization is a discernible pattern which may be used as a basis for future judgements, decisions, inferences, or predictions about the self" (Markus 1977, p. 64). Knowledge is thus closely related to information as a variable that can be expected to influence the development of an environmentally-concerned self-schema. (However, according to Murphy (1976),

effectiveness of environmental information is inversely related to *prior* knowledge about environmental issues.)

Information acts as a stimulus in the generation of knowledge (Engel, Blackwell, & Miniard 1990). Therefore, environmentally related information can function as a stimulus whereby environmental knowledge is generated. People learn about environmental issues, actions, and consequences through information. Environmental knowledge has been examined quite extensively in the ERCB literature, the assumption mostly being that higher levels of knowledge of environmental issues will result in attitudes that lead to environmentally responsible behaviors (e.g., Ramsey & Rickson 1976). Indeed, environmental knowledge has been characterized as "almost always prerequisite to sound decisions regarding solutions to [environmental] issues" (Hungerford & Volk 1990, p. 11).

While most of the literature has addressed environmental *knowledge*, it is proposed here that *perceived* knowledge (i.e., beliefs or perceptions) is the more relevant variable for the development of the environmental concern self-schema. Whether an individual's "knowledge" about environmental issues or actions is accurate or not is thus irrelevant. What matters instead is the person's perception of the nature of the issue, consequences of the action, etc. For example, if a person perceives that landfills in his/her area are overflowing, that perception may contribute to some level of environmental concern, *regardless* of whether or not the perception is indeed accurate. As an illustration, Hopper and Neilsen (1991) discuss the effects of "awareness of consequences," but the more appropriate variable in trying to generate a

descriptive model would be *perceived* consequences. Despite the important distinction, the literature dealing with both environmental knowledge and perceptions will be reviewed here.

Though some results have indicated otherwise, most of the research addressing environmental knowledge and perception has shown positive effects on environmental attitudes, behaviors, etc. No significant relationship between environmental knowledge and environmental attitudes was found by Burrus-Bammel (1978). Maloney and Ward (1973) found that environmental knowledge was not related to verbal and actual environmental commitment. Levenson (1974) suggested that this result may have been due to differences in perception of environmental modifiability. Levenson found that people less involved in environmentally responsible activities regarding pollution perceived more chances for reducing pollution than people who were more involved.

Talarzyk and Omura (1974) found consistent perceptions among consumers regarding six major issues: attitudinal response to the energy crisis, the effects of the energy shortage on activities, blame and responsibility for the energy crisis, rationing of energy resources, and economic effects of the energy shortage. In a cross-cultural study involving French and American samples, Arbuthnot and Lingg (1975) found that, overall, knowledge may act as a mediating variable between attitudes and behavior. However, the analysis was purely correlational—no theoretical causal linkages were assessed. Milstein (1977) found that people had a fairly limited understanding of the nature of the problems associated with the energy crisis.

Knowledge was also found to be a better predictor of environmental concern than emotion (Dispoto 1977).

Reizenstein and Barnaby (1977) assessed changes in perceptions of the energy crisis and pollution between February 1974 and October 1974. This time frame included the lifting of the Arab oil embargo. The results indicated that significantly more people came to perceive the energy crisis as a real problem that would have long-term effects on lifestyle during that time period. However, the perceived seriousness of the energy crisis diminished as the Arab oil embargo was lifted. Pollution problems were consistently perceived as less serious than energy problems

Environmental knowledge was found to be a strong predictor of recycling center use (Arbuthnot 1977). Recyclers were found to be more aware of publicity about recycling and had higher levels of knowledge about recycling than non-recyclers (Vining & Ebreo 1990). Mixed results were found in an investigation of the mediating effects of knowledge on the environmental attitude-behavior relationship (Schahn & Holzer 1990). Hungerford and Volk (1990) identified several types of environmentally-related knowledge in their proposed environmental behavior flow chart: knowledge of ecology, in-depth knowledge about environmental issues, knowledge of consequences of environmentally-related behaviors, and knowledge of and skill in using environmental action strategies.

Arcury (1990) found that environmental knowledge was consistently and positively, though weakly, related to environmental attitudes. Knowledge about conservation was a significant predictor of participation in a curbside recycling

program in Ontario, California (Oskamp et al. 1991). Finally, a study by Synodinos (1990), which indicated that business students had significantly lower levels of environmental knowledge and attitudes than other groups, is of unique interest.

Another issue related to perceptions is the degree to which environmental problems or hazards are perceived by an individual to be "close" or immediate. Aggregate environmental problems and consequences of action may be perceived by an individual to be distant and even negligible relative to more immediate satisfactions gained by environmentally-irresponsible behaviors (Hummel et al. 1978). This type of trade-off between individual and aggregate outcomes is referred to in social psychology as a "social trap" (Platt 1973). Though there may be some level of environmental concern implied by such a perception, it may contribute less strongly to an environmentally-concerned self-schema than would the condition where environmental problems were perceived as more immediate. Ramsey and Rickson (1976) also recognized that environmental knowledge will not categorically result in favorable environmental attitudes and behaviors, especially when knowledge of trade-off costs is present.

Environmentally Related Values and Ethics

Self-schemata involve judgments (Markus 1977); therefore, values and ethics, which have clear evaluative or judgmental implications, should contribute to the establishment of self-schemata. It follows, then, that environmentally-related values, ethics, and worldviews held by an individual should be significant contributors to the establishment of an environmental concern self-schema.

Any discussion of environmentally related values and ethics can logically begin with a look at various perspectives on "environmentalism." The history of environmentalism has been largely characterized as radical; indeed, such currently "mainstream" institutions as the Sierra Club and the Audubon Society were considered radical when they were founded in the 1800s. However, these groups (and the values they espouse) are finding themselves under attack from a recently-developed force of environmental radicalism (Sale 1986). This radicalism is referred to by many names: deep ecology, new ecology, bioregionalism, Gaiaism, etc. The basic principles of deep ecology include a recognition and acceptance of the inherent value of the well-being flourishing, and diversity of human and non-human life, and that humans have no right to reduce this diversity except to satisfy vital needs. Also, deep ecology submits that present human interference with the non-human world is excessive, and that economic, technological, ideological, and behavioral changes are necessary (Sessions & Devall 1985). Organizations associated with deep ecology vary in their level of environmental radicalism, from the militantly radical group Earth First! to the less radical group Greenpeace. While both these groups are characterized by their rejection of any notion of environmental compromise, Earth First! is associated with militant environmental activism. For example, Earth First! advocates the use of "monkeywrenching"—sabotage of operations that destroy wilderness or wildlife—to combat environmental degradation (Foreman 1987). Greenpeace is associated with less radical forms of intervention, such as blocking the passage of whaling ships.

Regardless of the extent to which environmentalism is considered radical or

mainstream, or the types of behaviors that are associated with it, environmental values are important and consistent factors in its establishment. The use of values education in environmental education was examined by Miles (1977). The clarification of values (choosing among a range of alternative value positions available) and the moral reasoning approach were found to be useful.

Ray and Lovejoy (1984) found that biophilia (emotional commitment to "life") was weakly associated with environmentalist attitudes. Closeness to nature, living in a beautiful world, helpfulness, and accomplishment were identified as values associated with preserving the environment (Dunlap, Grienecks, & Rokeach 1983; Neuman 1986; Rankin 1983). An Australian study discussed the values of nurturing, survival, and environmental sensibility associated with the "feminine" ideological set (Salleh 1988-89). Pro-environmentalists have been described as "ecocentrists," and contrasted with "technocentrists." Ecocentrists favored solar power and conservation as solutions to the energy problems in Canada, while technocentrists favored nuclear power (Jackson 1985).

Hand and Van Liere (1984) investigated the effect of religious institutions on environmental attitudes. They hypothesized that religious commitment would be positively related to a mastery-over-nature orientation that would in turn be negatively related to environmental concern. Results indicated that Judeo-Christians had a stronger mastery-over-nature orientation than did non-Judeo-Christians. Schnaiberg (1985) noted a shift in environmentalism away from concern for human welfare and social equity toward concern for productive efficiencies in the use of natural

resources—what he calls the shift from political to technical environmentalism. In other words, natural resources are no longer valued for their inherent worth (in terms of equal social entitlements for the public to unspoiled land, water, and air), but for their value as commodities to be transformed by the production process.

Altruism was found to be a strong discriminator in a study that identified groups with varying levels of recycling behavior, as were various factors associated with "helping" tendencies, such as recognition of the benefits of helping, a willingness to accept responsibility to help, and satisfaction from helping (Granzin & Olsen 1991). Hopper and Nielsen (1991) also investigated recycling behavior as altruistic behavior, suggesting that a cognitive-normative approach to the study of recycling can complement a behaviorist approach.

In their meta-analysis, Hines, Hungerford, and Tomera (1986-87) found that personal responsibility (duty or obligation) was significantly related to environmentally responsible behavior, with a correlation of .328. Obligation was expressed both in reference to the environment in general and with respect to specific environmental factors such as pollution, energy, and recycling.

In examining the influence of personal values on commitment to energy conservation, Neuman (1986) found that frequent conservers were more likely to mention five values: a comfortable life, happiness, a sense of accomplishment, pleasure, and self-respect. However, Neuman concluded that the relationship between values and conservation was weak, and that values would thus not represent significant obstacles in promoting conservation. Active Sierra Club members were found to have

higher ratings on values such as "contact with nature" and "making the world a better place" (relative to values such as "financial success" and "meeting people from a variety of backgrounds") than non-active members (Manzo & Weinstein 1987).

Hunters in Italy were found to lack the ecological values (including consciousness of ecological threats and respect for all life) of animal rights activists and conservationists (diNenna, Paolillo, & Giuliani 1987).

Though they do not address environmental issues in particular, Munch et al. (1991) discuss the role of moral development in consumers' ethical decision making in general. They integrate Kohlberg's (1984) Theory of Moral Development with personality theory to develop a set of propositions that predict consumers' differential use of teleological (ends-oriented) and deontological (means-oriented) evaluation processes when faced with ethical dilemmas. The first three stages of moral development focus on the consideration of obedience, self, and other people, respectively. The fourth stage involves consideration of general elements of society and the social system as stakeholders, the fifth stage considers legal and social contracts and universal human rights, and the sixth stage involves universal ethical principles to be followed by all. Extending this work into the environmental domain, it seems logical that consumers who are at levels four, five, or six would be likely to have a stronger environmental concern self-schema.

Environmental ethics have also been addressed in the literature. There have been several conceptual treatments of environmental ethics. Wert (1976) proposed an energy/environmental ethic for consumers, described as an aspect of people's

consciences that makes them consider the wise and efficient use of resources as buyers and consumers, and involves responsibility to maintain ecological balance for survival. Katz and Barbash (1982) found that there was a discrepancy between philosophical ethical theories and the practical environmental decision-making of the general public. Interdisciplinary study of ecology and a general code of behavior have been suggested as "ecological commandments" for living an environmentally-ethical lifestyle (Yambert & Donow 1986). Seligman (1989) discussed the philosophical issues of whether environmental protection can depend on a human-centered utilitarian perspective and the extent to which the non-human biosphere can have inherent value. He proposes that an environmental ethic should include a consistency of environmental values with environmental actions. The object of environmental ethics has been described as an "expansion of human sympathies," involving the extension of such basic human sympathies as love and respect to the environment (Petulla 1989). In an empirical study, Haldeman, Peters, and Tripple (1987) examined a consumer energy conservation ethic that was found to be an outcome of environmentally responsible attitudes and behaviors.

The issues involved in environmental values and ethics have also been captured in the examination of "worldviews," or social paradigms, that has been undertaken by several authors. Any organized society has a dominant social paradigm that consists of the values, attitudes, beliefs, institutions, behaviors, etc. through which people interpret the world around them (Pirages & Ehrlich 1974). Schnaiberg (1980) suggested that a social paradigm persists under which unbridled production and

consumption have resulted in serious environmental threats. This dominant social paradigm operates through what Schnaiberg calls the *treadmill of production*, whereby capital, the state, and labor combine to form a coalition that drives increased production. Increased production results in environmental degradation through the extraction of resources, the generation of production-related wastes and pollutants, and the eventual yielding of post-consumption waste and pollution.

Several authors have challenged this paradigm by arguing for a New Environmental Paradigm (e.g., Dunlap & Van Liere 1978; Milbrath 1984). The New Environmental Paradigm (NEP) has been described as a social paradigm that recognizes the importance of limitations on growth, the necessity of a steady-state economy, the importance of preserving the balance of nature, and the rejection of an anthropocentric perspective regarding nature (Dunlap & Van Liere 1978). This social paradigm also advocates a production/consumption system that involves conscientious and subdued production and consumption, the careful use and conservation of resources, consideration and protection of the environment, and the proliferation of values such as compassion, justice, and quality of life (Milbrath 1984). Extending this work empirically, Dunlap and Van Liere (1984) found a strong negative relationship between commitment to the dominant social paradigm and environmental concern. More recently, Steger et al. (1989) found that the NEP orientation and postmaterialist values (e.g., freedom of speech, more democratic participation in government decisions) were separate constructs in a survey of Canadians and Americans. Arcury and Christianson (1990) found that Kentucky residents who lived in a county that

experienced water restrictions scored significantly higher on an NEP scale than did people from other areas of the state. Noe and Snow (1990) found high NEP scores among national park visitors in assessing the unidimensionality of the Dunlap and Van Liere (1978) NEP scale.

Environmentally Responsible Consumer Role-Identity

The second major construct associated with the "person" in the integrated model is the environmentally responsible consumer (ERC) role-identity. The following sections of this chapter will (1) describe role-identity theory; (2) discuss the proposed relationship between self-schema and role-identity; and (3) identify and defend the factors that are proposed here to influence the development of different ERC role-identity types.

Role-Identity Theory

Identity has long been recognized as a factor in motivation—indeed, Foote (1951) called for expansion of the concept of identity as a foundation for a theory of motivation. He saw the function of identity as facilitating "[the definition] of a problematic situation as calling for performance of a particular act, with more or less anticipated consummations and consequences..." (Foote 1951, p. 15). Sherwood (1965) investigated the relationship between self-identity and the social environment. Sherwood found that changes in self-identity were significantly tied to the subjective perceptions of others' views of the individual. Sande, Goethals, and Radloff (1988) found that people see themselves as having rich, multifaceted and adaptive personalities—multifaceted selves that enable them to respond adaptively to the

requirements of any situation. It seems logical that an identity-based theory of motivation would recognize (1) the necessity of making explicit linkage between identity and action, and (2) that identities do not exist independently of their social nexus, but are firmly entrenched in social interrelationships.

The role-identity theory of behavior was developed by McCall and Simmons (1978). (The original conceptualization appears in the first edition of their book, published in 1966.) The role-identity model seeks to explain human actions based on the perspective of symbolic interactionism. Symbolic interactionism is a broad sociological framework whose fundamental assumptions have been delineated by a multitude of authors. Not a *theory* per se, symbolic interactionism is a perspective from which human beings and their social behavior can be viewed. Symbolic interactionism has had a long evolution. Indeed, its roots have been traced back to the "Scottish Moral Philosophers"—Adam Smith, David Hume, Adam Ferguson, Francis Hutchinson, and others. These philosophers' basic ideas about humans and their relationships to society strongly influenced the thinking of many other notable philosophers and sociologists, such as William James, George Herbert Mead, Charles Horton Cooley, William I. Thomas, Robert A. Park, and Herbert Blumer (Stryker & Serpe 1982).

There are a great many definitions and descriptions of the fundamental principles of symbolic interactionism—indeed, a review of these is beyond the scope of this chapter. However, it is important to present the conceptualization of symbolic interactionism that is offered by the authors on whose work the role-identity model is

based. The basic principles of symbolic interactionism, as outlined by McCall and Simmons (1978), can be summarized as follows: People continuously construct plans of action. Plans of action are executed based on the meanings of objects (i.e., things, people, or ideas) encountered; therefore, people constantly identify and interpret the meanings of objects that are relevant to their plans. The meanings of these objects are the implications of those objects for the plans of action. For example, the purchase of clothing will involve an interpretation of the symbolism associated with the clothing, whether it be a social symbolism (such as prestige), a functional symbolism (such as a jacket that is interpreted as something with which to stay warm), etc. For social plans of action, meanings of objects must be consensual to the extent that they are sufficiently common to allow mutual adjustment of lines of action. A social plan of action associated with the above example might be buying something to impress someone at a party—consensual interpretation of the symbolic meaning of the clothing (as well as other social circumstances) would facilitate the plan of action.

Many early conceptualizations of self were based on social interaction. James (1892) asserted that an individual has as many social selves as there are individuals who recognize him/her. Cooley (1902) conceptualized the social self as a "looking glass self" with three elements: an imagined appearance to others, an imagined judgement of that appearance, and an affective self-feeling based on that judgement. Mead (1934) wrote that responses of others provide the key to the definition of the self.

Despite its significant influence, many modern sociologists and social

psychologists have found symbolic interactionism to be limited in its usefulness for generating testable hypotheses about social psychological processes. This notion is summarized in the following (Stryker & Serpe 1982, p. 200):

So general as to be almost banal...the symbolic interactionist framework itself requires translation into more precise or particular terms to be useful either as a hypothesis to guide research in social psychology or as a meaningful summary of such research.

Stryker and Serpe (1982, p. 200) suggest that identity theory represents the "necessary specification" of symbolic interactionism in that it focuses on "particularized translations [of the concepts and assumptions of symbolic interactionism] that appear to be especially promising or strategic from the point of view of theory development and theory-guided research."

Role-identity theory, as conceptualized by McCall and Simmons appears to most cogently outline a framework for the explanation of behavior. McCall and Simmons (1978) define role-identities as people's imaginative views of themselves as they like to think of themselves being and acting as occupants of particular social positions, or roles. Role-identities determine individuals' interpretations of the people, situations, and events that they encounter in social situations. Forming an integral part of this view of self are the reactions (both imagined and actual) of others to the appearances and behaviors associated with the role-identity. Role-identities determine our interpretations of the meanings of situations, events, and people that we encounter in social interactions (McCall & Simmons 1978).

Any particular role-identity consists of conventional elements and idiosyncratic elements (McCall and Simmons 1978). Conventional elements are relatively stable

over time, and are generally acquired through socialization and past social experiences. Idiosyncratic elements arise from situational, context-dependent interpretations of people and objects. The conventional elements of an ERC role-identity reflect normative standards associated with the role, and will tend to be more publicly shared. For example, enduring environmentally responsible attitudes and behaviors may be learned from parents, school, etc. and would contribute to the conventional elements of the role-identity, in which the individual consistently views him/herself as having those attitudes and performing those behaviors. In contrast, the idiosyncratic elements of an ERC role-identity arise out of specific relationships or situational contexts. For example, an individual may be on vacation in an area where there are enhanced opportunities for purchasing environmentally responsible products, and these opportunities can result in the manifestation of the ERC role-identity.

As discussed earlier, a particular self-schema can have several role-identities associated with it. In addition, individuals normally have an overall assortment (set) of role-identities. Role-identity sets are loosely organized into prominence hierarchies and salience hierarchies that determine the relative influence a particular role-identity will have on an individual's thoughts and behaviors (McCall and Simmons 1978). The relative prominence of a role-identity is viewed as stable and enduring over time. In contrast, the relative salience of a role-identity is situationally dependent and highly mutable, determining thoughts and behaviors within a particular situational context.

An ERC role-identity may be strongly prominent, but situational factors may reduce its salience. For example, a new partner in a law firm who has always

considered him/herself to be environmentally responsible may purchase a status-oriented, fuel-inefficient car, succumbing to social pressures associated with his/her new position. Conversely, an ERC role-identity may not be relatively prominent, but situational factors may enhance its salience. For example, someone who under most circumstances would toss an aluminum can into the trash may avoid doing so when in the presence of others who are perceived as environmentally responsible. Some of the empirical research on role-identities has focused on commitment, which is closely related to prominence. Traditional measurement of role-identity commitment most frequently employed the Twenty Statements Test (Kuhn & McPartland 1954). Jackson (1981) recognized the limitations of the TST (mostly its open-endedness), and developed a 23-item index, demonstrating its convergent and discriminant validity. This index is based on subjective rank orderings of identities in a hierarchy of importance, which corresponds to the McCall and Simmons (1978) conceptualization of role-identity prominence.

Identity commitment is closely related to prominence. Serpe (1987) makes a distinction between interactional commitment (related to how many friends an individual has based on the identity) and affective commitment (conceptualized as the intensiveness or affect associated with the loss of the identity). These concepts correspond to the personal and interpersonal aspects of role-identity. Serpe found that both types of commitment were related to identity salience.

It seems likely that the prominence of or commitment to a role-identity would be a factor in the influence that the role-identity has on behavior. Commitment to

role-identity has been shown to moderate the relationship between "college student" identity and role performance (Burke & Reitzes 1991). The authors argue that the relationship of commitment to action is not direct, but operates through a set of consistent meanings.

An ERC role-identity entails an individual viewing him/herself as someone who is environmentally-responsible in his/her role as a consumer. An extremely important aspect of the ERC role-identity is that there is *positive affect* attached to this view of self—the individual *likes* thinking of him/herself in that way. An individual's interpretations of people, events, and situations are likely to involve environmental implications as a result of an ERC role-identity. For example, an ERC role-identity may result in an individual (1) attempting to discern the environmental attitudes of others encountered in social situations; (2) evaluating the environmental implications of events occurring on a local, national, and world-wide scale; or (3) assessing the environmental implications of situations in daily life, including consumption-related activities and decisions. Further, a role-identity is established in relation to a counter-role-identity (Burke 1980; Burke and Tully 1977). Therefore, an ERC role-identity exists in contrast to an "environmentally irresponsible consumer" role-identity—this contrast is important to the interpretation of the meaning of the ERC role-identity.

Role-identities are legitimated by *role-performance*. Role-identities, by definition, tend to be idealized; that is, the ideas, attitudes and standards of conduct that correspond to the role-identity are unlikely to be consistently realized. Indeed, situations encountered in daily life often present occurrences and experiences that are

contradictory to, and thus challenge, a role-identity. Because of this, people constantly strive to legitimate role-identities through role performances. Role performance can occur imaginatively (taking the form of fantasy or internal play-acting), or behaviorally, in the form of overt actions that are consistent with the role-identity (McCall & Simmons 1978).

Olney and Bryce (1991) suggest that ERCB be examined with respect to the entire consumption process, involving acquisition, use, and disposal. Petkus (1992a) extends this, proposing that "environmental responsibility" symbolism may be associated with each of these stages (e.g., reducing the amount of non-biodegradables purchased, turning off lights or appliances not being used, recycling, etc.). Consequently, the role performance behaviors that are relevant to the model will involve some environmentally responsible acquisition, use, or disposal behavior. Recall that ERCB has been defined in terms of the consumer's perception of the action as environmentally responsible. Putting this in the symbolic interactionist terms, this would be an action that is perceived by the consumer to be *symbolic* of environmental responsibility. The consumer's perception of the environmental responsibility of the action is thus a key factor. For instance, a decision to buy a product that is falsely promoted as environmentally safe would still be considered a form of ERCB as long as it is perceived by the consumer to be environmentally responsible, and thus consistent with the ERC role-identity. Such a behavior would then contribute to the legitimation of the ERC role-identity in the same manner as a behavior that was *actually* beneficial to the environment.

A well-established theoretical area of social psychology that is closely related to role performance is self-presentation, where people present themselves and their activities to others dramaturgically in an attempt to control the impressions that others have of them (e.g. Goffman 1959; Schlenker 1975). From this perspective, an individual would "play" the role of an environmentally responsible consumer in the same way that an actor plays a character to an audience. Baumeister (1982) proposes that social behavior is determined or influenced by such self-presentational concerns. "Playing the role" of environmentally-responsible consumer would then involve undertaking consumer behaviors associated with that role. While the comparison is useful, it is submitted here that role-identity theory provides a far more robust and explicit theoretical explanation of behavior than does self-presentation.

Role performances in the form of overt behaviors are designed to elicit *role support*, which is the expressed verification by others of an individual's role-identity—i.e., reactions of others to appearances and behaviors associated with a role-identity. Role support is thus the implied confirmation of the contents of a role-identity (McCall & Simmons 1978). The elicitation of role-support can be facilitated by role-taking, which affords a person the ability to anticipate the actions or attitudes of others toward the self, and involves internalizing the attitudes, values, and anticipated actions of others associated with the relevant social context (Cuff & Payne 1979). In addition, role "self-support" can be used to maintain a role-identity through a process of self-interaction (McCall & Simmons 1978).

Role support can be manifested verbally and/or behaviorally; it can also be

intentional or unintentional. Legitimation of an ERC role-identity involves role support that is relevant to and elicited by the role performances associated with that role-identity. For example, an individual may be introduced as "... my environmentalist friend," may be asked for advice regarding some environmental issue, or may notice his/her environmentally-responsible behaviors being emulated by others. Again, the model being presented here seeks to explain ERC behaviors; therefore, the role support that is relevant to the model is that which is elicited by environmentally responsible role performance in the form of consumption behaviors.

In sum, role-identity theory seeks to explain behavior based on the enactment of roles in the context of others' perceived reactions to the behavior:

The individual wants very much *to be and to do* as he imagines himself being and doing in a particular social position. As this congruence is seldom entirely possible, role support—social testimony in support of his imaginings—takes on considerable value to the person and may in fact become the major goal of a particular performance (McCall & Simmons 1978, p. 72-3, emphasis in original)

An individual seeks to substantiate an ERC role-identity through role performance. This role performance involves environmentally responsible behaviors, including acquisition, use, and disposal behaviors. Role performance is designed to evoke role support in the form of others' reactions (both actual and imagined) to the role performance. This role support legitimates and reinforces the ERC role-identity. Because the realization of role support is often both temporally and substantively inconsistent, continued environmentally-responsible role performance occurs, and the cycle is perpetuated.

Recent conceptual work has delineated the implications of role-identity theory

for ERCB. Petkus (1992a) proposes that the study of ERCB can be enhanced by the application of the symbolic interactionist perspective, and discusses research issues based on role-identity theory. While there appears to have been no empirical work dealing specifically with role-identities and ERCB, the findings of Horsley's (1977) application of social learning theory to ERCB are somewhat related. A major tenet of social learning theory is that behavior depends on past satisfactions associated with similar behaviors, i.e., the value of a behavior for an individual increases as the individual realizes social reinforcement for the behavior, and comes to expect the reinforcement (Rotter 1954). In the Horsley study, subjects were exposed to a role-playing "change-agent," who influenced them to be environmentally responsible by (1) listing his/her own environmentally responsible behaviors in detail, (2) providing information to subjects who were curious about the seriousness of environmental degradation, and (3) asking subjects for daily reports of their environmentally responsible behaviors. Subjects were also periodically reinforced and encouraged for whatever behaviors they had undertaken. The treatments had no significant effect on attitudes (as is predicted by social learning theory), but they had a significant positive effect on behavior over time (Horsley 1977).

The parallels between the social learning theory concepts and the role-identity model are clear. The relationship between behaviors and the social reinforcement of those behaviors is very similar to that of role performance and corresponding role support; however, role performance is directly tied to a specific role-identity that incorporates self- and other-generated affective responses. Role support also includes

self-support in addition to support from others. The lack of an attitudinal effect in social learning theory is also inconsistent with the ERCB attitudinal literature.

Therefore, despite the positive results of the Horsley study, it is argued here that the role-identity model offers a more robust theoretical framework for explaining behavior. The components of the role-identity model are thus important to the development of the integrated and HSBD models.

However, important questions remain. For example, what is the relationship between self-schemata and role-identities? How do role-identities develop? Are there different types of ERC role-identities? What personality factors could potentially contribute to the development of these role-identities?

A major objective of this research is to examine the nature of the ERC role-identity. Specifically, it is proposed here that different ERC role-identity types develop based on differences in environmental concern and susceptibility to normative pressures regarding environmentally responsible behavior. The following sections will discuss these issues, and delineate and defend the proposed ERC role-identity structures and their determinants.

Relationship of Role-Identity to Self-Schema

Self-schemata have been described as both structure and process—they exist as structures, but are restructured and activated by stimuli (Markus & Sentsis 1982). Markova (1987) recognizes the importance of this conceptualization, but identifies two remaining problems. First, self-schema theory fails to adequately accommodate social interaction. Second, an adequate consideration of "agency" (in which the self makes

decisions, and evaluates and takes responsibility for them) is missing. In sum, "[the self] must develop both through *interaction* with the physical and social world and through *reflexion* on and evaluation of its actions" (Markova 1987, p. 74, italics in original).

Establishing a link between the self-schema and role-identity, as in the integrated model, accounts for both of Markova's concerns about self-schemata. The role-identity involves an explicit consideration of both agency and interaction with others. The following discussion will delineate further comparison and contrast between the self-schemata and role-identity constructs, and the proposed relationship between them.

Gordon (1976) discusses role-identities as self-conceptions. He suggests that the development of evaluated role-identities is associated with psychic dimensions, personal attributes, social identities global evaluations, systematic senses of self, autonomy, and relations to social life. The symbolic rewards associated with these sense of self include approval, response of others, acceptance, and respect. Different values and roles affect the development of role-identities at different developmental stages in a person's life cycle.

However, Gordon's conceptualization of role-identity is far too general to be usefully applied to a model of behavioral motivation. Other authors have suggested that role-identities, rather than simply being self-conceptions, represent the *integration* of the concepts of self and role (Burke & Tully 1977; Turner 1978). While it appears

that a role-identity would thus be closely related to a self-schema, the differences between them are important.

First, a role-identity is anchored to a specific social role, while the self-schema functions across many different roles. Again, multiple role-identities can be generated from a single self-schema.

Second, role-identities are, in general, more idealized than self-schemata. Role-identity involves an individual's view of him/herself as he or she *likes* to think of him/herself. Self-schemata, in contrast, are not necessarily idealized. In general, an individual may have self-schemata that are undesirable to the individual, e.g. "I am a constant failure," "I am a belligerent person," etc. In an ERCB context, however, the picture is less clear. This is because the environmental concern self-schema is to some degree *inherently* "idealized," to the extent that positive affect is an integral part of environmental concern, especially the way it has been conceptually defined for purposes of this research (Petkus 1992a).

The conceptualization of the self associated with the symbolic interactionist perspective defines the self-concept as an organization of qualities that an individual attributes to him/herself. This conception of self emerges from social interaction (from which the individual learns and interprets the *meaning* of these qualities) and, in turn, guides the individual's behavior (Kinch 1963). The relevant qualities for the establishment of an ERC role-identity include "environmentally concerned" and "environmentally responsible" (attributes) and "environmentalist" and "environmentally responsible consumer" (roles).

Markus and Kunda (1986) discuss the *working* self-concept, described as a subset of an individual's universe of self-conceptions. The working self-concept is that aspect of the overall self-conception that is situationally elicited. It represents a *temporary* structure of self that consists of elements of an individual's collection of self-conceptions that are appropriate to the social situation. The working self-concept "consists of one's core self-perceptions embedded in a context of more tentative self-conceptions that are tied to the immediate social circumstances" (Markus & Kunda 1986, p. 859). The working self-concept is thus a similar construct to role-identity, but is less specifically tied to a role, and less theoretically linked to behavior.

Several researchers have also addressed "ideal" aspects of self-schemata. The ideal self has been described as one of many possible selves (Markus & Nurius 1987; Markus & Wurf 1987). The authors use the term "possible" to denote future selves—what a person would like to be, what they could be, and what they are afraid to be in the future. From a motivational perspective, the ideal possible self is associated with goal-oriented behaviors, such as dieting, quitting smoking, becoming more physically fit, etc. Thus, the use of the term "ideal" in this sense is intended to indicate a future *condition* of the self, rather than a desired self-perception or perception of the self by others that is directly associated with and elicited by a specific action.

The ideal self as a possible self has been extended to consideration of the ideal self as a schema (Deutsch et al. 1988; Hewitt & Genest 1990). While this ideal self-schema would act to facilitate information processing and performance evaluation, it is

still not tied to a specific role that implies specific behavioral contexts. Also, the ideal self-schema does not involve a consideration of others in addition to the self.

Based on this discussion, the contribution of the role-identity concept to motivational theory lies (1) in its interaction of positive affect with a specific role, and (2) in its integration of self-oriented and other-oriented considerations by an individual (recall that self-schemata have both public and private components (Nasby 1989)). In addition to being tied to a specific role, the role-identity construct integrates past considerations of self-schemata (dealing with public vs. private self-representations and the "ideal" self).

Finally, at this point it is necessary to compare and contrast the self-schema/role-identity conceptualization in the integrated model to another self-oriented motivational theory—Sirgy's (1986) self-congruity theory. Landon (1974) notes that often the consumer does not want to express an actual self-image, but rather an ideal self-image, in a consumption situation. In a review of the self-concept literature in consumer behavior, Sirgy (1982) refers to a multidimensional self-concept that includes actual self-image, ideal self-image, social self-image, and ideal social self-image.

These self-images are useful and important conceptualizations because (1) they account for aspects of self that are both independent of and dependent on social interaction, and (2) they can be linked to the concepts of self-esteem and self-consistency. Self-esteem motives function through tendency for individuals to seek experiences that enhance self-concept. Self-consistency motives function through the

tendency for individuals to act in ways that are consistent with their views of self.

Extending these motivations to the desired reactions of *others*, Swann et al. (1987) found that people's affective responses are associated with self-enhancement (wanting others to treat them in a positive manner), and cognitive responses are associated with self-consistency (wanting others to treat them in a predictable manner).

Sirgy (1986) presents a framework that addresses the motivation associated with (in)congruity of self-image and product image. Product image refers to how a person perceives a product in the context of the implications of the product for the self-image, e.g., "owning a Lotus will enhance my self-image." When both self-image and product image are positive (positive self-congruity), both self-esteem and self-consistency motivations are positive, which leads to motivation to purchase. When self-image is positive but product image is negative (negative self-incongruity), both self-esteem and self-consistency motivation will be negative, which leads to motivation to avoid purchase. A negative self-image and positive product-image (positive self-incongruity) results in positive self-esteem motivation but negative self-consistency motivation, and thus conflicting final purchase motivation. Likewise, a negative self-image and negative product image (negative self-congruity) leads to negative self-esteem motivation but positive self-consistency motivation, again resulting in conflicting final purchase motivation.

Role-identity theory accounts for both self-esteem and self-consistency motivations. The affect associated with self-esteem and the desire to act in accordance with how one views oneself are subsumed in the definition of role-identity. However,

note that in Sirgy's framework conflicting final purchase motivations are associated with *negative* self-image, and that motivation to avoid purchase is associated with a negative product-image. The motivation of ERCB involves neither of these conditions. Environmental concern is considered to be a positive self-image/schema, and "environmentally responsible" product symbolism or meaning is also considered to be positive. Therefore, the integrated and HSBD models are intended to account only for the "positive self-congruity" condition. Sirgy's framework thus provides support for the employment of role-identity in the integrated/HSBD model conceptualization, but is more general in its purpose.

Research addressing the linkage between the self and roles has mostly considered the role as the independent and the self as the dependent variable, where the occupation of a role defines an individual's behavior. While this process certainly occurs, a more complete view of the self/role linkage includes the reverse of this process, looking at the effect of the self-concept on roles. This effect can take the form of role selection, where an individual selects roles that facilitate behaviors consistent with self-concept, and role portrayal, which involves favoring the most self-consistent portrayal of a role when that role affords wide latitude for enactment (Backman & Secord 1968). In the role selection process, an individual may express environmentally responsible aspects of his/her self-concept by selecting the ERC role-identity to behave consistently with that self-concept. In the role portrayal process, an individual may recognize that the role of consumer affords considerable latitude for enactment (e.g., status-seeking consumption, convenience consumption, etc. in addition

to ERCB). The consumer may then favor portraying the environmentally responsible aspects of the self-concept through ERC behaviors.

Despite the clarity and logic of the relationship between self-schema and role-identity, an important question remains: is the concept of role-identity *necessary* for an explanation of the motivation of ERCB? In other words, can attitude toward the action simply arise directly out of the self-schema?

It is argued here that the ERC role-identity is a necessary facilitator of the link between the environmental concern self-schema and behavioral intention because the self-schema is not bound to a specific role, context, or situation, while the behavioral intention (and its corresponding attitudinal and subjective norm components) are bound in that way. The general self-schema operates across role and behavioral contexts, while behavioral intention is entrenched in a particular role and behavioral context. The role-identity is, in essence, halfway in between. It is attached to a specific role, but can operate across behavioral contexts. The ERC role-identity thus functions as a link between the general and the specific factors of social psychological motivation. It is argued here that to move from the level of "I am environmentally concerned" (self-schema) to "I have a favorable attitude toward carrying my empty beer can to the recycling container" or "I intend to carry my half-empty beer can to the recycling container" is too big a leap to make when the intention is to explain the social psychological processes that drive environmentally responsible behavior. In addition, the role-identity affords a theoretical structure that accounts for ERCB that is based

not on environmental concern, but on some tendency to conform to social normative pressures.

Santee and Jackson (1979) recognized that people's self-concepts are not identified in a void, but in particular contexts and situations, and that people are committed to different identities in different situations. In addition, Santee and Jackson state that self-identifications are embedded not only in situational contexts, but are organized according to an individual's relationships to others. Roles act as opportunities to manifest these identities. An individual "becomes committed to identifying oneself not only in particular situations, but also within the matrix of important relationships that one cares to maintain" (Santee & Jackson 1979, p. 144). In its call for the simultaneous consideration of situation and social context, this discussion provides support for the inclusion of ERC role-identity in the integrated/HSBD models.

As discussed earlier, Markus and Kunda (1986) offer the working self-concept as a situationally linked subset of a universe of self-schemata. Though the working self-concept is closely related to the role-identity concept, role-identity is more theoretically robust in terms of its relationship to behavior. Therefore, though the notion of working self-concept offers support for the incorporation of role-identity in the integrated/HSBD models, it has been demonstrated here that the closer ties of role-identity to behavior make it a more appropriate construct than working self-concept. Further support for this assertion is offered by Millar and Tesser (1986), who found

that commitment to aspects of a schema moderated the effect of schema structure on the polarization of attitudes.

Finally, support for the linkage between self-schema and role-identity is offered by Wiley and Alexander's (1987) discussion of role schemata. According to the authors, role schemata develop through repeated exposure to situated identities that are established through role-oriented social behavior. The conceptualization of the role schema describes the influence of situational behavior on the perception of what constitutes a given role. In the context of ERCB, this corresponds more closely to an individual's perception of the *structure* of various roles (e.g., parent, business decision-maker, employee, consumer) that afford opportunities for environmentally responsible behavior than to the direct explanation of the motivation of that behavior.

ERC Role-Identity Types

As mentioned earlier, this research proposes that different types of ERC role-identities will be associated with individuals based on two factors: environmental concern and susceptibility to normative pressure regarding environmentally responsible behavior. The ERC role-identity types are depicted in the matrix shown in Figure 3. The main distinction to be made involves the self-oriented vs. other-oriented ERC role-identity. An individual with a self-oriented ERC role-identity likes to see him/herself as an environmentally responsible consumer. An individual with an other-oriented ERC role-identity likes to be seen *by others* as an environmentally responsible consumer. As shown in Figure 3, the self-oriented ERC role-identity is proposed to develop under conditions of high environmental concern and low susceptibility to

normative pressure. The other-oriented ERC role-identity is proposed to occur under conditions of low environmental concern and high susceptibility to normative pressure. Two other ERC role-identity types are proposed to be generated by the two factors. Under conditions of high environmental concern *and* high susceptibility to normative pressure, a self/other-oriented ERC role-identity will develop. This individual likes to see him/herself as an environmentally responsible consumer, and likes to be seen by others that way as well. Under conditions of low environmental concern and low susceptibility to normative pressure to be environmentally responsible, no ERC role-identity exists—these individuals do not care to see themselves as environmentally responsible consumers, nor do they care about being seen by others that way.

There is literature support for the notion of other- vs. self-oriented role-identities. The aforementioned conventional and idiosyncratic elements of role-identities (McCall & Simmons 1978) incorporate self and other considerations. It has been asserted that, although identities include both personal and social aspects, people differ in the relative importance of personal versus social components of their identities (Cheek & Briggs 1982; Sampson 1978). Personal aspects of identity include self-relevant attributes, such as environmental concern. Social aspects include membership and affiliation, as well as perceptions associated with one's relationships with others, such as a tendency to conform to the perceived wishes of others. Leary, Wheeler, and Jenkins (1986) provide empirical support for these assertions in the context of occupational and recreational choice. Mainous (1989) examined role-

identities to assess people's feelings of insiderness vs. outsiderness with respect to Hispanic acculturation.

Connections between the social and personal aspects of identities and public vs. private self-consciousness, respectively, have been made (Buss 1980; Cheek & Briggs 1982). Public self-consciousness is the tendency to be aware of one's appearance and concern about making a designated impression on others; private self-consciousness directs attention on self-attributes (Fenigstein, Scheier, & Buss 1975). Empirical support for the distinction is offered by Turner (1978). Schlenker and Weigold (1990) found that the self-identifications of privately self-conscious individuals focused on autonomy and personal identity, while those of publicly self-conscious individuals emphasized conformity, social identity, and social anxieties.

Festinger (1953) distinguished between compliance and attitude change. According to Festinger, compliance represents acquiescence to some opinion or behavior *without* a corresponding change in attitude. The ERC role-identity type matrix represents an integration of compliance tendencies with a general attitude, environmental concern. This integration is proposed to generate different types of role-identities under different levels of "compliance tendency" and environmental concern.

Susceptibility to Normative Pressure Regarding Environmental Responsibility

Another major objective of this research is the development of an operationalization of the social psychological processes that underlie susceptibility to normative pressure regarding environmentally responsible behavior. This specific

susceptibility is proposed to be a function of (1) the extent to which significant others are perceived as environmentally responsible, (2) the extent to which environmental responsibility is perceived to be socially desirable, and (3) concern for appropriateness (Lennox & Wolfe 1984).

The extent to which significant others are perceived to be environmentally responsible and the extent to which environmental responsibility is perceived to be socially desirable are proposed to contribute additively to susceptibility to normative pressure. Their contribution, however, is contingent upon concern for appropriateness. In other words, if concern for appropriateness is not present, there will be no susceptibility to normative pressure regarding environmental responsibility, regardless of the degree to which significant others are perceived to be environmentally responsible or environmental responsibility is perceived to be socially desirable. Likewise, if neither of the perceptions involving environmental responsibility are present, there will be no susceptibility to normative pressure regarding environmental responsibility. The basic logic can be expressed mathematically as follows:

$$\text{SNPER} = (\text{CA}) * (\text{SOER} + \text{ERSD})$$

where:

SNPER=	susceptibility to normative pressure regarding environmentally responsible behavior
CA=	concern for appropriateness
SOER=	extent to which significant others are perceived to be environmentally responsible
ERSD=	extent to which environmental responsibility is perceived to be socially desirable

This conceptualization of susceptibility to normative pressure regarding

environmental responsibility incorporates two perceptions that are specific to environmental responsibility (SOER and ERSD) and an established personality construct that relates to conformity in social situations (CA). The construct thus represents an important determinant of the type of ERC role-identity that will exist.

The development of self-identity is influenced by an individual's interaction with significant others (Grubb & Grathwohl 1967). Significant others (such as parents, peers, and teachers) can influence the consumer's self-perception through their perceptions of "generalized" users (Grubb & Stern 1971). In an ERCB context, an individual's significant others may indicate a positive perception of environmentally responsible consumers and their behaviors (e.g., "It's good to see the neighbors taking their newspapers to the recycling center").

While the extent to which significant others are perceived as environmentally responsible focuses on specific others, the extent to which environmental responsibility is perceived as socially desirable focuses on perceptions regarding a generalized other. As mentioned earlier, environmental responsibility appears to be increasingly socially desirable (Petkus 1992a; Kleiner 1991).

Concern for Appropriateness

Concern for appropriateness was originally defined as an aspect of self-monitoring, which is the extent to which people manage their self-presentation in social situations (Snyder 1974). High self-monitors employ situational cues, and perceptions of cues from significant others, to manage the appropriateness of their self-presentation when engaging in social behaviors. Low self-monitors rely more on

internal attitudes than on situational and social cues to guide their self-presentation.

Snyder (1974) developed a five-component scale of self-monitoring that incorporated (1) concern for appropriateness of social behavior, (2) attention to social comparison information, (3) ability to control or modify self-presentation, (4) use of this ability across situations, and (5) cross-situational variability of behavior.

Lennox and Wolfe (1984) point out that tests of the cross-situational variability in behavior that would be expected of high self-monitors have not supported the prediction. They also state that the scale measures three factors (acting ability, extraversion, and other-directedness) instead of the five factors which comprise Snyder's conceptualization of the theory, and that the construct may be better represented by fewer factors. Lennox and Wolfe present evidence to support a two component operationalization of the self-monitoring construct, comprised of a revised self-monitoring scale (consisting of ability to modify self-presentation and sensitivity to expressive behavior of others) and a concern for appropriateness scale (consisting of cross-situational variability and attention to social comparison information). The concern for appropriateness scale is more conceptually relevant to the operationalization of susceptibility to normative pressure regarding environmental responsibility than self-monitoring, because self-monitoring focuses more on ability to read others' cues, while concern for appropriateness focuses on the *importance* of cues from others (attention to social comparison information) and actual *behavioral* variability (cross-situational variability).

Based on this discussion, it is predicted that concern for appropriateness will

act as a mediator of the degree of susceptibility to normative pressure regarding environmental responsibility. Persons with high concern for appropriateness should be more susceptible to normative pressure than those with low concern for appropriateness (all else being equal). For example, these effects might be observed in a crowded supermarket checkout line when the clerk inquires, "Paper or plastic?" Recent consumer research has indicated that attention to social comparison information represents an individual difference variable that moderates consumer conformity tendencies (Bearden & Rose 1990).

Normative Factors in ERCB

Support for the proposed other-oriented ERC role-identity types is provided by ERCB research that addresses social normative processes, or normative factors. Social reinforcement had positive effects on ERCB in a study that applied social learning theory (Horsley 1977). Warren and Warren (1977) studied normative influences on energy use in various neighborhood contexts. They found that respondents' perceptions of neighbors keeping thermostats low were positively correlated with natural gas conservation patterns. Rozendal, Ester, and Van der Meer (1983) found that normative factors were important determinants of environmentally responsible behaviors. Macey and Brown (1983) suggest that changing the intentions of non-adopters of energy conservation behaviors depends upon changing social norms, not attitudes.

A study of household energy adaptations found a strong influence of norms on behaviors that were relatively unconstrained by practical factors, but less influence on

constrained actions (Black, Stern, & Elworth 1985). The authors also assert that personal norms are influenced by generalized concern for the energy crisis—this parallels the dynamics of the HSBD model.

The Mielke (1985) study of the influence of attitude accessibility also indicated that social norms were better predictors of littering behavior than attitudes under conditions of low attitude accessibility. Gill, Crosby, and Taylor (1986) have incorporated norms as intermediate variables in their causal model assessing the indirect effects of environmental concern on environmentally related voting behavior. A study that addressed the effect of subjective norms on the acceptance of "bottle bill" legislation suggested that norms dictate attitudes toward the legislation—that people respond to bottle bill legislation based on their perceptions of the compliance of others who are important to them (Kahle & Beatty 1987).

A study by Hopper and Neilsen (1991) found that perceived social norms to recycle affected behavior through an intervening personal (moral) norm. Though the study deals with altruistic norms, the combined effect of social and individual factors lends support for the role-identity component in general. In addition, the effect of perceived social norms operating on individual norms supports the conceptualization of susceptibility to normative pressures as involving both perceptions about general social norms and significant others.

Social norms were found to have a weak effect on intention to conserve energy in a theory of reasoned action-based model in a study in The Netherlands (Midden & Ritsema 1983). Though this result indicated that normative approaches to induce

energy conservation may not be very effective, the authors suggest that normative influence may be enhanced in specific situations in which there is the potential for monitoring and sanctioning by others. Different types of social norms have been found to influence littering behavior (Cialdini, Reno, & Kallgren 1990). They found effects for two types of norms—injunctive norms (what most others approve and disapprove of) and descriptive norms (what most others do).

Recognizing the potential importance of social norms in the study of ERCB, Petkus (1992a) outlined the implications of the symbolic interactionist perspective for ERCB research. Drawing on Solomon's (1983) propositions regarding the role of products as social stimuli, Petkus proposes that the environmental responsibility symbolism associated with certain products and behaviors can facilitate others' evaluations of an individual. The purchase, possession, and use of environmentally responsible products can affect how the individual is perceived by significant others. Through a role-taking process of reflexive evaluation, in which individuals make indications to themselves as to the meanings of their outwardly presented symbols, an environmentally responsible role-identity can be developed. This role-identity then results in behaviors to reinforce the role-identity. The social desirability of environmentally responsible behaviors will aid this process: "...the decision of whether to toss a soft drink can into the trash or to save it for recycling might be affected by an individual's anticipation of the reactions of others nearby, with respect to the self-image that the individual desires to portray" (Petkus 1992a, p. 864).

Overall, these effects of social normative processes on ERCB offer support for

the incorporation of components of both the role-identity model and the theory of reasoned action in the integrated/HSBD models, because of the subjective norm component which contributes to behavioral intention. This brings about the connection between the "person" and the "task." The "task" involves situational and behavioral variables associated with ERCB. These variables and their relationships both among each other and to the individual difference variables will be discussed next.

Situational and Behavioral Variables: The Task

In the integrated model, the "task" represents situational and behavioral variables. These variables are associated specifically with the particular situation in which an environmentally responsible action occurs. These variables include attitude toward the action, subjective norms, behavioral intention, and behavior (ERCB). Consistent with the theory of reasoned action (Fishbein & Ajzen 1975), behavioral intention is a function of a subjective normative component and an attitudinal component. Task-specific practical factors and role-identity salience act as situationally dependent mediating variables. The following sections will provide discussion and justification for these relationships, and will present and defend conceptual links between individual difference variables and situational variables.

Environmental Attitudes

Recall that environmental attitudes have been defined, for the purposes of this research, as attitudes directed toward specific environmental topics or actions (in contrast to general environmental concern). When attitudes and behavior are measured at different levels of specificity, direct relationships between them are not expected

(Ajzen & Fishbein 1977). The importance of levels of specificity in ERCB attitude research has not gone unnoticed. Indeed, Gill, Crosby and Taylor (1986) state that general environmental concern may be of limited use in the prediction of environmentally responsible behavior. However, it is important to note here that the integrated model is not intended to be a solely instrumental model—it is designed to facilitate research to provide theoretical *explanations* of the social psychological processes involved in ERCB, not just to identify a sufficient set of predictor variables. For this reason, the integrated (and HSBD) models include both general environmental concern *and* specific attitude toward the act, as well as variables that facilitate the linkages between them.

While a study of the environmental attitude-behavior relationship in a recycling context found a significant relationship between attitudes toward ecology in general and recycling behavior, a slightly stronger relationship was found for attitude toward recycling in particular (McGuiness, Jones, & Cole 1977). Becker et al. (1981) suggest that specific attitudes toward energy (e.g., comfort, convenience, and health implications of variations in heating and cooling levels) function as mediators between general attitudes and behaviors. Macey and Brown (1983) recognized that the failure of energy research to establish a cogent relationship between energy-related attitudes and behaviors was due to a tendency to focus on broad rather than specific issues. Rozendal, Ester, and Van der Meer (1983) stressed the importance of levels of specificity in attitudinal and behavioral studies of environmental behaviors. As mentioned earlier, a stronger relationship was found for attitude toward environmental

action than for attitude toward the environment in general (Hines, Hungerford, & Tomera 1986-87).

In a study designed to segment the gasoline market based on attitudes toward energy consumption, Barnaby and Reizenstein (1976) found relationships between attitudes about energy, gasoline rationing, and pollution, and gasoline consumption. Milstein (1977) found that American consumers had positive attitudes toward energy conservation, but that behaviors generally were not in line with these attitudes. Dresner (1989-90) designed a simulation game that involved attitude and behavior toward energy conservation at the local level. Subjects in the simulation showed more favorable attitudes toward home energy-saving behaviors and greater likelihood of engaging in those behaviors.

Causal analysis of a model of environmentally responsible behavior indicated that specific behavioral patterns had unique predictors (Balderjahn 1988). Attitudinal variables were attitude toward pollution and attitude toward ecologically-conscious living. The model was used to predict four specific ERCB patterns (use of home insulation, reduction of energy usage, environmentally responsible purchase and use of products, and environmentally responsible use of cars) and general environmental concern (manifested by signing ecological petitions and supporting or joining an antipollution organization).

Although these studies have attempted to use attitudinal components that are more specific than "general concern," most of them still do not employ attitudes toward a particular act. The following section will discuss ERCB research that has

applied a well-established attitude-behavior theoretical framework—Fishbein and Ajzen's theory of reasoned action. These studies tend to use more specific attitude-behavior designations.

ERCB Research and the Theory of Reasoned Action

An extraordinary amount of research on the relationship between attitudes and behavior in the social psychology and consumer research literatures has focused on Fishbein and Ajzen's attitude-behavior model, commonly referred to as the theory of reasoned action (see, e.g., Ajzen & Fishbein 1970; Ajzen & Fishbein 1980; Fishbein 1967; Fishbein & Ajzen 1975). The theory of reasoned action (hereafter, TRA) has been challenged over time, and alternative models have been suggested (see discussion to follow). Nevertheless, the TRA has been found to predict consumer behavior quite well (Sheppard, Hartwick, & Warshaw 1988).

The TRA, as conceptualized by the extensive work of Fishbein and Ajzen, holds that behavior will be a function of behavioral intentions that are determined by a weighted additive combination of attitude toward the act and subjective norms with respect to the act. The attitudinal component represents an affective evaluation, and is influenced by expectancy-value, which consists of (1) beliefs about the consequences of performing the act, and (2) an evaluation of the expected consequences. The normative component is a function of the summated multiplicative combination of (1) normative beliefs (the extent to which an individual believes that an act is expected of him/her by others), and (2) the individual's motivation to comply with the expectation.

Each of these components of the TRA can be related to an ERCB context. The

attitudinal component is fairly straightforward. Beliefs about the consequences of an action correspond to the perception of environmental benefits or minimized harm associated with a behavior. The evaluation of those beliefs or perceptions relates to the positive affect that has been shown to be associated with environmental concern (Petkus 1992b).

The correspondence of the normative component to the ERCB context (as it has been defined in this research) is more complicated. The extent to which an individual believes that an action is expected of him/her by others can be a function of (1) perceptions (independent of environmental considerations) that others expect such behavior, or (2) self-consistency perceptions based on a belief that others expect the individual to act in an environmentally responsible manner. Likewise, the motivation to comply with the expectation can be driven by either (1) a desire to conform to the wishes of others without any consideration of the environmental effects of the behavior, or (2) a desire to be seen by others as an environmentally responsible consumer.

An early review of the theoretical development and empirical research on the TRA addressed some important empirical issues such as validation of attitude and social influence measures, operationalization of behavior, and whether the expectancy-value component should be compensatory or non-compensatory, or some combination of the two (Ryan & Bonfield 1975). A more recent review and meta-analysis found that, overall, the TRA has good predictive utility. Sometimes, however, it is applied where it should not be: (1) where the target behavior is not under the actor's volitional

control, (2) where the situation involves a choice problem not explicitly addressed by the TRA, and (3) when subjects' intentions are assessed when they have inadequate information to form an intention (Sheppard, Hartwick, & Warshaw 1988).

One of the more important findings of the Sheppard et al. meta-analysis involves the presence of choices among alternatives. Theoretically, the presence of choice may change the nature of the intention formation process and the role of intentions. According to Sheppard et al., attitudes and subjective norms toward alternatives are likely to be very similar because attributes and consequences are likely to be similar. How and where the attenuation occurs depends on the nature of the choice process. People may form intentions for each alternative then compare them, or they may be comparing attitudes and subjective norms before intentions. If there is intention comparison, the intention-behavior relationship is likely to be attenuated. So if only intention is measured, prediction may be inaccurate when alternatives are present, if there is actually attitude or subjective norm comparison occurring.

However, despite the fact that the TRA does not explicitly accommodate situations involving a choice among alternatives, the presence of a choice did not weaken the predictive utility of the model—indeed, it actually performed better overall when used in choice situations. Sheppard et al. think this may be due to high involvement—a likely aspect of ERCB, as manifested in the environmentally-concerned self schema and the ERC role-identity. It is also worth noting here that alternatives are an important aspect of ERCB. The assumption that attributes and consequences among choices are likely to be similar may not hold in the context of

choices involving environmentally responsible vs. non-environmentally responsible choices. It appears, then, that the general relationships among variables in the TRA can be useful in the development of a model of the social psychological processes underlying ERCB.

A model of *purposeful* behavior has been developed as an alternative to the TRA for certain behavioral contexts (Bagozzi 1986). In this model, Bagozzi reformulates the expectancy-value component of the TRA into a subjective conditional probability, which is the likelihood that an individual will perform an act, given certain perceived consequences for the act. This results in an approach/avoidance response, based on a self-prediction regarding how the individual believes he/she would act under the circumstances.

Bagozzi (1986) criticizes the exclusive use of "good/bad" evaluations in the expectancy-value model. Indeed, he asserts that the neither affective (pleasant/unpleasant) nor moral (good/bad) evaluations are by themselves sufficient because the consequences of some behaviors involve either correspondence or conflicts between these evaluations. For this reason, the purposeful behavior model depicts the approach/avoidance responses as driven by affective and moral evaluations. These could combine in either a compensatory, non-compensatory, or mutually exclusive manner. With a compensatory process, an approach response could result when affective and moral evaluations are both positive, or when one is positive and the other negative but the positive outweighs the negative. An avoidance response could result when affective and moral evaluations are both negative, or when one is positive and

the other negative but the negative outweighs the positive. With a non-compensatory process, a response would only occur when affective and moral evaluations are both above or below a certain level. With a mutually exclusive process, moral or affective justifications would be formulated *after* the action (or inaction). None of these possibilities are accounted for by the expectancy-value model (Bagozzi 1986).

Following up this research, Bagozzi (1989) empirically examined the effects of affective and moral evaluations as antecedents to attitude toward donating blood. He found that both moral and affective evaluations applied, and resistance toward blood donation under high involvement conditions was only overcome when both moral and affective evaluations were positive.

Both affective and moral evaluations are applicable to the ERCB context. As discussed earlier, perceived consequences of ERCB appear to often involve positive affect (Petkus 1992b), and there is extensive support for the influence of environmental values and ethics. In addition, these evaluations may be in conflict—a situation may exist where an environmentally responsible behavior is perceived as unpleasant but still a good thing to do (e.g., composting).

The HSBD model accounts for all these possibilities. Either type of evaluation can be traced from an antecedent variable through to behavioral intention. Positive affect is associated with both the environmental concern self-schema and the ERC role-identity in the HSBD model. Also, moral evaluations can be involved in the development of the self-schema, which is proposed to be influenced in part by environmental values and ethics. Because the development of the ERC role-identity

will be driven by the self-schema, the perceived morality of an action can then be tied back to the role-identity. In other words, moral evaluation can be inherent in the self- and self/other-oriented ERC role-identity types, expressed as: "I like seeing myself, and being seen by others, as an environmentally responsible consumer because it is the right thing to do." These effects can also operate in a situation where moral and affective evaluations are in conflict—if the moral aspect of the environmental concern self-schema is strong enough, it can result in the development of a very strong ERC role-identity.

Bentler and Speckart (1979, 1981) added prior behavior as an additional causal factor in the attitude-behavior relationship. They concluded that because there were, in some behavioral domains, direct effects from prior behavior to attitude, there are apparently both direct and indirect attitudinal effects on behavior for varying behavioral domains. In addition, Fredricks and Dossett (1983) compared the basic TRA (Fishbein & Ajzen 1975) to the Bentler and Speckart model, and found support for the addition of prior behavior to the basic TRA conceptualization.

While prior behavior is incorporated in the integrated model, the work of Bentler and Speckart raises the question of the nature of its influence. Should the integrated model depict a direct relationship between ERCB and attitude toward subsequent actions? It is proposed here that the Bentler and Speckart conceptualization, while perhaps offering a more theoretically robust explanation of the overall attitude-behavior relationship than does the basic TRA, still lacks a sufficiently specific theoretical explication of the relationships among the constructs. For example,

no explanation is offered for the exact *mechanism* by which prior behavior affects subsequent attitudes. What is it about the behavior that creates the effect on attitude? These questions are especially relevant to the specific behavioral domain of ERCB, because of extensive past research dealing with environmental concern and post-ERCB effects. Therefore, the proposed role of prior behavior in the integrated model (to be discussed at length later in this chapter) does not appear to be sufficiently threatened by the Bentler and Speckart conceptualization.

Another challenge to the TRA is offered by Triandis (1977), who proposes different conceptualizations for the normative and expectancy-value components. Triandis proposes that social norms reflect the perceived appropriateness of a specific behavior for some group, and that there is a separate, classically conditioned affective component in addition to the expectancy-value component. In addition, he explicates "facilitating conditions" (e.g., arousal, ability, and knowledge) and a habit component in his model. In comparing the Triandis model to the TRA (Fishbein & Ajzen 1975) model, Brinberg (1979) found that the Triandis model was a better predictor of intentions and the Fishbein model was a better predictor of behavior.

In the ERCB behavioral context, the normative component proposed by Triandis is encompassed by the other- and self/other-oriented ERC role-identity types. Indeed, the Triandis formulation is perhaps too general for a motivational theory. The facilitating conditions are accounted for in the integrated model by practical factors, perceived general influence of action (to be discussed below), and the environmental concern self-schema (proposed to be influenced in part by knowledge). The separate

classically conditioned affective component in the Triandis model does not appear relevant to the ERCB context.

Warshaw (1980) offers an alternative to the Fishbein model that explicates several determinants of brand-specific intentions. The affordability and accessibility of the product type are found to influence the "purchasability" of the product type, which is in turn directly related to the likelihood of purchasing the product type. A comparison with the Fishbein model indicates better prediction for the revised model. The affordability and accessibility of product type are accounted for in the integrated model under practical factors.

Finally, reformulations of the TRA for behavior involving the pursuit of goals (behaviors for which the individual perceives some impediment, e.g., quitting smoking) have been proposed and tested (e.g., Ajzen 1985; Bagozzi 1991; Warshaw, Sheppard, & Hartwick 1991). Warshaw and Davis (1985) found that behavioral expectation was a better predictor of these types of behavior than was behavioral intention. However, ERCB as it has been defined here is in general not a goal-oriented behavior. Indeed, goal-oriented behaviors are contrasted with reasoned behaviors; for example, a goal such as winning the lottery is not logically attached to an *intention* to win the lottery (Bagozzi 1991). In addition, while it may seem that an argument could be made that ERCB is associated with a goal of "saving the earth," this specific consideration is accounted for by the environmental concern self-schema, and is not really a personal goal in the sense of the behaviors that were considered by the aforementioned authors.

Intentions

Some of the early work in the conceptualization of the TRA found that attitudes and normative beliefs predicted behavioral intentions, which acted as mediators in the attitude-behavior relationship (e.g., Ajzen & Fishbein 1969, 1972). Since then, a significant amount of research has addressed the mediating role of intentions in a wide variety of behavioral contexts. Though results in general have been mixed (see, e.g., Bagozzi & Yi 1989), intentions have been shown to be a significant variable in the prediction of environmentally responsible behavior. The meta-analysis by Hines, Hungerford, and Tomera (1986-87) indicated a relatively strong correlation of .49 between intention and behavior.

Applications of the TRA in Environmental Behavior Research

There have been several applications of the TRA in the environmentally related behavior literature. Bowman and Fishbein (1978) applied the TRA to voter decisions about an energy proposal. They concluded that the Fishbein model appeared to be useful in explaining public reaction to energy proposals. A report of several studies of attitudes toward energy conservation found that while general attitudes toward the energy crisis were not associated with conservation behaviors, people who expected direct consequences were likely to undertake energy saving behaviors (Olsen 1981). Also, internalized normative expectations were found to be related to energy conservation. These two conclusions are shown to be consistent with the basic variables of the TRA.

Macey and Brown (1983) proposed a modified version of the basic TRA model

that includes past experience as a component to account for the effects of repetitive household energy conservation behavior. Their study found that attitudes, intentions, and subjective norms toward conservation behaviors were positive overall. They also found that although the basic TRA model was a significant predictor of behavior, the proposed modified model was a better predictor of actions such as nighttime thermostat setback and changing furnace filters; indeed, past experience was found to be the best predictor of repeated behaviors overall.

Rozendal, Ester, and Van der Meer (1983) recognized the potential for specificity of attitudinal and behavioral measures with the TRA. Though they found effects for attitudinal and normative factors, much of the behavioral variation was unexplained. In their aforementioned investigation of normative processes in energy conservation, Midden and Ritsema (1985) develop a theoretical model that is based mainly on the TRA.

The TRA has been tested in two field studies of factors affecting energy consumption (Stutzman & Green 1982). The basic TRA model showed moderate explanatory power in understanding energy consumption. Interestingly, changing the level of information resulted in changes in knowledge, but did not result in any change in behavioral intention, evaluation, attitude toward the act, or subjective norms.

A study of factors involved in the effectiveness of promoting water conservation incorporated two TRA variables, subjective norms and attitude toward behavior (Kantola, Syme, & Nesdale 1983). The analysis did not indicate a significant effect for subjective norms on behavioral intentions. However, the authors suggest

that a *moral* norm variable should be added to the model. The integrated model incorporates moral norms (values) in general as an influence on the environmental concern self-schema.

Linking ERC Role-Identity Types with Attitudes

Any discussion of attitude raises the question: where do attitudes come from?

Ajzen and Fishbein (1980) discuss the effects of external variables on behavior.

External variables include demographics, attitudes toward general targets (such as "people" or "institutions"), and personality traits (such as introversion and extraversion, neuroticism, authoritarianism, and dominance). These variables are said to have indirect effects on behavior, operating directly on the expectancy-value and normative components of the TRA. In addition, these external variables will affect the relative importance of the attitudinal and normative components.

Ajzen and Fishbein (1980; see also Ajzen 1982) assert that a strong relationship between a general measure of a trait and any one behavior would not be expected. For example, they state that a general measure of "altruism" would not be strongly related to a specific behavior such as turning off a stranger's car headlights that were left on inadvertently. Instead, Fishbein and Ajzen suggest that an index of a general trait will be related to an index of multiple behaviors in a category. This conceptualization may suffice for predictive models. Again, however, when the intent is to *explain* the social psychological processes associated with behavior, some theoretical delineation of the mechanism by which general attitudes or traits result in specific behaviors is desirable.

Another question that has received considerable attention in the attitude literature is: what function do attitudes perform for people? In other words, what are the motives that underlie attitudes? The functional theorists (e.g., Katz 1960; Smith, Bruner, & White 1956) held that attitudes are functional, satisfying various psychological needs. According to the functional theorists, attitudes perform such functions as maintaining consistency in frame of reference, expressing values and identity, obtaining social acceptance, and developing and defending self-esteem (Shavitt 1989). The function of attitudes in which they allow for the organization and maintenance of consistency in frame of reference has been called the most fundamental function (Fazio 1989). Along these lines, Zanna (1989) suggests that attitude-behavior consistency fulfills a need for cognitive structure. All of these functions clearly relate to role-identity.

Indeed, Fazio (1987) suggests that the attitude-behavior relationship is moderated by both the confidence with which an attitude is held and the consistency of the affective and cognitive components of the attitude. It seems likely that attitudes that are linked to a role-identity would be characterized by more consistency between affect and cognition, because the role-identity operates across behavioral contexts and is based on a cognitive generalization about the self. For the same reasons, it is likely that attitudes that are linked to a role-identity would also be held with more confidence. McGuire (1989) suggests that attitude-behavior correlations may be modest in some cases due to their being assessed as "molecular," or one-to-one relationships, rather than from a "molar," or systems, perspective. Again, it seems

likely that a system of attitude-behavior relationships will be associated with a role-identity.

Attitude-behavior consistency has also been shown to increase under conditions of high involvement (e.g., Verplanken 1989). It is likely that conditions of high involvement (i.e., personal relevance) would be associated with a well-established role-identity, almost by definition. This also supports the linking of the attitude toward the act to a role-identity that is associated with the act.

From a measurement perspective, it has been well-established that several factors are important to consider in order to realize a strong attitude-behavior relationship. The measurement of attitude must correspond to the exact specific behavior of interest, the appropriate target, focus on the proper time frame, and address the proper behavioral context (Ajzen & Fishbein 1977; Bagozzi 1981). All of these factors can be accommodated by the integrated/HSBD models, because the linkage between role-identity and attitude toward the act grounds the attitude in a specific behavioral context that serves also to designate the target and time frame.

A study by Charng, Piliavin, and Callero (1987) investigated the relationship between reasoned action and role-identity in the context of repeated behaviors. They found that the Fishbein-Ajzen model was by itself a good predictor of blood donation behavior, but that adding role-identity salience enhanced the predictive value of the model. More frequent donors had a greater chance of developing a blood donor role-identity. Once they develop that role-identity and it becomes salient, the predictive value of attitudes and norms is lessened. However, while that effect may be true for

prediction, from an explanatory perspective the attitude toward the act would still be commensurate with the role-identity, regardless of its relative predictive value.

Previous research has indicated that more accessible attitudes have a stronger relationship to behavior than do less accessible attitudes (see, e.g., Fazio 1989; Fazio, Powell, & Williams 1989). Fazio and his colleagues argue that attitudes need to be activated (accessible) from memory to influence behavior, and have found both experimental and correlational evidence of this. The strength of the association between an attitude object and an evaluative summary related to it is postulated to determine attitude accessibility.

Support for this assertion in an environmental context is given by Mielke (1985) in an investigation of the effect of attitude accessibility on the relationship between attitudes toward littering and littering behavior. In this study, higher attitude accessibility strengthened the attitude-behavior correlation. Interestingly, attitude accessibility was inferred from active membership in environmental protection groups, a characteristic that is likely to be associated with an environmental concern self-schema and, in turn, an ERC role-identity. Another study that addressed the effect of attitude accessibility in the attitude-behavior consistency regarding recycling yielded similar results (Kallgren & Wood 1986).

Effects of ERC Role-Identity Types on Expectancy-Value and Subjective Norms

The integrated/HSBD models depict the ERC role-identity as having an indirect effect on behavioral intention in an ERCB context, operating through the subjective norm and the attitudinal components. Further, it is predicted here that different ERC

role-identity types will have different influences on these components. Figure 4 shows the proposed relationships between ERC role-identity types and the relative explanatory value of subjective norms and attitudes in generating behavioral intention.

The self/other-oriented ERC role-identity and the "no ERC role-identity" condition are proposed to result in equal explanatory value of the subjective norm and attitudinal components in generating behavioral intention in an ERCB context. In the case of the self/other-oriented ERC role-identity, considerations involving environmental concern *and* normative pressures are proposed to drive behavioral intention; therefore, the relative determination of intention should be equal. Similarly, when there is no ERC role-identity, there is no reason to expect any differential explanatory value of those factors in their effect on behavioral intention in an ERCB context.

The relative value of subjective norms and attitudes in explaining behavioral intention is proposed to be different with the presence of a self- or an other-oriented ERC role-identity. With a self-oriented ERC role-identity, it is predicted that the attitudinal component will be a better explanatory variable than subjective norms. This is because the self-oriented ERC role-identity individual has a high level of environmental concern (which should drive the beliefs about and evaluation of consequences of the action), but is not susceptible to normative pressures regarding environmental responsibility. With an other-oriented ERC role-identity, it is predicted that subjective norms will be weighted more than attitudes. This is because the other-oriented ERC role-identity individual wants to be perceived by others as

environmentally responsible; therefore, subjective norms (beliefs about what others think and motivation to comply) should be more important than the evaluation of perceived consequences of the action.

A considerable amount of research has addressed cross-over effects between subjective norms and attitudinal components. Though Burnkrant and Page (1982) found support for a single attitude and a single normative construct as antecedents of intention, most of the research has supported the interdependency of the two (e.g., Bagozzi 1989; Miniard & Cohen 1979, 1981, 1983; Oliver & Bearden 1985; Ryan 1982; Shimp & Kava 1984). Research that examines the influence of role-identity types as antecedent determinants of differential effects of subjective norms and expectancy-value can contribute to further insight into the conditions under which there is interdependence.

Perceived General Influence of Action

Is there a variable that may act as a mediator of the relationship between attitude and behavioral intention in the ERCB context? One variable that has been well-researched in the ERCB context is *locus of control*. Locus of control is a well-established social psychological construct that reflects a person's belief in his/her personal control over outcomes (e.g., Phares 1976; Rotter 1954). People who have an internal locus of control tend to believe that they have control over what happens to them, and that their own actions can affect the "rewards" and other benefits that result from their actions. In contrast, people who have an external locus of control tend to believe that things that happen are outside of their control, and that luck, fate, chance,

etc. are the forces that determine occurrences and consequences. Internal locus of control has been associated with healthier living, better ability to cope with adversity, and a stronger sense of personal responsibility (Cvetkovich, Baumgardner, & Trimble 1984). General research on locus of control has also shown the internal locus of control person to be dynamic, alert, active, and better at using information than the external locus of control person, who tends to be passive and ineffectual (Phares 1976).

In their meta-analysis, Hines, Hungerford, and Tomera (1986-87) report a correlation between ERCB and internal locus of control (they included studies that used variables that meant effectively the same thing as locus of control but did not explicitly call it that). Kinnear, Taylor, and Ahmed (1974) identified ecologically concerned consumers as scoring high in perceived consumer effectiveness. Henion and Wilson (1976) found that ecological variables were positively correlated with internal locus of control. According to Verhallen and van Raaij (1981), consumers will act according to their positive attitudes toward energy conservation in proportion to the degree to which they perceive that their personal actions toward energy saving will be effective. Antil (1984) showed that perceived consumer effectiveness was positively related to a measure of socially responsible consumption tendency. A study by Arbuthnot (1977) indicated that lack of personal control (perceived lack of control over events in one's life) was negatively related to use of recycling centers.

Tucker (1978) found internal locus of control to be a significant predictor of environmental concern. Painter, Semenik, and Belk (1983) found similar results for

energy conservation. Sivek and Hungerford (1989-90) found that individual locus of control and perceived skill at using environmental action strategies were good predictors of responsible environmental behavior. Subjects with internal locus of control were less likely to support legal restrictions designed to improve the environment (Pettus & Giles 1987).

Researchers have clearly recognized a potential relevance of locus of control to ERCB research. However, past research has not been well grounded in theory. That internal locus of control would appear to be associated with environmental responsibility is not surprising, because there is a general logic to the relationship. However, it is argued here that the most conceptualizations of locus of control (e.g., dealing with control over *events* and *rewards*) are not theoretically as appropriate to the ERCB context as they could be. In other words, though locus of control has shown some usefulness in the ERCB context, it seems there might be something better. Therefore, a closely related but importantly different construct, *perceived general influence of action* (PGIA) will be developed in this research in an exploratory sense. PGIA is conceptualized as the degree to which an individual believes that his/her individual actions have an influence on some generalized effect. An example relevant to the ERCB context: to what extent does my recycling beer cans "make a difference" in terms of landfill overload, saving of natural resources, etc. Inherent in this conceptualization is the realization that such generalized effects require aggregate behaviors, but that aggregate behavior in turn requires individual behavior. PGIA could potentially be employed in many behavioral contexts—such as voting, teaching,

contribution to causes, paying (or not paying) taxes, etc.—where individual actions are perceived in relation to general or aggregate effects.

PGIA is conceptualized here as a variable that acts as a linkage between the "person" context and the "task" context. PGIA is an individual difference variable that describes a state as opposed to a trait. It is linked to the task context because it relates to actions. This transcendence across contexts leads to the status of PGIA as a individual difference variable that is a potential mediator of certain task context variables. Specifically, PGIA is proposed to be a mediator of the attitude-behavioral intention relationship. The specific prediction to be made here is that, regardless of ERC role-identity types, the relationship between attitudes toward environmentally responsible action and corresponding behavioral intentions should be greater for those with strong PGIA than for those with weak PGIA. The operationalization of PGIA will be discussed in Chapter Three.

Role-Identity Salience

Role-identity salience is the situational importance of a given role-identity, relative to other identities associated with the role (McCall & Simmons 1978). Role-identity salience represents "situation-action-person" interaction—an interaction of the situational context in which the action is embedded and the individual's role-identity. The more salient an identity, the more an individual will be sensitized to opportunities for behaviors that are perceived to have potential to confirm or legitimate the identity (Stryker 1987).

The integrated model predicts that role-identity salience will act as a mediating

variable on behavioral intention. The higher the degree of relative importance of the ERC role-identity, the greater the likelihood that there will be an intention to undertake an environmentally responsible action as opposed to an action that corresponds to some other role-identity (e.g., a patriotic consumer role-identity from which a positive attitude and/or subjective norm is generated toward a "made in the U.S." alternative). In addition, role-identity salience parallels with attitude accessibility as discussed earlier. The more salient the ERC role-identity, the more likely an attitude will be accessible.

Stryker and Serpe (1982) found that commitment to an identity and role performance were significantly related to identity salience in a religious behavioral context. In a study that looked at the roles of student, friend, son/daughter, worker, athlete, religious person, and dating person, Hoelter (1983) found that identity salience was positively related to the commitment to and evaluation of the relevant role. Callero (1985) studied the role-identity salience of blood donors. Results indicated that self-definition, a tendency to view others in terms of the role-identity, increased social relations premised on the role-identity, expectations from others, and future behavior were significantly associated with role-identity salience. Salience was also found to be a significant predictor of future (six months later) blood donation.

Situational variables will have a significant effect on the salience of a role-identity. An individual who has defined a situation and locates him/herself within that situation in terms of a role becomes cognizant of expected patterns of behavior (Shibutani 1968). Burnkrant and Page (1982) found that people are sensitive to

"appropriate" impressions in various situations and that they will use the selection of goods to maintain the desirable impressions. If expected patterns of behavior and/or appropriate impressions involve ERCB, an other- or self/other-oriented ERC role-identity may become more salient. Belk (1975) identifies "social surroundings" as an important situational characteristic. The characteristics and apparent roles of others present, as well as the nature of the interactions occurring, will all be important aspects of a social situation. The stronger the ERCB implications of these situational aspects, the more salient the ERC role-identity. For example, a situation where an individual goes to a corporate cafeteria with others who are perceived or known to be environmentally-responsible may enhance the salience of an ERC role-identity for the individual.

The "situated identity" (Alexander & Weil 1969) designates the aspects of an individual that are manifested in actions that occur within a specific situational context. Alexander and Knight (1971) discuss situated identity and available response alternatives in a situation. They state that there must be relative consensus about the meaning of actions in order for a situation to be socially defined. They find evidence that, when a consensually defined situation exists, behavior can be predicted if the situated identity that results from the choice of one action is more socially desirable than those associated with alternative actions. This notion of differentially desirable situated identities has significant implications for the salience of an ERC role-identity. If environmentally-responsible actions are becoming increasingly socially desirable, then the salience of an other- or self/other-oriented ERC role-identity will be enhanced

in a consumption situation in which consensually defined environmental issues are relevant.

Alexander and Lauderdale (1977) discuss the anticipative aspects of the formation of situated identities, where expectations of how others will react to an action contribute to the manifestation of a particular situated identity. Thus the salience of an ERC role-identity will be enhanced by favorable anticipated reactions of others, and diminished by unfavorable anticipated reactions.

Situational self-image is the result of the individual's perception of others in a specific situation. When an individual selects an image to project in a social situation, he/she may seek to express that image through the purchase of products (Schenk & Holman 1980).

Cook and Berrenberg (1981) suggest that increasing the salience of pro-conservation attitudes will increase their relationship to behaviors. They cite indirect evidence that indicates that pro-conservation attitudes will be salient in situations where conservation opportunities are perceived, and that salience enhances the probability of the individual recognizing the implications of the action. This discussion supports the incorporation of role-identity salience as a moderating variable for the effect of perceived congruence on attitude toward the act. The recognition of the implications of the act is important for the connection between attitude and role-identity, and this recognition would be expected to be greater under conditions where the role-identity is more salient.

Task-Specific Practical Factors

As discussed earlier, general practical factors that are part of the physical environment in which ERCB is embedded will translate to task-specific practical factors that are specific to the particular behavioral situation. There is fairly extensive literature support for the effects of practical factors. Based on this literature, the integrated model depicts two effects for task-specific practical factors: (1) as consequences of the ERCB action that will be incorporated into the expectancy-value component in the formation of attitude toward the act, and (2) as a final mediator of the actual occurrence of ERCB following behavioral intention. Hines, Hungerford, and Tomera (1986-87) propose that situational factors will be a final mediator of environmentally responsible behavior.

Task-specific practical factors include financial and functional facilitators and constraints that can influence ERCB. Financial facilitators involve economic incentives that stimulate environmentally responsible behavior. Financial constraints on ERCB could occur when environmentally responsible consumption alternatives cost prohibitively more than other alternatives. Functional facilitators include proliferation of environmentally responsible alternatives, store layouts and "bunching" of environmentally responsible products, increased amount and accuracy of information, better performance of some environmentally responsible products, and community environmental programs (such as those that provide recycling bins). In the context of reducing individual automobile use, functional facilitators include reducing waiting time for buses, making buses more comfortable and appealing to ride, providing

incentives (such as reserved, closed-in, and free parking) for car pools, providing sheltered parking for bicycles, and establishing "fast lanes" for buses and car pools (Cook & Berrenberg 1981). Functional constraints include lack of availability of environmentally responsible alternatives in some product categories, inadequate dissemination of information about the environmental consequences of consumption behaviors, and diminished performance of some environmentally responsible products.

Much of the research on practical factors has focused on financial facilitators. Though Hines, Hungerford, and Tomera (1986-87) found a very small correlation between overall economic orientation (cost-consciousness and concern about economic impact of environmentally responsible behaviors) and environmentally responsible behavior, several studies have shown financial factors to be important. Direct cash outlay has been offered as an explanation for inconsistencies among a variety of environmentally responsible behaviors: voting on an environmental bond issue, and the purchase of detergent, gasoline, paper towels, bathroom tissue (Fritzsche 1974). Energy conservation research has consistently found financial incentives to have significant effects (e.g., Cunningham & Joseph 1978; Hutton & McNeill 1981; Hutton & Markley 1991). Hutton and Wilkie (1980) examined the effects of communicating the life-cycle energy costs of products to consumers, and found that this information had some effect on energy-efficient choices. Indeed, a review of energy conservation research found financial considerations to be the strongest motivators of energy conservation (Downs & Frieden 1983). Monetary rewards resulted in increased participation in a residential newspaper recycling program (Jacobs & Bailey 1982-83).

However, overall results as to whether monetary incentives are *cost-effective* motivators of recycling have been mixed (De Young 1986; Geller, Winett, & Everett 1982).

Financial constraints on ERCB have not been well-researched, perhaps because researchers have focused more on how to *facilitate* behavior. Higher prices were found to result in less use of on-peak electricity (Heberlein & Warriner 1983). A few studies have focused on "willingness to pay" for general environmental benefits, such as measures to alleviate air pollution (e.g., Reizenstein, Hills, & Philpot 1974). Hummel, Levitt, and Loomis (1978) examined trade-offs between increased gasoline prices and taxes and cleaner air benefits, and found that the air trade-off scale correlated with higher socioeconomic status, blaming consumers for environmental problems, and higher education levels. Suchard and Polonsky (1991) report that people are willing to pay more for products with a variety of environmentally responsible features. Academic research addressing willingness to pay extra for environmentally responsible product alternatives is limited—most of this type of research is apparently performed in proprietary market research studies, and is reported in very general terms, if at all. In addition, such results may be suspect due to self-reporting of willingness to pay, which is likely to be susceptible to social desirability bias.

Functional facilitators have been significantly addressed in the literature. In general, Bagozzi, Baumgartner, and Yi (1990) have shown that the amount of perceived effort associated with a behavior mediates the relationship between attitude

and behavior. A review of research on energy conservation initiatives indicates that factors such as appliance energy labels, consumption feedback, computerized home audits, time-of-day rates, and direct load controls did not result in significant long-term energy savings (McDougall et al. 1981). However, a more recent study found that energy conservation was increased through daily electronic feedback (van Houwelingen & van Raaij 1989).

Many studies (conducted in various settings—housing tracts, apartments, offices, dormitories) have indicated that conveniently-located recycling collection receptacles facilitated recycling behaviors (Oskamp et al. 1991). Newspaper recycling was found to be enhanced by both rewards and the proximity of recycling containers (Luyben & Bailey 1979). Prompts, contests, and lotteries were effective incentives for beverage container recycling (Luyben & Cummings 1981-82). Witmer and Geller (1976) found that prompts, raffles, and contests were effective as incentives for newspaper recycling. Public commitment in the form of signing a statement in support of recycling was found to have a positive effect on community recycling behavior (Burn & Oskamp 1986). Prompts had a significant positive effect on recycling behavior, and prompts combined with information had an even stronger effect (Hopper & Nielsen 1991). College students reported that the availability of recycling drop-off containers affected their attitudes and behaviors toward recycling (Williams 1991).

Functional constraints have seen limited attention in the literature. Anderson and Claxton (1982) found that lack of salient energy information (in the form of

labeling) and lack of salesperson information support acted as barriers to energy efficient appliance choices.

As mentioned earlier, many demographic analyses of ERCB showed that blacks show lesser degrees of environmental concern than whites; however, this difference may be due to several practical factors that inhibit environmental action. These are: level and type of affiliation with voluntary associations, political efficacy, recognition of advocacy channels, access, acquisition of social prerequisites, and resource mobilization (Taylor 1989). Inconvenience and limited knowledge about recycling should become less of a problem due to the recent proliferation of community programs such as curbside recycling (Oskamp et al. 1991). Of course, the aforementioned research on functional facilitators can be considered in the obverse to address functional constraints.

Post-ERCB Effects in the Social Context

The theoretical relationships depicted in the model do not end with ERCB. As discussed earlier, ERCB is proposed to have feedback effects on antecedent constructs through self-support and role-support from others, consistent with both the literature and role-identity theory. The integrated model thus represents a system in which the effects of several social psychological processes are hierarchically and cyclically linked.

In seeking role support, an individual will interpret the responses of others to his/her role performance behaviors (McCall and Simmons 1978). The individual's perception of the responses toward him/her to an extent reflects the actual responses of

others—the degree to which this is true will in part be a function of the individual's familiarity and past experiences with the others and with the situation (Kinch 1963). However, Miyamoto and Dornbusch (1956) find empirical support for the hypothesis that self-conception is more strongly influenced by the perceived responses of others than by the actual responses. Therefore, the perceived responses of others will be more important elements of role support for an ERC role-identity than the actual responses. According to Kinch, this role support will be stronger under conditions of familiarity and significant past experiences with others (e.g., spouse vs. stranger expressing approval for purchase of an environmentally safe detergent).

Others come to expect some degree of personal consistency in behavior, and sanctions from others tend to reinforce consistent behavior (Gergen 1968). The expectations that are set up by role-support may also prove to be encapsulating by classifying the individual as environmentally-responsible, because this classification will orient the behavior of others toward the individual. The person who is perceived as environmentally-responsible may be inundated with environmentally-oriented pamphlets and articles, reminded of upcoming television programs about environmental issues, or even be made "in charge" of recycling efforts around the office. These types of behaviors by themselves will serve to reinforce the individual's ERC role-identity. However, if the individual does not act upon them in a way that is commensurate with the expectations of others, such role-support will begin to diminish over time, with a corresponding weakening of the ERC role-identity. Overall, then,

positively perceived responses of others will serve as support for the ERC role-identity, and neutrally or negatively perceived responses of others will not.

Through social comparisons and direct interactions with others, individuals can learn things about themselves (Markus & Wurf 1987). Swann and Read (1981) discuss self-verification processes, by which people use social interactions as opportunities to verify and confirm their self-conceptions. They report results of a study in which subjects were more likely to seek social feedback when they believed it would confirm their self-conceptions. In addition, social feedback that served to confirm self-conceptions was preferentially recalled over disconfirming feedback. Swann and Hill (1982) suggest that self-confirmatory behavior can cause others to see one as one sees oneself, resulting in a greater likelihood of receiving self-confirmatory feedback in the future. Based on these results, it seems that post-ERCB feedback effects may in some cases be *actively* sought, and that the effects on both the ERC role-identity and the environmental concern self-schema may override non-supportive reactions of others.

According to McCall and Simmons (1978), an individual will develop allegiance to others who provide role support, and will reject those that do not. A given "quantity" (incidence) of role support is weighted according to the importance of the audience. An individual's perception of the responses of others toward him/her will reflect their actual responses. These notions of allegiance, emulation, aspiration, and importance suggest that referent others will be an important source of role support. However, there is little evidence in the literature regarding the role support

function of referent others—most work on referent others addresses the pre-action influence of reference groups, not the post-action influence.

Most treatments of referent others (both in social psychology and in consumer research) also adopt a static approach that neglects to recognize the process-oriented nature of reference group influence. Over time, it is likely that referent others will continually react to the successive actions of an individual, and the individual will continually interpret those reactions and evaluate the extent to which they represent support for a given role-identity. Further research is necessary to examine the post-action and process-oriented functions of reference groups in the context of role support.

The self is in many cases the most important "referent other" that provides role-support. An individual will apply a process of self-evaluation to his/her imaginative view of his/her own role performance. A positive evaluation will result in "self-support" for the role-identity (McCall and Simmons 1978). Bem's (1967) self-perception theory offers perhaps the strongest support for this notion. Self-perception theory holds that "individuals come to 'know' their own attitudes, emotions, and other internal states partially by inferring them from observations of their own overt behavior and/or the circumstances in which this behavior occurs" (Bem 1972, p. 2). In addition, attribution theory (which is closely related to self-perception), has been shown to be a significant framework for consumer behavior research, but is more concerned with understanding consumers' perceptions of cause-and-effect relationships (see Folkes (1988) for a review).

Several authors have recognized the importance of self-esteem in the mechanism by which role performance influences identity. Jones et al. (1981) found that strategic self-presentation has an effect on self-esteem. Stryker (1987, p. 97) discusses individuals' self-evaluations of their role performances:

These evaluational processes are reflected in the person's role-specific self-esteem; and role-specific self-esteem is reflected in identity salience in accord with the principle that the higher the role-specific self-esteem attached to a role, the more salient the identity based in that role.

Self-support for an ERC role-identity will involve an individual contemplating and assessing relevant role performances. The degree to which these assessments are positive will contribute to the extent to which the individual "likes" seeing him/herself as an environmentally responsible consumer. In short, an individual may simply feel good about doing his/her part to benefit the environment. This feeling will strengthen the ERC role-identity. For example, buying a reusable cloth grocery bag, turning off the faucet while brushing teeth, or dropping off old newspapers at a Boy Scout recycling center may result in a feeling of satisfaction that one has "done the right thing," thereby strengthening the ERC role-identity and eliciting further role performance.

Support for post-ERCB feedback effects can be found in the literature. In their study of household energy consumption and adaptations, Black, Stern, and Elworth (1985) directly compared a attitude-behavior causal model with a behavior-attitude model. They found that, as expected, the attitude-behavior model was a better predictor of behavioral variables. However, modeling behavioral variables as antecedents of attitudinal variables only marginally improved the proportion of

explained variance. Despite this result, other research provides support for the effects of behavior on antecedent social psychological variables. While extrinsic incentives (practical factors) can have a strong influence on ERCB, these factors do not always function effectively in the case of long-term, enduring behaviors (De Young 1986). For example, Pardini and Katzev (1984-85) found that incentive-based programs designed to sustain recycling behaviors consistently resulted in drastically decreased recycling behavior upon the removal of the incentive. However, De Young (1984-85; 1986) reports a close association between intrinsic satisfactions derived from recycling and reusing behaviors and the *intrinsic* motivation of ERCB. Two categories of satisfactions were found to be associated with these behaviors: satisfaction from frugality (the avoidance of wasteful practices) and satisfaction from participation in activities involving the community that will make a difference in the world.

Macey and Brown (1983) suggest that the more familiar a person is with an action through past experience, the higher the probability of that action being repeated; however, no reason for this "familiarity" effect is given. The post-ERCB feedback loops in the integrated model offer a mechanism that may explain why the effects of past behaviors can be so strong.

Environmentally responsible behavior was shown to have a significant effect on attitudes (Bruvold 1972; 1973). Bruvold argues that it is important to consider the combined effect of many aspects of behavior on attitudes, rather than just single units. Van der Pligt (1985) found that people engaging in environmentally responsible behaviors tended to relate these behaviors to personality characteristics, while those

engaging in environmentally-irresponsible behaviors did not. Another study indicated that environmentally responsible behaviors contributed to ecological attitudes and to a consumer energy conservation ethic (Haldeman, Peters, & Tripple 1987). Again, however, these studies offer no specific mechanism for the effects. The integrated model proposes that the mechanism operates through feedback effects on the ERC role-identity.

Kahle and Beatty (1987) found that behavior that exposed subjects to Oregon bottle bill legislation positively affected their attitudes toward the legislation. The authors suggest that, over time, attitudes will become ingrained and effects of attitude on behavior will predominate. Kahle, Klingel, and Kulka (1981) make a distinction between accommodative situations and assimilatory situations. Complying with a bottle bill because it is law is an example of an accommodative situation—in this situation, behaviors are expected to influence attitudes (as was found in the Kahle and Beatty (1987) study). Assimilatory situations involve well-established attitudes, and thus an effect of attitude on behaviors is expected. An example would be a person who makes an effort to responsibly dispose of bottles while traveling in a state without a bottle bill. An interesting analogy is offered by Kahle and Beatty (1987, p. 839): "Over the short-run geography causes weather, but over the long-run weather causes geography."

The relative importance of self-support versus role-support from others should be related to the presence of different ERC role-identity types. Under conditions where there is a self/other-oriented ERC role-identity or where there is no ERC role-

identity, it is expected that self-support and role support from others would be of similar importance. Self-support would likely be the more important effect for individuals with a self-oriented ERC role-identity. Role support from others would likely be the more important effect for individuals with an other-oriented ERC role-identity. These effects are analagous to the proposed effects of the different ERC role-identity types on the weighting of subjective norms and attitudes.

Summary of Relationships Among Variables in the Integrated Model

As mentioned earlier, the integrated model is designed to provide a framework for the investigation of the social psychological processes underlying ERCB. The underlying structure of the integrated model involves a series of social psychological effects. These effects operate hierarchically—the major dynamics of the model move from broad generalizations about the self (the "environmentally concerned" self-schema), to a more specific "environmentally responsible consumer" (ERC) role-identity, to even more specific attitudes, subjective norms, and intentions toward a particular action. In addition, the model delineates the feedback influence that behavior has on antecedent constructs; therefore, the model can be also viewed as a system in which social psychological process effects on behavior are cyclically manifested.

As discussed earlier, individual difference variables (the person) and situational and behavioral variables (the task), are subsumed within the more general physical environment and the social context. A useful starting point in going through the integrated model is environmental concern, which is proposed in this research to be a

self-schema. The environmentally concerned self-schema is influenced by three main factors as depicted in the integrated model: information, perceived environmental knowledge, and values.

The next major construct in the integrated model is the ERC role-identity. Role-identities are defined as how a person likes seeing him/herself being and acting as an occupant of a particular social role (McCall & Simmons 1978). The environmentally concerned self-schema can potentially generate several different role-identities: e.g., environmentally responsible parent, environmentally responsible community activist, environmentally responsible voter, environmentally responsible employer, environmentally responsible communicator, and environmentally responsible consumer. Self-schemata are analogous to "adjectives" ("I am environmentally concerned"), whereas the role-identity is analogous to a "noun" ("I am an environmentally concerned consumer"). In the integrated model, the ERC role-identity is shown to be influenced by both environmental concern and personality variables. The combined effect of the level of environmental concern and personality variables associated with conformity is proposed to generate different *types* of ERC role-identities.

Moving to the "task," the most important relationship depicted in the integrated model is the effect that the ERC role-identity has on the generation of behavioral intention. The model proposes that different ERC role-identity types will affect the weighting of the subjective norm and attitudinal components of behavioral intention. This relationship is mediated by role-identity salience, which is defined as the relative

importance of a given role-identity in a given behavioral situation (McCall & Simmons 1978).

General practical factors in the physical environment can generate task specific practical factors, such as the immediate availability (or lack thereof) of a recyclable product alternative on the supermarket shelf. Task specific practical constraints and facilitators have two mediating effects regarding the task. First, they are incorporated into the "beliefs about the consequences of the action" aspect of the attitudinal component. Second, they can act as enhancers or inhibitors of the extent to which behavior actually results from intention.

Consistent with McCall and Simmons's (1978) role-identity model, ERCB is then proposed to have feedback effects on the ERC role-identity. These effects operate through role support from others and/or through self-support. These effects occur in the social context, and serve to complete the system of social psychological effects associated with a given ERCB action.

The Hierarchy of Sequential Behavioral Determinants Model

Again, the HSBD model (Figure 2) is a subset of the integrated model designed to depict the selected relationships from the integrated model to be tested in the study. Level 1 of the HSBD model involves constructs (environmental concern self-schema and SNPER) operating at the most general level, across different role and behavioral contexts. At Level 2, the different ERC role-identity types operate at an intermediate level of generality, specific to a given role yet across behavioral contexts associated

with that role. At Level 3, attitudes, subjective norms, and behavioral intentions operate at the most specific level of a particular behavioral context.

Comparison of the HSBD and integrated models reveals that the HSBD model incorporates the core structure of the integrated model: the integration of the three areas of social psychology, self-schema, role-identity, and attitude-behavior relationship. The HSBD model thus represents the "backbone" structure of the integrated model, but makes explicit the hierarchical effects proposed to be inherent in the social psychological dynamics.

The HSBD model is in effect the "operational" version of the integrated model for the purposes of this research. The specific hypotheses to be tested in the study are intended to investigate the dynamics operating between Level 1 and Level 2, and between Level 2 and Level 3. These hypotheses will be explicated in detail in Chapter Three.

COMPARISON OF INTEGRATED/HSBD MODELS TO OTHER ERCB MODELS

The integrated model represents an extensive integration of ERCB-related literature and social psychological theory. However, other models of environmental behavior have been developed and, in some cases, tested. While the various components of other environmental behavior models will be discussed in the appropriate sections throughout this chapter, it is useful to compare and contrast the overall dynamics of each of these models to those of the integrated model. (Because it is the more comprehensive of the two models developed herein, the integrated model will be the main focus of comparison; however, much of the discussion will of course

be relevant to the HSBD model also.) The models to be discussed in this section are those that (1) are designed to explain or predict ERCB (whether in general or some specific type thereof), and (2) make some degree of theoretical linkage among variables. Each model will also be shown in a figure.

A model of responsible environmental behavior was developed in the Hines, Hungerford, and Tomera (1986-87) meta-analysis (see Figure 5). This model is intended to identify areas to which environmental education can be applied in order to effect changes in environmental behavior *in general*, which includes but is not limited to ERCB. Because it is based on a meta-analysis, the model accounts for most of the general social psychological variables that are included in the integrated model—attitudes, PGIA (as locus of control), responsibility (values), knowledge, and intention. Because it is intended for use by educators, the model focuses on different types of environmental knowledge. It also recognizes the effect of situational factors, which include economic constraints and social pressures.

However, for the purposes of explaining the social psychological processes associated with ERCB, the Hines et al. model does not make adequate theoretical linkages between variables. First, attitudes are handled very vaguely in the Hines et al. model. No explanation of how these attitudes are generated is offered. The model also fails to make any link between knowledge and attitudes. No feedback effects of behavior are depicted. Overall, the Hines et al. model provides a useful general framework within which to view environmentally responsible behavior, but falls

somewhat short of the theoretical explication of relationships among variables that can explicitly guide research about the social psychological processes of ERCB.

Another model of general environmentally responsible behavior was developed as an evolution of the Hines et al. model (Hungerford & Volk 1990). The Hungerford and Volk model integrates variables from the Hines et al. model and other behavioral research (see Figure 6). Like the Hines et al. model, this model is intended to guide the development of environmental educational strategies than to explain environmentally responsible behavior. The Hungerford and Volk model is also very atheoretical. Its major strength is the hierarchical presentation of relevant variables, from entry-level, to ownership, to empowerment. This provides a useful categorical framework for the consideration of variables associated with general environmentally responsible behaviors. However, the theoretical contribution of this model to the understanding of ERCB is very limited, because, like the Hines et al. model, theoretically explicit linkages among variables are not delineated.

A model designed to describe the determining factors of household energy conservation was tested by Midden and Ritsema (1983; see Figure 7). The model is similar to the integrated model in that both recognize the significance of the theory of reasoned action. The Midden and Ritsema model also, like the integrated model, accounts for knowledge and information, the feedback effects of past behavior, and practical factors (technical conditions of the house). However, there are several considerations that make the integrated model a better orienting framework for studying ERCB.

Most of the constructs in the Midden and Ritsema model are specifically designed to address energy conservation—the integrated model is designed to account for any type of ERCB, not just household energy conservation. The Midden and Ritsema model thus fails to explicitly consider general environmental concern, which has been extensively addressed in the literature. The integrated model not only includes general environmental concern as a major variable, it incorporates the ERC role-identity and the other related constructs to facilitate the theoretical linkage between environmental concern and attitude toward the action.

Midden and Ritsema are very explicit in their identification of sources of normative pressures to conserve energy. They include family influences, neighborhood, friend, and acquaintance influences, and macro-level influences (such as public authorities, political parties, scientists, and local utility companies). There may be a problem, however, with considering the macro-level influences to be sources of normative influence. The influence of public authorities and utility companies may, as the authors suggest, involve sanctioning or legislation. This may be better conceptualized as practical factors than normative factors. Also, the authors discuss the influence of political parties as ideological authority and the influence of scientists as expert authority. The influence of political parties thus is likely to be more closely tied to values, and the influence of scientists is likely to be informational. Therefore, the integrated model would consider these influences as practical factors, values, and informational influences, and as effects incorporated as part of the social context.

Though the Midden and Ritsema model incorporates a feedback effect, it is not

specific as to how that feedback effect operates. The integrated model depicts the feedback effect as operating through both self-perception of past actions and role support from others regarding the behaviors.

Household energy consumption was also the focus of the series of models developed and tested by Black, Stern, and Elworth (1985). Four specific models are presented (see Figure 8). They address influences on (1) major capital investments in residential energy efficiency, (2) low-cost energy efficiency improvements in residences, (3) ambient temperature settings, and (4) minor energy curtailments. Interestingly, the authors do not cite the Midden and Ritsema (1983) article, even though the models are very similar in both structure and purpose.

The social psychological variables in the models are energy concern, personal benefit of efficiency, personal benefit of curtailment, responsibility ascribed to households, perceived social norm for energy efficiency, personal norm for energy efficiency, awareness of social consequences of efficiency, perceived social norm for energy curtailment, and personal norm for energy curtailment. The models also include a variety of demographic and contextual variables (e.g., heating with oil, January energy bill, paying directly for heat, economic suffering due to energy, etc.). As can be seen in Figure 8, different predictor variables are significant for the four different dependent variables.

The Black et al. models have several strengths. They are fairly comprehensive in that attitudes, subjective norms, demographics, and practical and situational factors—variables that have been shown be related to ERCB—are included. The

behaviors and predictor variables are operationalized very specifically. Also, the results show that generalized concern does not influence behavior directly, it operates through its influence on personal norms, similar to the relationships in the integrated model. Unfortunately, behavioral intention was not measured. However, these models also have several weaknesses. Most importantly, the relationships in the models are mostly atheoretical. While the variables are specifically operationalized, the theoretical relationships between them are not explicitly delineated. This is especially true of the interrelationships among the social psychological variables. Although the authors draw on the theory of reasoned action (Fishbein & Ajzen 1975) in their conceptual development, and the relationships among attitudinal and normative variables are consistent with the theory of reasoned action in terms of levels of specificity, the integrated model makes far more explicit theoretical connections as to *how* these relationships operate. In addition, the specificity of the Black et al. models, while in some ways a strength, is also a limitation in terms of generalizability to other forms of ERCB. Again, the integrated model accommodates any form of ERCB.

The failure of the Black et al. models to include general attitudinal or role-linked variables may explain why the feedback effects from behavior to antecedent variables were found to be marginal. In addition, the models do not include reinforcement variables analogous to role support and self support in the integrated model.

A model of environmentally responsible voting behavior was developed by Gill, Crosby, and Taylor (1986; see Figure 9). The model is intended to identify a set

of variables that intervene between ecological concern and environmentally responsible behavior. To this end, the theory of reasoned action (Fishbein & Ajzen 1975) formulation of attitudes and subjective norms is employed. In these ways, the Gill et al. model is similar to the integrated model (indeed, the Gill et al. model appears to be the closest analogue to the integrated model in terms of structure and intent).

The Gill et al. model was tested using structural equation analysis. Though the authors report in their discussion that the overall model relationships were supported (i.e., that the effect of general ecological concern is on voting behavior mediated by more specific attitudinal, normative, and behavioral intention variables), this statement should be viewed with caution. As reported by the authors, two initial tests of the a priori model indicated that it was inadequate. Other paths were then included in the model. The path from ecological concern to behavior was not found to be significant, while the path from ecological concern to behavioral intention was significant. However, the model was still found inadequate based on a traditional chi-square criterion. Finally, in order to improve fit, some correlated error was allowed, relaxing the model "without theoretical justification" (p. 547). This indicates that the analysis was clearly directed toward prediction rather than explanation.

It appears, then, that the basic theory of reasoned action variables are not sufficient (or at least not ideal) for theoretically explaining the link between general ecological concern and behavior. By including the ERC role-identity and related constructs, the integrated model retains the attitudinal and normative structures, but attempts to provide more depth in the conceptualization of the link between

environmental concern and environmentally responsible behavior. Gill et al. suggest, based on their results, that research focusing on general environmental concern is perhaps of limited use in the prediction of environmentally responsible behavior.

While this may be true, it is argued again here that general environmental concern is a very necessary component of the *explanation* of the social psychological processes associated with ERCB.

A theory of environmental buyer behavior, based heavily on various types of risk, has been developed by Suchard and Polonsky (1991; see Figure 10). A strength of this model is that it accounts for both attitudes and subjective norms, drawing on the theory of reasoned action for the conceptualization of norms as a function of beliefs about referent groups and motivation to comply. This model is also more generalizable; and, like the integrated model, it accounts for any type of ERCB, not just energy conservation. However, the inclusion of the various types of risk and the "consistency factor" raises some questions. First, environmental risk was apparently not found to be a significant predictor of pre-purchase considerations—physical risk (endangerment to health) was the significant risk factor. It seems logical that perceptions of environmental risk would function more as *aspects* of pre-purchase considerations than as predictors of them. As the authors themselves suggest, further research on the concept of risk appears necessary.

Second, the theoretical significance of the consistency factor (comparison of perceived environmental impact of a product to the amount of pre-purchase consideration given to the environmental impact of the purchase) is not explained.

The results of the study showed an overall consistency factor greater than 1.0, indicating that people overstated the perceived environmental impact of products in relation to their pre-purchase considerations. However, the authors are unclear as to the actual conceptualization of perceived environmental impact, sometimes referring to it simply as "environmental concern." Given the importance of environmental concern in the ERCB literature, explicit and consistent consideration of the construct is crucial. Also, finding that people are generally inconsistent in their environmental "attitudes" and behavioral intentions begs the question: what factors *cause* some people to be more consistent or less consistent in their attitudes and behavioral intentions? It seems that the purpose of the model would be to explain the consistency factor result, rather than to incorporate it as a variable antecedent to behavioral intention. In addition, it is unclear why the consistency factor, which is operationalized as a *function* of pre-purchase consideration, is then depicted in the model as antecedent to pre-purchase consideration. Because the integrated/HSBD models conceptualize environmental concern as independent of the behavioral context, and attitude toward the action and behavioral intention as specific to the behavioral context, these difficulties are avoided. The fact that environmental risk is inherent in the definition of ERCB also alleviates this confusion.

The Suchard and Polonsky model also fails to account for several factors that have been shown by past research to be related to ERCB (such as knowledge, values, and post-ERCB feedback effects). These factors are all accounted for by the integrated model.

Finally, though they do not develop a model per se, Cook and Berrenberg (1981) offer a conceptual framework for research on conservation behavior. The framework is based on a review of the research on encouraging conservation behavior. The authors identify eleven research areas: (1) attitude/behavior influence variables; (2) contextual environmental variables; (3) personal attributes that influence acceptance of conservation programs; (4) perceptions relevant to the impact of attitude/behavior influence variables; (5) attitudinal outcome variables; (6) variables influencing evocation of behavior consistent with pro-conservation attitudes; (7) behavioral intention variables; (8) variables affecting actualization of pro-conservation intentions; (9) conservation action variables; (10) variables providing information regarding the effectiveness of conservation efforts; and (11) consequences of conservation behavior. Specific research topics and issues are also presented for each of the eleven areas. Although the framework is intended to guide research on attitude change, behavior modification, and behavior maintenance, it is important that any model dealing with ERCB account for the issues that are raised.

The integrated model accounts for all of these research areas, not just for conservation, but in the context of ERCB in general. The integrated/HSBD models clearly include variables that influence the attitude-behavior relationship, for both general environmental concern and attitude toward the environmentally responsible actions. Contextual environmental variables in the Cook and Berrenberg framework include the visibility and endurance of, and the consistency of information about, the

energy shortage. Information, knowledge, and perceptions (as part of the definition of ERCB) are explicit in the integrated model, relating to all types of ERCB.

Personal attributes and perceptions relevant to the impact of attitude-behavior variables are covered in the integrated/HSBD models by the dynamics associated with the ERC role-identity. Intention to act represents an attitudinal outcome variable, and ERCB represents the behavioral intention outcome variables, as well as the "conservation" action variables.

According to Cook and Berrenberg, variables influencing evocation of behavior consistent with pro-conservation attitudes include reminders of conservation actions, situational salience of attitude, and recognition of action-attitude congruence (action-attitude congruence refers to *general* environmental attitude). These correspond to practical factors, ERC role-identity salience, and the influence of role-identity on attitude, respectively, in the integrated model. Finally, the feedback effects of ERCB in the integrated model correspond to variables providing information regarding the effectiveness of conservation efforts and consequences of conservation behavior.

SUMMARY

This chapter has attempted to fulfill several objectives. One objective was to comprehensively review the literature that relates to ERCB. Past research related to ERCB has emerged in a wide variety of disciplines, and the contributions have been equally diverse in topic of study (from attitudes to mysticism!) and in results and conclusions. This chapter has also pointed out gaps in this literature. These gaps are more a reflection of the complexity of the phenomenon than of a lack of research

attention. These gaps also represent research opportunities for gaining a better understanding of the phenomenon of ERCB. An understanding of the processes associated with environmentally responsible decisions is important for a variety of stakeholders—consumers, marketers, public policy makers, and, ultimately, life on Earth in general.

A second objective, closely related to the first, was to integrate the environmentally related behavior literature into a social psychological framework that to facilitate research that examines the social psychological processes that underlie ERCB. Because no single social psychological motivation model was found to be adequate, several were integrated. The three main theoretical areas that are integrated are self-schema theory, role-identity theory, and the theory of reasoned action. Other constructs that had been shown to be related to ERCB in the literature are integrated as well.

The integrated model is the result of this integration. The constructs in the integrated model are unique in that they represent a logical integration of social psychological theory in the context of explaining the social psychological processes associated with ERCB. The environmental concern self-schema, the environmentally responsible consumer role-identity, and attitude toward the action comprise the backbone of the model, and indeed represent the major variables in the HSBD model to be tested. The other constructs in the integrated model serve either as facilitators of linkages between these constructs or to explain how, and in what different ways, these constructs develop.

A third, more general, objective involves the nature of social psychology as a discipline. The constructs in the integrated/HSBD models represent not only different social psychological theories, but also different social psychological *perspectives*. In the integrated/HSBD models, the more cognitively based self-schema theory and theory of reasoned action are combined with the symbolic interactionism-based role-identity theory to provide a comprehensive model for the explanation of motivation of a particular type of behavior. It is held here that explaining the social psychological processes underlying behavior requires an acknowledgement of the fact that certain social psychological processes operate as individual psychological processes, while others are entrenched in the social milieu. The degree to which past research that is based on each of these perspectives ignores the other perspective is striking. Yet, as has been demonstrated in this chapter, the parallels between the perspectives are clear, as is the potential for integration. As has been discussed several times in this chapter, a failure to adequately canvass the literature can result in overlapping streams of thought that differ not in substance, but simply in terminology. It is hoped that the research associated with the integrated/HSBD models will not myopically fail to recognize the potential contribution of different perspectives in the study of human behavior.

CHAPTER THREE

METHODOLOGY

STUDY OBJECTIVES AND HYPOTHESES

The major objective of this research is the empirical testing of the relationships depicted by the HSBD model. To this end, a study will be conducted that will focus on three specific research questions associated with constructs in the HSBD model. Based on the conceptual discussions of these areas that was presented in Chapter Two, specific hypotheses associated with these three research areas will be offered below.

The first research question involves ERC role-identity types. The fundamental question to be answered is: do different ERC role-identity types emerge from the interaction of different levels of environmental concern and susceptibility to normative pressure regarding environmental responsibility?

As discussed in Chapter Two, it appears likely that people who have high levels of environmental concern will like to see themselves as environmentally responsible consumers. In addition, people who are highly susceptible to normative pressure regarding environmental responsibility will like being seen by others as environmentally responsible consumers. This suggests two different types of ERC role-identities: self-oriented (high score on SRI scale) and other-oriented (high score on ORI scale, respectively). Further, some individuals may like to see themselves as environmentally responsible consumers *and* be seen by others that way, resulting in a

self/other-oriented ERC role-identity. Finally, an individual who is neither concerned about the environment nor susceptible to normative pressure regarding environmental responsibility will have no ERC role-identity. In other words, these individuals will not care about seeing themselves as environmentally responsible consumers or about being seen by others that way. Figure 3 depicts these relationships in matrix form.

Based on this discussion, the following research hypotheses are offered. The first hypothesis refers to the "high environmental concern/high SNPER" condition, in which a self/other-oriented ERC role-identity is proposed:

- H1: Individuals with high environmental concern and high susceptibility to normative pressure regarding environmental responsibility will have:
- a. the strongest self-oriented ERC role-identity relative to other groups.
 - b. the strongest other-oriented ERC role-identity relative to other groups.
 - c. levels of self- and other-oriented ERC role-identity that are not significantly different.

The second hypothesis refers to the "high environmental concern/low SNPER" condition, in which a self-oriented ERC role-identity is proposed:

- H2: Individuals with high environmental concern and low susceptibility to normative pressure regarding environmental responsibility will have higher levels of self-oriented ERC role-identity in relation to other-oriented ERC role-identity.

The third hypothesis refers to the "low environmental concern/high SNPER" condition, in which an other-oriented ERC role-identity is proposed:

- H3:** Individuals with low environmental concern and high susceptibility to normative pressure regarding environmental responsibility will have higher levels of other-oriented ERC role-identity in relation to self-oriented ERC role-identity.

The fourth hypothesis refers to the "low environmental concern/low SNPER" condition, in which no ERC role-identity is proposed:

- H4:** Individuals with low environmental concern and low susceptibility to normative pressure regarding environmental responsibility will have:
- a. the weakest self-oriented ERC role-identity relative to other groups.
 - b. the weakest other-oriented ERC role-identity relative to other groups.
 - c. levels of self- and other-oriented ERC role-identity that are not significantly different.

The second research question involves the relationship of different ERC role-identity types to the subjective norm and attitudinal components of behavioral intention. The fundamental question to be answered is: what effect do different ERC role-identity types have on the relative explanatory value of subjective norms and attitudes with respect to behavioral intention toward environmentally responsible actions?

As discussed in Chapter Two, the subjective norms component in the theory of reasoned action involves an individual's beliefs about what significant others think should be done in a behavioral situation and the individual's motivation to comply with those others. The attitudinal component involves an affective response toward the behavior, which is driven by an individual's beliefs about the consequences of an action and the evaluation of those consequences. It is therefore logical that an other-

oriented ERC role-identity should be associated with a strong influence of the subjective norm component, and that a self-oriented ERC role-identity should be associated with a strong influence of the attitudinal component.

Based on this discussion, the following research hypotheses are offered:

- H5a: For individuals with a self-oriented ERC role-identity, the attitudinal component will be a stronger predictor of behavioral intention than the subjective norm component.
- H5b: For individuals with an other-oriented ERC role-identity, the subjective norm component will be a stronger predictor of behavioral intention than the attitudinal component.
- H5c: For individuals with a self/other-oriented ERC role-identity there will be no difference in the relative strength of the subjective norm component and the attitudinal component in predicting behavioral intention.
- H5d: For individuals with no ERC role-identity, there will be no difference in the relative strength of the subjective norm component and the attitudinal component in predicting behavioral intention.

The third research question involves the mediating effect of perceived general influence of action on the relationship between attitudes and behavioral intentions. PGIA is conceptualized as the degree to which an individual believes that his/her individual actions have an influence on some generalized effect. As discussed in Chapter Two, this is an exploratory aspect of the research designed to acknowledge past research involving locus of control, yet offer a reconceptualization that is more relevant to the ERCB context. The following exploratory research hypothesis is offered:

- H6: The relationship between attitudes toward environmentally responsible action and corresponding behavioral intentions will be stronger for those with strong PGIA than for those with weak PGIA.

RESEARCH DESIGN

Several research design options exist for the testing of the hypotheses—a laboratory study, a field study, and survey methodology. Two main factors involved in this research represent important considerations in the selection of a research design. First, the data collection necessary for testing the hypotheses will involve measuring social psychological constructs, such as perceptions, attitudes, and intentions. These measures will all involve multi-item scales. Second, it appears that the testing of the hypotheses will necessitate the collection of data from a large number of subjects (see discussion of sample below). Though a laboratory or field study would also facilitate the completion of multi-item scales, a survey will facilitate the collection of data from a large number of subjects.

Design Implementation

There are several options available for the implementation of a survey—personal interview, telephone, and mail. The choice of a mode of implementation will take into account both the general advantages and disadvantages of the different modes, and the unique issues that arise as a function of the nature of the phenomenon of ERCB. This is consistent with Dillman (1978), who stated that the survey objectives, the population to be surveyed, and the study topic should all be considered in the selection of a survey method.

The most significant issue raised by the study topic is the social desirability associated with environmental responsibility. According to Dillman (1978), face-to-face interviews are most susceptible to social desirability bias, followed by telephone

surveys, and finally mail surveys. However, with mail surveys there is a danger that there would be a response bias that would result in overrepresentation of individuals with higher environmental concern, who might self-select themselves into the sample. This could result in an inadequate representation of individuals with low environmental concern, which would adversely affect the testing of the hypotheses. In sum, the mail questionnaire represents a conflict between issues involved in the study topic (environmental concern) and in the study objectives (assessing the construct at different levels).

There are several other justifications for the use of a telephone survey methodology. Because of the large number of constructs that need to be measured, the questionnaire will be quite lengthy. However, research on environmental topics has recently implemented telephone questionnaires 25-30 minutes in length (Casale 1992). Question sequence will also be important, and can be completely controlled in a telephone survey because it is not self-administered. The instructions for completion of the items will not be complex, and can easily be explained over the telephone.

Sample

Several criteria will influence the adequacy of the sample for this study. Because environmental responsibility is currently an "in" topic that appears to be socially desirable (Kleiner 1991; Petkus 1992a), a sample of considerable size will most likely be needed in order to achieve adequate representation of individuals with low levels of environmental concern. Second, for this same reason, the sample will also need to be considerably heterogeneous.

For these reasons, it is proposed that a nationwide random sample would be most appropriate for this research. This type of sampling is also appropriate for the proposed research methodology, especially with random digit dialing technology.

OPERATIONALIZATION AND MEASUREMENT

Perhaps the most important construct to be measured in this study is environmental concern. This is because (1) the construct is crucial to the testing of *all* the hypotheses, either directly or indirectly, and (2) the construct is subject to social desirability biases.

The environmental concern measure to be used in this study is based on the 9-item environmental concern scale developed in Petkus (1992b). This operationalization is based on conceptually defining environmental concern as the degree to which an individual affectively and cognitively cares about the current and future condition of the environment. As discussed in Chapter Two, the items were generated based on a review and synthesis of past literature on environmental concern measurement, as well as personal interviews and a focus group.

A combination of in-depth interviewing techniques was used. First, two relatively long (approximately one-hour) interviews were conducted. In these interviews, subjects were unaware that the interview was about environmental issues; they were simply asked, "Have your consumption habits changed at all in the past couple of years?" When environmental issues were mentioned by the subjects, the interviewer kept the interview going along these lines for as long as possible, without giving away that that was the true purpose of the interview. Second, 18 "short"

(ranging from 30 seconds to 10 minutes) interviews were conducted at a variety of recycling centers in Knoxville, Tennessee. As they dropped off their recyclables, subjects were approached and asked, "Why are you doing this?" If they mentioned anything that connoted environmental concern, they were asked, "What does being concerned mean to you?" and "How does it make you feel?" All interviews were tape recorded, and transcribed for analysis.

From the analysis, some major themes emerged regarding environmental concern. One was an affective dimension, which involved "bad" feelings about the degradation of the environment and "good" feelings about being environmentally responsible. A second dimension was a sense of caring about and respect for the environment. A third dimension involved responsibility—both individual and generational responsibility for the environment. Based on these themes, and other frequently mentioned factors, scale items were developed to comprise a scale to measure environmental concern.

The focus group was conducted with 7 undergraduate students. The main objective of the focus group was to elicit reactions to the items that had been generated through the interviews. Several modifications to the wording of the items were made based on participant comments. Several versions of the scale were also presented to the researcher's colleagues in a doctoral seminar in measurement, and modifications based on comments there were implemented.

Results ($n=45$) of a paper-and-pencil administration of the scale indicated acceptable internal consistency, with Chronbach's $\alpha=.86$. According to Nunally

(1967), an alpha level of .6 is sufficient in the early stages of basic research. An iterated principal components factor analysis indicated that the items hang together well as a factor (Factor 1 eigenvalue = 4.56; no other eigenvalue greater than 1.00). The telephone version of the environmental concern scale is shown in Appendix 1.

The second important set of measures for the testing of the hypotheses about different ERC role-identity types involves the operationalization of susceptibility to normative pressure regarding environmental responsibility. As discussed earlier, the construct has been operationalized as follows:

$$\text{SNPER} = (\text{CA}) * (\text{SOER} + \text{ERSD})$$

where:

SNPER=	susceptibility to normative pressure regarding environmentally responsible behavior
CA=	concern for appropriateness
SOER=	extent to which significant others are perceived to be environmentally responsible
ERSD=	extent to which environmental responsibility is perceived to be socially desirable

The first construct that is involved in the operationalization of SNPER is Lennox and Wolfe's (1984) concern for appropriateness (CA) scale. The CA scale consists of two subscales, cross-situational variability (7 items) and attention to social comparison information (13 items). However, it is argued that the entire 20-item CA scale is neither necessary nor appropriate for this study. Items from both subscales will be chosen to reflect the aspects of these subscales that are most appropriate to the operationalization of SNPER. There are 3 items from the cross-situational variability subscale that are relevant for the purposes of the operationalization. These items

involve people having different impressions of the person, which (as discussed earlier) represents the contribution of this subscale to the operationalization of SNPER. The ATSCI subscale provides 4 items that reflect the social anxiety that represents the contribution of this subscale to the operationalization of SNPER. Also, this subscale includes items related to fashion and slang that are deemed inappropriate from the standpoint of face validity, and contains items that are simply re-worded versions of the same idea. In sum, a 7-item concern for appropriateness scale has been extracted from the original Lennox and Wolfe (1984) scale (see Appendix 2).

The second construct involved in the operationalization of SNPER is the degree to which significant others are perceived as environmentally responsible. This construct has not been measured in previous research. Therefore, a 3-item scale has been developed specifically for this research by generating items based on the conceptualization (see Appendix 3).

The final construct involved in the operationalization of SNPER is the degree to which environmental responsibility is perceived to be socially desirable. Again, this construct has not been measured in previous research. Therefore, a 3-item scale has been developed specifically for this research by generating items based on the conceptualization (see Appendix 4).

The measurement of role-identities in the literature has often focused on the assessment of role-identities in contrast to counter-role-identities (e.g., Burke & Tully 1977) or to distinguish between roles (e.g., Burke & Reitzes 1981). Other measures have assumed the existence of role-identities and focused the measurement efforts on

salience and commitment (e.g., Callero 1985; Jackson 1981). As mentioned earlier, no empirical work has examined the ERC role-identity in particular. In addition, this study will focus on the identification of different types of ERC role-identities, which again has not been attempted in past research. For these reasons, scale items that reflect both self- and other-oriented ERC role-identities have been developed specifically for this study. All four items retain the basic spirit of the definition of role-identity: people's imaginative views of themselves as they like to think of themselves being and acting as occupants of particular social positions (McCall and Simmons 1978). However, two of the items are specifically designed to assess the other-oriented ERC role-identity. The items are shown in Appendix 5.

The second group of hypotheses to be tested in this study involves the differential weighting of subjective norms and attitudes in driving behavioral intention. Measures of attitudes, behavioral intentions, and subjective norms are well-established in the literature. These items have been adapted for use in a telephone survey.

Attitudes, subjective norms, and behavioral intentions are measured with respect to specific behaviors. Three behaviors are considered in this research: recycling batteries, buying products that use chloroflourocarbon (CFC) substitutes, and buying an electric car. Though these behaviors were chosen by the client companies of the firm that assisted in the implementation of the study, they are very appropriate to the objectives of the study. All three represent environmentally responsible consumer behaviors. They also correspond with the currently relevant environmental issues of toxic waste/landfill overflow, ozone depletion, and air pollution/global

warming, respectively. In addition, these behaviors are not the most common environmentally responsible actions, which may minimize familiarity effects. Finally, that these behaviors are of interest to actual firms is encouraging because it enhances confidence in the practical relevance of this research. The attitude, behavioral intention items corresponding to these behaviors appear in Appendix 6.

The final construct to be measured is PGIA. The operationalization to be used here for PGIA is based on the original operationalization of locus of control is found in Rotter (1966). Rotter's measure involves 29 forced-choice items. Three items that are relevant for the PGIA construct were adapted for the PGIA construct from forced-choice items used by Rotter. The items are shown in Appendix 7.

Question Order

As mentioned earlier, the order of the items in this study is important. Fundamentals of survey methodology indicate that question order should be structured so that the questions run from most general to most specific (Churchill 1989). For this reason, the general items about environmental concern should come before the items that assess perceptions about environmental responsibility and social desirability, followed by the items that involve attitudes, subjective norms, and intentions toward specific behaviors. In addition, Dillman (1978) suggests that questions that are similar in content be grouped together, and that question order should take advantage of any cognitive ties that respondents may be likely to make among topics. This supports the general-to-specific ordering of the items in the questionnaire that involve environmentally related constructs.

However, the items that do not involve environmental topics can be used in this survey to "buffer" the responses to the more specific environmental items from the responses to the more general items. Though Dillman (1978) asserts that this is not always necessary, and that the cognitive ties may provide more continuity, he does acknowledge that certain survey topics will require compromises regarding the application of question-ordering guidelines. Because of the social desirability associated with this research topic, it seems that some buffering is appropriate. The two scales that do not address environmental issues are the PGIA scale and the concern for appropriateness scale. Because of the importance of the environmental concern and ERC role-identity scales, the PGIA scale was used to buffer them. Likewise, the concern for appropriateness scale was used to buffer the behavioral intention items because they are important as the dependent variables. Therefore, in line with the above discussion, the ordering of the items in the questionnaire will be as follows:

1. environmental concern scale
2. PGIA scale
3. ERC role-identity scale
4. environmental responsibility of significant others scale
5. social desirability of environmental responsibility scale
6. attitude items
7. subjective norm items
8. concern for appropriateness scale
9. behavioral intention items

It is proposed that this ordering represents an effective compromise between maintaining cognitive ties within and across questionnaire topics, and recognizing the special concerns about social desirability that are relevant to the research topic.

Although study respondents will be asked other items in addition to the ones for use in this study, this ordering will be maintained in the final questionnaire. In addition, the use of telephone implementation will facilitate full control over the order in which the respondents answer the items.

Pre-testing of Measures

A two-stage pre-testing process has been implemented. A preliminary pre-test was conducted by the researcher. The purpose of this preliminary pre-test was to determine respondent's reactions to items and scales. A total of 40 calls were made; however, 10 of these were terminated, 7 by respondents and 3 by the researcher. In about two-thirds of the completed calls, respondents were asked to react to the items. This resulted in the identification of unclear or confusing items, and difficulties with scale anchors. An iterative process was used, i.e., items were continually modified based on responses. The rest of the calls were conducted as real interviews, where the entire questionnaire was administered. This allowed an assessment of the flow of the questionnaire and an estimate of questionnaire length. The preliminary pre-testing was conducted on a local sample, with phone numbers chosen randomly from the telephone book.

The second stage of the pre-testing was conducted as a "dress rehearsal"—a small ($n=40$) version of the actual study, conducted on a random sample of residents of Knox County, Tennessee. A local research firm was commissioned to administer this pre-test. Modifications in the scales based on the preliminary pre-testing were

reflected in the pre-test questionnaire. This pre-test enabled assessment of reliabilities and factor structures with a sample that was analogous to the actual sample.

The results of the pre-test are shown in Tables 1 (internal consistency) and 2 (factor analysis). The only scale which had an unacceptable internal consistency (again, using the Nunally (1967) standard) was the ERSD scale (degree to which environmental responsibility is perceived to be socially desirable) with $\alpha=.54$. The analysis indicated that the correlation with the total for Item 2 ("Most of the general public is environmentally responsible") was only .064. Coefficient α for the scale with Item 2 removed increases to $\alpha=.84$. As shown in Table 2, the factor loading (on a single factor) for Item 2 is only .15. The pre-test results thus suggest that Item 2 should be removed from the analysis. This conclusion is supported by an examination of the content of Item 2 in relation to the other items in the scale (see Appendix 4). Whereas Items 1 and 3 explicitly refer to social acceptability and correctness, Item 2 does not. Indeed, item 2 does not assess the degree to which environmental responsibility is perceived to be socially desirable. Therefore, Item 2 was removed from the scale.

Based on the encouraging pre-test results shown in Tables 1 and 2, all other scales were kept intact for the actual study.

STUDY PROCEDURE

The scales described above were incorporated into a questionnaire to be administered by Environmental Research Associates. ERA, based in Princeton, New Jersey, is a research firm specializing in environmental research. ERA administers

Table 1: Pre-test: internal consistency of the measures.

Scale	# of Items	Coefficient α
EC	9	.97
SOER	3	.85
ERSD*	3	.54
CA	7	.93
SRI	2	.89
ORI	2	.91
PGIA	2	.79

*alpha with item 2 removed = .84

Table 2: Pre-test: factor structure of the scales.

Scale/Items	Factor Loadings	Eigenvalue(s)
<u>Environmental Concern</u>		7.15
EC1	0.87	
EC2	0.84	
EC3	0.91	
EC4	0.91	
EC5	0.92	
EC6	0.90	
EC7	0.86	
EC8	0.94	
EC9	0.87	
<u>Sign. Other Envir. Resp.</u>		2.32
SOER1	0.87	
SOER2	0.91	
SOER3	0.86	
<u>Envir. Resp. Social Desir.</u>		1.73
ERSD1	0.92	
ERSD2	0.15	
ERSD3	0.93	
<u>Concern for Appropriateness</u>		4.90
CA1	0.87	
CA2	0.87	
CA3	0.91	
CA4	0.85	
CA5	0.61	
CA6	0.86	
CA7	0.84	

Table 2: (cont.)

Scale/Items	Factor Loadings	Eigenvalue(s)
<u>Self-Oriented Role-Id.</u>		1.73
SRI1	0.90	
SRI2	0.90	
<u>Other-Oriented Role-Id.</u>		1.69
ORI1	0.92	
ORI2	0.92	
<u>Perc. Gen. Infl. of Action</u>		1.77
PGIA1	0.88	
PGIA2	0.88	

quarterly telephone surveys that examine public perceptions of environmental issues, behaviors associated with environmental responsibility, and other information that is useful for managers in making green marketing decisions. ERA is currently the largest (based on number of clients served) commercial environmental research firm in the United States.

The survey was administered to a nationwide (all 50 states) random sample of 705 adults in July 1992. A day-before pretest ($n=50$) was conducted to ensure that the questions work smoothly, and to assess questionnaire length and other administrative data. The interviews were conducted by professionally trained telephone interviewers, and were fully supervised.

The questionnaire was formatted into a computer-assisted telephone interviewing (CATI) system by ERA professionals. Interviewers conducted the interviews through headset/mouthpiece apparatus that enabled them to record responses directly into the computer. This makes data collection more efficient and eliminates the need to transfer of data from hard-copy questionnaires into the computer, thus reducing transcription errors. Use of the CATI system represents the state-of-the-art in telephone interviewing.

Again, the scales and items to be used in this study were be incorporated into a larger questionnaire that will include additional items not intended for use in this study. However, as discussed earlier, the order of the questions for this study was maintained. In addition, ERA agreed to give this researcher final word on the ordering of the *entire* questionnaire. There were no problems with the ordering.

Data Analysis Plan

Hypotheses 1-4: H1-H4 are predictions involving different ERC role-identity types, based on variations in environmental concern and susceptibility to normative pressure regarding environmental responsibility (see Figure 3). The data analysis for these hypotheses will involve separating respondents based on these variations.

Analysis of variance and paired comparisons regarding the components of ERC role-identity will then be performed to test the hypotheses.

Hypothesis 5: H5a-H5d are predictions involving the differential predictive value of attitudes vs. subjective norms in the formation of behavioral intentions under different ERC role-identity conditions (see Figure 4). The data analysis for these hypotheses will involve the assessment of tests of significant difference (H5a and H5b) or no difference (H5c and H5d) between the correlations between attitudes and behavioral intentions and subjective norms and behavioral intentions. The dependent variable in each case will be behavioral intention, and the independent variables will be attitude and subjective norms.

Hypothesis 6: H6 involves the relationship between attitudes toward environmentally responsible action and corresponding behavioral intentions under strong PGIA vs. weak PGIA. Data analysis will involve separating respondents into appropriate PGIA categories and running a nested regression to test for significant differences in the attitude-behavioral intention relationship between strong vs. weak PGIA conditions.

CHAPTER FOUR

RESULTS OF THE STUDY

The analysis of results in this study involved an interesting interaction between psychometrics and hypothesis testing. As is discussed in more detail later in this chapter, the psychometric properties of the self- and other-oriented role-identity constructs necessitated a re-thinking of the hypotheses to be tested. This process of "conference" between empirical result and theoretical conceptualization resulted in a set of robust results that, while interesting and important in their own right, also serve to spark future research in this area.

THE SAMPLE

As discussed in Chapter Three, Environmental Research Associates employs Interviewing Service of America, Van Nuys, California, for its telephone interviewing and sample generation. Interviewing Service of America uses the GENESYS computer package for generating random digit dialing telephone samples. The GENESYS system provides a single-stage sample of residential telephone numbers. It ensures an equal and known probability of selection for all residential telephone numbers in the country. (Note: Because approximately 7% of telephone households are served by more than one number, equal selection probability for *households* cannot be completely guaranteed). The geographic representation of this single-stage sampling procedure is facilitated by a Master Exchange Database whose structure

contains 18 strata—nine census divisions, each census division is divided into metro and non-metro county divisions.

The final sample for this study consists of 705 adults. The basic demographic structure of the sample (sex, age, income, and region) is reported in Table 3.

THE MEASURES

As discussed in Chapter Three, the constructs measured in this study were: environmental concern (EC), perceived environmental responsibility of significant others (SOER), perceived social desirability of environmental responsibility (ERSD), concern for appropriateness (CA), self- and other-oriented dimensions of environmentally responsible consumer role-identity (SRI and ORI respectively), attitude toward the action, subjective norm regarding the action, behavioral intention toward the action, and perceived general influence of action (PGIA). SOER, ERSD, and CA were mathematically combined to operationalize the "susceptibility to normative pressure regarding environmental responsibility" (SNPER) construct.

In addition, attitudes (ATT), subjective norms (SUB), and behavioral intentions (BI) were measured for three different behaviors: recycling batteries (BAT), buying products that use chloroflourocarbon (CFC) substitutes, and buying an electric car (CAR). These measures will not be treated as aggregate attitude, subjective norm, and behavioral intention scales because they each showed low internal consistency ($\alpha=.31$, $.51$, and $.41$, respectively). Therefore, most analyses that involve these variables will be performed for each behavior separately.

Table 4 summarizes the basic properties of the measures. Means, standard

Table 3: Basic demographic structure of the sample.

Demographic Group	% of Sample
<u>Sex</u>	
Male	49
Female	51
<u>Age</u>	
18-25	15
26-35	23
36-45	24
46-55	15
56+	20
NR	3
<u>Income</u>	
Under \$15,000	13
\$15-24,999	12
\$25-34,999	17
\$35-49,999	17
\$50-74,999	13
\$75,000+	9
NR	19
<u>Region</u>	
Pacific	19
Mountain	11
North Central	17
South Central	17
South Atlantic	17
Mid-Atlantic	13
New England	6

Table 4: Basic properties of the measures.

Variable	Mean	Std. Dev.	Median	Range
EC	1.76	0.50	1.67	1-4
SOER	2.19	0.91	2.00	1-5
ERSD	1.63	0.74	1.50	1-5
CA	3.19	0.88	3.14	1-5
SNPER	12.31	6.06	11.20	2-50
SRI	4.16	0.76	4.00	1-5
ORI	3.78	1.03	4.00	1-5
PGIA	3.74	1.07	4.00	1-5
ATTBAT	4.20	0.98	4.00	1-5
ATTCFC	3.93	1.23	4.00	1-5
ATTCAR	3.30	1.33	4.00	1-5
SUBBAT	3.73	1.08	4.00	1-5
SUBCFC	3.87	1.19	4.00	1-5
SUBCAR	2.90	1.24	3.00	1-5
BIBAT	3.02	1.05	3.00	1-4
BICFC	3.14	0.99	3.00	1-4
BICAR	2.42	1.02	2.00	1-4

deviations, medians, and range of responses are reported. Though it is not a measure per se, the basic properties of the SNPER construct are also reported in Table 4. It should also be noted that EC is reversed scored throughout (i.e., a high score indicates low environmental concern).

Internal consistency (coefficient α) of the scales is reported in Table 5. All scales indicate acceptable levels of internal consistency for this type of basic research (Nunally 1967). Comparison with Table 1 shows that the internal consistency of the measures dropped in the actual study relative to the pretest. This may be due to an increase in the variance due to person-item interaction in the larger sample (Rentz 1993).

A factor analysis was also performed. In this analysis were included all items that were part of a scale, i.e., the attitude, subjective norm, and behavioral intention items were excluded, because the intention was to assess the degree to which the various scales hung together and loaded on different factors from one another. Details of the factor analysis are reported in Table 6.

IMPLICATIONS OF THE FACTOR ANALYSIS AND SUBSEQUENT ANALYSIS STRATEGY

As Table 6 indicates, there is some ambiguity as to the factor structure of the SOER and ERSD scales; however, because they are part of the mathematical operationalization of SNPER, and they do load differentially from other constructs, this is not considered problematic for the analysis. The CA scale results are also ambiguous, appearing to load on two factors. To examine this scale further, a factor analysis was performed on the seven CA items exclusively. The results showed a dual

Table 5: Internal consistency of the measures.

Scale	# of Items	Coefficient α
EC	9	.87
SOER	3	.79
ERSD	2	.59
CA	7	.72
SRI	2	.67
ORI	2	.75
PGIA	2	.62

Table 6: Results of factor analysis.

Item	Rotated Factor Pattern					
	F1	F2	F3	F4	F5	F6
EC1	.71	-.22	.08	-.03	.03	-.1
EC2	.68	-.03	.02	.00	-.04	-.15
EC3	.54	-.36	-.10	-.14	-.04	-.01
EC4	.60	-.18	-.09	-.07	.16	.02
EC5	.63	.01	-.01	.01	.11	-.01
EC6	.75	-.17	.02	.02	.11	-.07
EC7	.71	-.05	-.06	.12	-.09	.00
EC8	.71	-.13	.02	-.03	.09	-.06
EC9	.72	-.12	.00	.05	.07	-.03
SRI1	-.26	.74	.01	.01	-.05	.09
SR12	-.41	.63	-.05	.11	-.04	.14
ORI1	-.24	.74	-.15	.17	.03	.11
ORI2	-.28	.59	-.33	.29	.15	.07
PGIA1	-.15	.08	.01	-.08	-.08	.85
PGIA2	-.10	.17	-.07	.03	-.03	.84

Table 6: (continued)

Item	Rotated Factor Pattern					
	F1	F2	F3	F4	F5	F6
SOER1	.07	-.69	-.05	.10	.36	.06
SOER2	.05	-.76	-.15	.07	.23	-.03
SOER3	.03	-.56	-.08	.15	.41	-.17
ERSD1	.12	-.17	.20	-.11	.73	-.02
ERSD2	.15	-.21	-.08	.01	.76	-.08
CA1	.01	.10	.41	.62	.06	.01
CA2	-.01	.04	.52	.56	.01	-.01
CA3	.02	-.03	.05	.78	-.09	-.05
CA4	-.02	.04	.64	.07	.11	.04
CA5	.01	-.08	.63	-.02	-.04	-.02
CA6	-.02	.05	.73	.17	-.06	-.09
CA7	-.01	-.01	.73	.10	.04	-.03

factor structure (two factors with eigenvalues greater than 1.0). However, the only item that loaded strongly on the second factor was CA3. Examination of the content of this item indicated that it differed from the other items in that it addressed one's perceptions about others as opposed to the self (see Appendix 2). Therefore, CA3 was removed from the analysis.

The EC and PGIA scales load nicely on single factors. However, the results of the factor analysis regarding the self-oriented and other-oriented ERC role-identity scales have extreme implications for the analysis. As indicated in Table 6, all four items load on a single, distinct factor. *The distinction between self-oriented and other-oriented aspects of role-identity appears to be artificial*, at least in the context of environmentally responsible behavior.

Because it appears that the "self vs. other" conceptualization is inappropriate, it is very important to consider the factors that may have led the conceptualization astray. There appeared to be literature support for the distinction of the self-oriented and other-oriented role-identity constructs. As discussed earlier, that notion has been developed in the topical areas of both self and identity. In the context of self, Turner (1978) offers empirical support for the distinction between private and public self-consciousness. Sirgy (1982) refers to a multidimensional self-concept that includes actual self-image, ideal self-image, social self-image, and ideal social self-image. Nasby (1989) found that self-schemata have both public and private components.

In the context of identity and role-identity, both self and "other" considerations are incorporated in the conventional and idiosyncratic elements of role-identities

(McCall & Simmons 1978). Buss (1980) made connections between the social and personal aspects of identities and public vs. private self-consciousness, respectively. Schlenker and Weigold (1990) found that the self-identifications of privately self-conscious individuals focused on autonomy and personal identity, while those of publicly self-conscious individuals emphasized conformity, social identity, and social anxieties. Identities have been found to include both personal and social aspects, though people differ in the relative importance of personal versus social components of their identities (Cheek & Briggs 1982; Leary, Wheeler, & Jenkins 1986; Sampson 1978). Mainous (1989) found that role-identities involve feelings of "insiderness" vs. "outsiderness" with respect to acculturation.

It is interesting to note that the interpretation of this literature, derived mostly from research in social and consumer psychology, led the conceptualization away from the most fundamental premise of *sociologically* based symbolic interactionism: that the *self* is defined and created as a function of its *social* meaning (e.g., Cooley 1902; James 1892; McCall & Simmons 1978; Mead 1934). Indeed, because it is based on the symbolic interactionist perspective, McCall and Simmons (1978) definition of role-identity includes both a self-related or personal aspect and a social or interpersonal aspect. It should be emphasized: this is not to say that the aforementioned studies were "wrong" in their assertions—it appears that it was the *interpretation* of what these studies meant for the structure of the role-identity construct was misguided.

The lesson illustrated by the conceptualization problem that occurred here is a basic one: the "forest" (fundamental assumptions and premises of a theoretical

perspective) cannot be forsaken for the "trees" (individual studies that, while related to or based on the theoretical perspective, are far less comprehensive and overreaching).

Thus, the interaction of empirical result from the factor analysis and re-examination of theory precipitated a major shift in thinking. Hypotheses 1-5 represented both the *hierarchical* structure of the HSBD model and the structure of the model *within* each level. The process of re-thinking resulted in a complete loss of confidence in the conceptualization of the structure of the HSBD model within Level 2. However, it did not undermine the confidence in the hierarchical structure of the HSBD model—the dynamics that operated *across* levels. A revision of the HSBD model based on this process is depicted in Figure 11. The main difference between the revised HSBD model (Figure 11) and the original HSBD model (Figure 2) is, naturally, the unidimensional ERC role-identity construct at Level 2.

This conceptual re-thinking in turn necessitates a re-thinking about the data analysis. First, the properties of the unidimensional ERC role-identity (RI) construct should be examined. Table 7 shows the basic properties of the RI construct, which shows an acceptable level of coefficient alpha (Nunnally 1967). Second, it is now inappropriate to test some of the hypotheses that were delineated in Chapter Three, because any hypothesis that examines differences in, or due to, self- vs. other-oriented ERC role-identities is no longer valid.

Hypotheses 1-4 involve predictions regarding the effect of environmental concern and susceptibility to normative pressure on the ERC role-identity construct:

- H1: Individuals with high environmental concern and high susceptibility to normative pressure regarding environmental responsibility will have:

Table 7: ERC role-identity construct: basic properties

Property	Value
Mean	3.97
Std. Dev	0.79
Median	4.00
Coeff. α	.81
<u>Factor Structure</u>	
SRI1	.77
SRI2	.79
ORI1	.87
ORI2	.77
Eigenvalue	2.56

- a. the strongest self-oriented ERC role-identity relative to other groups.
 - b. the strongest other-oriented ERC role-identity relative to other groups.
 - c. levels of self- and other-oriented ERC role-identity that are not significantly different.
- H2: Individuals with high environmental concern and low susceptibility to normative pressure regarding environmental responsibility will have higher levels of self-oriented ERC role-identity in relation to other-oriented ERC role-identity.
- H3: Individuals with low environmental concern and high susceptibility to normative pressure regarding environmental responsibility will have higher levels of other-oriented ERC role-identity in relation to self-oriented ERC role-identity.
- H4: Individuals with low environmental concern and low susceptibility to normative pressure regarding environmental responsibility will have:
- a. the weakest self-oriented ERC role-identity relative to other groups.
 - b. the weakest other-oriented ERC role-identity relative to other groups.
 - c. levels of self- and other-oriented ERC role-identity that are not significantly different.

Considering the revised HSBD model, H1c, H2, H3, and H4c can no longer be tested, because they involve self-oriented vs. other-oriented considerations. However, the Level 1 to Level 2 dynamics in the HSBD model (see Figure 11) that are inherent in Hypotheses 1a, 1b, and 4a, 4b can still be tested. The original conceptualization of the HSBD model held that both EC and SNPER would influence role-identities.

Combining that conceptualization with the undifferentiated role-identity construct produces the following: people with high EC and high SNPER will have the strongest

ERC role-identity; people with high EC and low SNPER (and low EC and high SNPER) will have moderate ERC role-identity strength; and people with low EC and low SNPER will have the weakest ERC role-identity. This dynamic, which operates from Level 1 to Level 2 in the revised HSBD model, can still be examined by testing H1a and H1b as a combination and H4a and H4b as a combination. For example, the combination of H1a and H1b becomes "people with high EC and high SNPER will have the strongest ERC role-identity," which serves to translate the self vs. other considerations in the two subhypotheses into a single hypothesis that addresses the unidimensional ERC role-identity construct. In the interest of simplicity, the H1 conditions (high EC/high SNPER) will hereon be referred to as Cell 1, the H2 conditions (high EC/low SNPER) as Cell 2, the H3 conditions (low/high) as Cell 3, and the H4 conditions (low/low) as Cell 4. Based on the hypotheses, we would expect a pattern of ERC role-identity means for the four cells to appear as follows: Cell 4 > Cell 3 = Cell 2 > Cell 1. Table 8 shows the ERC role-identity means for the different EC/SNPER conditions. Analysis of variance (including Bonferroni paired comparisons) showed that this pattern holds (@ $\alpha=.001$). Therefore, the hypothesized relationships between Level 1 (EC, SNPER) and Level 2 (ERC role-identity) in the revised HSBD model are supported.

Recall Hypothesis 5, stated as follows:

H5a: For individuals with a self-oriented ERC role-identity, the attitudinal component will be a stronger predictor of behavioral intention than the subjective norm component.

Table 8: ERC role-identity means for EC/SNPER cells.

Cell (EC/SNPER)	ERC Role-Identity Mean
4 (high/high) (n=132)	4.37a
3 (high/low) (n=85)	4.10b
2 (low/high) (n=216)	3.88b
1 (low/low) (n=267)	3.50c

F-statistic = 47.3 ($p < .0001$)

$R^2 = .169$

means with same letter are not significantly different at $\alpha = .05$.

- H5b: For individuals with an other-oriented ERC role-identity, the subjective norm component will be a stronger predictor of behavioral intention than the attitudinal component.
- H5c: For individuals with a self/other-oriented ERC role-identity there will be no difference in the relative strength of the subjective norm component and the attitudinal component in predicting behavioral intention.
- H5d: For individuals with no ERC role-identity, there will be no difference in the relative strength of the subjective norm component and the attitudinal component in predicting behavioral intention.

Clearly, H5a and H5b cannot be tested because these subhypotheses involve self-oriented and other-oriented ERC role-identities, respectively. At first glance, it appears that H5c and H5d may be testable within the context of the revised HSBD model. However, recall that self/other-oriented role-identity is defined as "high self-oriented and high other-oriented" and the "no ERC role-identity" condition is defined as low in both. These conditions are neither conceptually nor empirically equivalent to a strong ERC role-identity vs. weak ERC role-identity continuum. Therefore, H5c and H5d cannot be tested in the context of the revised HSBD model.

This raises the question: are there hypotheses that *can* be tested to address the dynamics operating from Level 2 to Level 3 in the revised HSBD model? Based on the role-identity model (McCall & Simmons 1978), role-identity strength should have an influence on attitudes and behavioral intentions toward actions that are relevant to the nature of the role-identity. This is grounded in the conceptual notion that role performances (actions) are designed to elicit role support (from oneself and from others) for the given role-identity, and therefore attitudes and behavioral intentions toward such actions should thus be positively correlated with the strength of that role-

identity. For example, if a person likes to be seen by him/herself and by others as an environmentally responsible consumer, that person's attitude toward environmentally responsible actions (which the person should perceive as likely to elicit role support for the ERC role-identity) should be positive. Therefore, the following hypotheses are offered:

- H5f: People with strong ERC role-identity will have stronger positive attitudes toward environmentally responsible actions than people with weak ERC role-identity.
- H5g: People with strong ERC role-identity will have stronger behavioral intention toward environmentally responsible actions than people with weak ERC role-identity.

To test H5f and H5g, subjects were split into strong vs. weak ERC role-identity groups based on the scale. Table 9 shows the means for the three attitudes under the strong vs. weak role-identity conditions. For recycling batteries and buying and electric car, subjects with strong ERC role-identity had significantly stronger positive attitudes. Though the means for buying CFC substitutes were in the hypothesized direction, they were not significantly different. Therefore, Hypothesis 5f was partially supported.

To test H5g, subjects were again split into strong vs. weak ERC role-identity groups based on the scale. Table 10 shows the means for the three behavioral intentions under the strong vs. weak role-identity conditions. For all three behaviors, subjects with strong ERC role-identity had stronger behavioral intentions, significant at $p < .0001$. Therefore, Hypothesis 5g was supported.

Because it appears inappropriate to designate a "self vs. other" dimension, any

Table 9: Analysis of variance results: attitudes under strong vs. weak ERC role-identity conditions (Hypothesis 5f).

Attitude toward:	Mean Aact under:		Comparison F(p)
	Strong ERC Role-Identity (n=574)	Weak ERC Role- Identity (n=124)	
Recycle batteries	4.39	3.64	22.4 (.0001)
Buy CFC substitutes	3.95	3.78	1.5 (.2195)
Buy electric car	3.37	2.82	14.4 (.0002)

R²:

Recycle batteries = .217

Buy CFC substitutes = .003

Buy electric car = .191

Table 10: Analysis of variance results: behavioral intentions under strong vs. weak ERC role-identity conditions (Hypothesis 5g).

Behavioral Intention	Mean BI under:		Comparison F(p)
	Strong ERC Role-Identity (n=574)	Weak ERC Role- Identity (n=124)	
Recycle batteries	3.09	2.57	20.5 (.0001)
Buy CFC substitutes	3.21	2.69	22.4 (.0001)
Buy electric car	2.47	2.03	14.6 (.0001)

R²:

Recycle batteries = .029

Buy CFC substitutes = .031

Buy electric car = .021

prediction regarding differential predictive strength *between* attitudes and subjective norms would be in turn inappropriate. Also, there is no theoretical justification for hypothesizing a direct effect of ERC role-identity strength on strength of subjective norm (as was done with attitudes in H5f). This is because subjective norms represent a person's *beliefs* about significant others. These beliefs can be held independent of the person's level of self-schema, SNPER, and, in turn, ERC role-identity strength.

Finally, Hypothesis 6 was an exploratory hypothesis that involves the relationship between attitudes toward environmentally responsible actions and corresponding behavioral intention under different levels of perceived general influence of action (PGIA), the degree to which a person perceives that his/her individual actions will have generalized effects:

- H6: The relationship between attitudes toward environmentally responsible actions and corresponding behavioral intentions will be greater for those with strong PGIA than for those with weak PGIA.

To test H6, nested regression analyses were performed to examine the differential correlations between attitudes and behavioral intentions under strong vs. weak PGIA conditions. The results of these nested regressions are reported in Table 11. Results were mixed. The Aact-BI correlation for recycling batteries is significantly greater under strong PGIA conditions. This supports the hypothesis. However, as shown in the table, the Aact-BI correlations for buying CFC substitutes and buying an electric car were significantly greater under weak vs. strong PGIA conditions.

Table 11: Attitude-behavioral intention relationship under strong vs. weak PGIA conditions: (Hypothesis 6).

Behavioral Intention	A-BI Correlation		Comparison F(p)
	Strong PGIA (n=458)	Weak PGIA (n=238)	
Recycle batteries	.288	.177	22.8 (.0001)
Buy CFC substitutes	.473	.539	104.2 (.0001)
Buy electric car	.665	.697	278.1 (.0001)

R²:

Recycle batteries = .065

Buy CFC substitutes = .240

Buy electric car = .463

Supplementary Results

In addition to the tests of hypotheses described above, additional analyses were performed. These analyses addressed two issues: some exploratory findings regarding the revised HSBD model, and the effects of demographic factors.

In order to gain some insight as to how the results corresponded to the overall hierarchical structure of the HSBD model, three forward stepwise regressions were run, one with each behavioral intention (BIBAT, BICFC, and BICAR) as the dependent variable and EC, SNPER, RI, and the corresponding attitude (ATTBAT, ATTCFC, and ATTCAR) and subjective norm (SUBBAT, SUBCFC, and SUBCAR) as the independent variables. In addition, a fourth stepwise regression was run treating each set of attitude, subjective norm, and behavioral intention items as aggregate scales (ATT, SUB, AND BI). (Note: Though the internal consistencies are low when these are treated as scales, if more than just three behaviors had been measured, the internal consistencies would probably have been higher. Therefore, for the "supplemental" purposes here, exploring these dynamics does not cause discomfort.) The results of these regressions are reported in Table 12.

These results indicate tentative support for the overall hierarchical structure of the HSBD model. Based on the HSBD model, we would expect attitudes and subjective norms to be the strongest predictors of behavioral intentions, followed by the ERC role-identity, and finally EC and SNPER. Two of the four analyses, buying an electric car and the aggregate analysis, show this pattern exactly. The analyses for recycling batteries and buying CFC substitutes show a trend towards the pattern. It is

Table 12: Summary of forward selection stepwise regressions.

Beh. Intention	Variable	F	p	Partial R ²	Model R ²
Rec. batteries	SUBBAT	87.6	.0001	.124	.171
	EC	18.8	.0001	.026	
	ATTBAT	8.8	.0031	.012	
	RI	6.2	.0130	.008	
	SNPER		p<.05		
Buy CFC sub.	ATTCFC	192.7	.0001	.233	.334
	SUBCFC	77.5	.0001	.084	
	SNPER	12.2	.0005	.013	
	RI	3.94	.0476	.004	
	EC		p<.05		
Buy el. car	ATTCAR	576.1	.0001	.482	.534
	SUBCAR	61.8	.0001	.047	
	RI	6.32	.0121	.005	
	EC		p<.05		
	SNPER		p<.05		
Aggregate	ATT	331.3	.0001	.327	.427
	SUB	90.0	.0001	.079	
	RI	24.5	.0001	.021	
	EC		p<.05		
	SNPER		p<.05		

especially encouraging that the ERC role-identity is a significant predictor in all four analyses.

In addition, a regression involving the aggregate ATT, SUB, and BI "scales" was run with BI as the dependent variable. The R-squared for this regression model was .385, compared to .429 for the overall aggregate model described above. This indicates support for the hierarchical structure of the HSBD model, because it appears that EC, SNPER, and RI have a small direct effect on intentions and potentially a greater indirect effect, operating through attitudes and subjective norms.

To examine demographic effects, we can first see whether or not there are any differences in the main variables of the study for different demographic groups. Analysis of variance was performed on EC, SNPER, RI, attitudes, subjective norms, behavioral intentions, and PGIA for the various categories of sex, age, income and region. Tables 13 through 16 report the means for those variables that showed significant (at $\alpha=.05$) differences across categories of demographic variables (sex, age, income, and region, respectively). If the overall analysis of variance for the demographic variable was significant, pairwise comparisons (again at $\alpha=.05$) were performed to examine the effects in detail. The results of the pairwise comparisons (Bonferroni) are also reported in Tables 14 through 16.

Females were found to have stronger environmental concern, ERC role-identities, and perceived general influence of action than males. Males had more favorable attitudes toward recycling batteries and buying CFC substitutes, and had stronger behavioral intentions toward buying CFC substitutes, than did females.

Table 13: Sex differences for key variables.

Variable	Means		F(p)
	Male	Female	
EC	1.84	1.68	19.4 (.0001)
RI	3.88	4.05	6.98 (.0184)
ATTBAT	4.28	4.12	4.65 (.0313)
ATTCFC	4.04	3.82	5.10 (.0243)
BICFC	3.24	3.05	5.92 (.0152)
PGIA	3.65	3.85	5.96 (.0149)

Table 14: Age differences for key variables.

Age Category	Variable Means		
	EC	RI	BIBAT
18-25	1.66 a	3.85 a	2.79 a
26-35	1.72 ab	3.96 ab	3.07 bc
36-45	1.71 a	3.90 a	3.15 c
46-55	1.90 c	3.98 ab	3.11 bc
56+	1.82 bc	4.13 b	2.90 ab

For each variable, means with same letter designation are not significantly different from one another ($\alpha=.05$).

Table 15: Income level differences for key variables.

Income Level	Variable Means		
	EC	SNPER	RI
1	1.76 ab	11.35 a	3.98 a
2	1.70 a	12.11 a	4.04 a
3	1.67 a	11.87 a	4.02 a
4	1.86 b	12.60 a	3.92 a
5	1.71 a	11.81 a	4.02 a
6	1.88 b	15.03 b	3.61 b

Income Levels:

1 = under \$15,000

2 = \$15-24,999

3 = \$25-34,999

4 = \$35-49,999

5 = \$50-74,999

6 = \$75,000+

For each variable, means with same letter designation are not significantly different from one another ($\alpha=.05$).

Table 16: Regional differences for key variables.

Region	Variable Means		
	EC	ATTCAR	SUBBAT
1	1.81 c	3.60 b	3.65 ab
2	1.80 bc	3.04 a	3.86 bc
3	1.79 bc	3.28 ab	3.63 ab
4	1.84 c	3.11 a	3.51 a
5	1.68 ab	3.26 a	4.03 c
6	1.67 ab	3.16 a	3.68 ab
7	1.58 a	3.67 b	3.82 ab

Region:

- 1 = Pacific
- 2 = Mountain
- 3 = North Central
- 4 = South Central
- 5 = South Atlantic
- 6 = Mid-Atlantic
- 7 = New England

For each variable, means with same letter designation are not significantly different from one another ($\alpha=.05$).

Age differences were found for three variables: environmental concern, ERC-role-identity, and behavioral intention toward recycling batteries. Though the pairwise comparison patterns for environmental concern and BIBAT are not perfectly clear cut, there are some general tendencies: those under 45 appear to have stronger environmental concern than those over 45; those in the youngest (18-25) and oldest (56+) age groups appear to have weaker behavioral intentions toward recycling batteries. People in the 56+ group have significantly stronger ERC role-identities than do those in the 18-25 and 36-45 age groups.

Income differences were found for five variables: environmental concern, SNPER, ERC role-identity, and attitude and subjective norm toward buying products with CFC substitutes. Pairwise comparisons for environmental concern showed no clear pattern—it appears that the \$35-49,999 and \$75,000+ groups have weaker levels of environmental concern. For the other variables, the pairwise comparisons are more clear cut. The \$75,000+ group shows stronger SNPER and weaker ERC role-identity than the other groups. The "under \$15,000" group shows less favorable attitude and subjective norm toward buying products with CFC substitutes than do other groups.

Regional differences were found for environmental concern, attitude toward buying an electric car, and subjective norm toward recycling batteries. The strongest levels of environmental concern were found in the South Atlantic, Mid-Atlantic, and New England regions. The most favorable attitudes toward buying an electric car were found in the Pacific and New England regions. The strongest perceived SN toward recycling batteries were found in the South Atlantic and New England regions.

CHAPTER FIVE

CONCLUSIONS AND REFLECTIONS

SUMMARY OF THE RESEARCH PROJECT

The conceptual development of this dissertation research began with an integration of the environmentally responsible behavior literature into an orienting model, the integrated model of environmentally responsible behavior (Figure 1). The integrated model is designed to guide research on environmentally responsible behavior in general. A subset of the integrated model, the Hierarchy of Sequential Behavioral Determinants (HSBD) model (Figure 2), is designed to direct research specifically on the social psychological processes associated with environmentally responsible consumer behavior. Theoretical linkages among three areas of social psychology are integrated in the HSBD model: self-schema theory (Markus 1977), role-identity theory (McCall & Simmons 1978), and the theory of reasoned action (Fishbein & Ajzen 1975). The objective of the study was to test selected relationships among constructs in the HSBD model.

As outlined in Chapter Three, hypotheses were developed that (1) predicted different environmentally responsible consumer role-identity types (self-oriented vs. other-oriented) based on differences in environmental concern and susceptibility to normative influence regarding environmental responsibility (SNPER) and (2) predicted differential predictive strength of attitudes and subjective norms in generating

behavioral intention toward environmentally responsible behavior under different role-identity conditions. In addition, an exploratory hypothesis involved the relationship between attitudes toward environmentally responsible actions and corresponding behavioral intentions under different strengths of perceived general influence of action (PGIA).

To test these hypotheses, a telephone survey involving a national random sample of 705 adults was conducted in July 1992, with the assistance of Environmental Research Associates of Princeton, New Jersey. A confirmatory factor analysis performed on the data uncovered a critical psychometric result. The self- vs. other-oriented ERC role-identity items *all* loaded strongly on a *single factor*, i.e., the distinction between self- and other-oriented role-identity was artificial and inappropriate. This empirical result prompted a re-thinking of the basic assumptions of the HSBD model. This re-thinking involved a loss of confidence in the conceptualization of the structure of the HSBD model *within* levels. However, it did not undermine the confidence in the hierarchical structure of the HSBD model—the dynamics that operated *across* levels.

Based on the dynamics of the single ERC role-identity construct across levels in the revised HSBD model (Figure 11), it was inappropriate to test some of the hypotheses. H1c, H2, H3, H4c, and H5a-d all involved the self-oriented vs. other-oriented role-identity distinction, and thus could not be directly tested. However, the combinations of H1a and H1b, and H4a and H4b, were tested in the context of the revised HSBD model, considering the ERC role-identity construct to be

unidimensional. These hypotheses, which served to test the overall pattern of self-schema and SNPER influence on ERC role-identity strength originally delineated in H1, H2, H3, and H4, were supported. The conceptual logic underlying H5 (which addressed the dynamics of the HSBD model operating between Level 1 and Level2) was extended into H5f, which predicted that ERC role-identity strength would be positively correlated with attitude toward environmentally responsible behaviors. This hypothesis was supported for recycling batteries and buying an electric car, and was in the right direction for buying CFC substitutes but not significant. The logic was also extended into H5g, which predicted that ERC role-identity strength would be positively correlated with behavioral intention toward environmentally responsible behaviors. H5g was fully supported. H6, which was an exploratory hypothesis involving PGIA, was supported for recycling batteries but not for the other behavioral intentions. Finally, supplementary results involving the overall structure of the revised HSBD model, and the effects of demographic factors were presented.

IMPLICATIONS OF THE RESULTS

This section will discuss the contributions of the research to both theory and practice. This section will focus mainly on the theoretical and practical implications of the results that related to the revised HSBD model. In addition, the implications of results involving perceived general influence of action (PGIA) and other supplementary results will be incorporated where appropriate.

The results pertaining to the revised HSBD model can be concisely summarized as follows. The strength of the ERC role-identity (Level 2) is a function

of environmental concern and susceptibility to normative pressure regarding environmental responsibility (Level 1) (H1-4). In turn, moving between Level 2 and Level 3, people with stronger ERC role-identities: (1) have stronger positive attitudes toward environmentally responsible actions (H5f) and (2) have stronger behavioral intentions toward environmentally responsible actions (H5g). Finally, the stepwise regression results, which included all revised HSBD model variables in the regression model, indicated support for the hierarchical dynamics of the overall revised HSBD model.

Theoretical Implications

The major theoretical implication of the results of this study involves the integration of the three areas of social psychology theory: self-schema theory, role-identity theory, and the attitude-behavior relationship. As discussed earlier (and shown in Figure 11), the three levels of the HSBD model represent different levels of generalization of social psychological processes. The self-schema and SNPER constructs operate at the most general level, across different roles and different behavioral contexts. The ERC role-identity in turn operates at an intermediate level, pertaining to a specific role but functioning across behavioral contexts relevant to that role. Attitudes, subjective norms, and behavioral intentions then function at the most specific level, pertaining to a particular behavioral context.

The results of the study provide preliminary support for the theoretical mechanisms described by the revised HSBD model. The results indicate that the construct at Level 2 (ERC role-identity) is a function of the constructs at Level 1 (the

environmental concern self-schema and SNPER). The results also indicate that the role-identity influences constructs at Level 3 (attitudes and behavioral intentions).

In the context of environmentally responsible consumer behavior, the HSBD model suggests the following type of scenario: A person may be environmentally concerned and/or susceptible to normative pressure to be environmentally responsible across several roles (and thus behavioral contexts); the person may then like being seen (by him/herself and by others) as an environmentally responsible consumer (again across behavioral contexts associated with the role of "consumer"); finally, the person's attitudes and intentions toward environmentally responsible consumer behaviors will be positively related to the strength of the ERC role-identity (i.e., the *degree* to which the person likes to be seen as an environmentally responsible consumer).

Further support for the dynamics in the revised HSBD model is given by the results of the overall regression models that included environmental concern self-schema, SNPER, ERC role-identity, attitudes, and subjective norms as independent variables, and behavioral intentions as the dependent variables (see Table 12). Specifically, these results provide preliminary support for the theoretical *hierarchical* relationships among the constructs in the revised HSBD model. Though not expressed as a hypothesis, these results are in general as would be expected. The constructs "closest" to behavioral intention (Level 3) in the HSBD model hierarchy have better predictive value than the ERC role-identity at Level 2, which in turn has better predictive value than the self-schema and SNPER (Level 1).

The main contribution of the development of the revised HSBD model (henceforth, "HSBD model" will refer to the revised HSBD model in Figure 11) lies in the richness and comprehensiveness with which it attempts to explain behavior. By including role-identity and attitude/subjective norm, the HSBD model provides a mechanism by which the "cognitive generalization" of the self-schema is translated to a specific behavioral intention. Under self-schema theory, the social psychological processes of a person could be expressed as: "I am environmentally concerned, therefore I intend to purchase recycled products." While this scenario certainly seems logical, it represents a significant leap with respect to the *explanation* of the behavior. The cognitive generalization "I am environmentally concerned" may translate into an effect for some roles but not for others. For example, a person may be environmentally concerned, and may feel that it is important to teach his/her children about the environment (thus having an "environmentally responsible parent" role-identity), but not have a strong "environmentally responsible consumer" role-identity.

Further, the "environmental concern" self-schema may not relate to behavioral considerations at all (as in "I am environmentally concerned, but I'm not going to do anything about it myself"). In addition, there is no positive affect *inherent* in the self-schema in general. This is not so important in the context of environmental responsibility (which *is*, generally, positive because of the notion of "concern"), but can be an important factor when dealing with other self-schemata (such as "I am a lazy person," or "I am an unfriendly person"). Therefore, the inclusion of the role-identity construct in the HSBD model (1) offers an explanatory variable that is

conceptually and operationally more closely linked to actual behavioral contexts than the self-schema and (2) incorporates positive affect, thereby providing a motivational tendency in the behavioral context.

As discussed in Chapter Two, the attitude-behavior relationship has been the subject of extensive study. Research in that area, while still ongoing, has made great strides in the delineating the most important factors and mechanisms involved in the prediction of behavior *in a specific behavioral context*. However, the purpose of the HSBD model is to provide an *explanation* of the social psychological processes associated with environmentally responsible behavior. Though attitudes and subjective norms are important factors in the HSBD model, the role-identity, self-schema, and SNPER constructs, by describing mechanisms that occur *across* roles and behavioral contexts, facilitate a comprehensive explanation. In addition, the role-identity construct provides further insight into the important question: "Where do attitudes come from?" The positive affect inherent in the role-identity provides a logical mechanism for the "value" aspect of the expectancy-value formulation. The specific role that is inherent in a role-identity provides a domain or context for specific behaviors, which is important because the HSBD model involves attitudes toward action.

The role-identity construct, by serving as a "link" between the general level of self-schema and susceptibility to normative pressure and the specific level of the attitude-behavior relationship, is arguably the most crucial aspect of the HSBD model.

This raises the question: in what ways does the HSBD model offer a more robust explanation of behavior than does role-identity theory?

As discussed in Chapter Two, role-identity theory, as outlined by McCall and Simmons (1978), asserts that people's behaviors (role performances) are undertaken to seek role support (from others and from the self) for a role-identity. For example, if a person likes to be seen (by him/herself and by others) as, say, a generous boss ("generous boss" role-identity), he/she will undertake role performances (e.g., giving employees frequent bonuses) that he/she believes will elicit role support. This role support can be in the form of self-support (i.e., the boss "sees" him/herself being generous to employees or perceives his/her actions as generous) and support from others (e.g., direct praise for generous actions, overhearing an employee telling a new recruit about "how generous the boss is," etc.).

Indeed, the results indicated that people with stronger role-identity had stronger behavioral intentions—this appears to support the role-identity/role performance relationship described by role-identity theory (H5g). However, when the regression model also included attitudes and subjective norms, the forward selection procedure indicated that these variables also contributed to the explanation of behavioral intentions (see Table 12).

The HSBD model offers two main contributions to the explanation of behavior provided by role-identity theory. First, the HSBD model describes a mechanism for the role-identity/role performance relationship. Attitudes and subjective norms toward the action at Level 3 in the HSBD model serve to ground the role-identity/behavior

relationship in a *specific* behavioral context. The results indicated that ERC role-identity strength influences attitudes and attitudes are in turn related to behavioral intentions. ERC role-identity strength also influences the subjective norm-behavioral intention relationship. Therefore, attitudes and subjective norms appear to provide a mechanism that relates role-identity to role performance.

The second contribution of the HSBD model lies in the delineation of constructs (self-schema and susceptibility to normative pressure) at a more *general* level of function than role-identity, operating across roles. The results indicated that the nature of the ERC role-identity was a function of the combination of those two constructs. This helps explain the *development* of the role-identity, something that is not fully explicated by McCall and Simmons (1978). Also, the operation of these constructs at the "across roles" level of generalization in the HSBD model adds to the comprehensiveness of the theoretical explanation.

In addition, self-schema and susceptibility to normative pressure may provide a mechanism by which role support functions. Role support may operate through the self-schema, as both self-support and support from others may be related to the development of the cognitive generalization that comprises the self-schema. For example, a person's friend may refer to him/her as "my environmentally concerned friend," which could serve to enhance the person's cognitive generalization that "I am environmentally concerned."

Finally, the results of H6, which offered partial support for the assertion that PGIA strength moderates the correlation between attitudes and corresponding

behavioral intentions, have theoretical implications that relate to the HSBD model. It is acknowledged in this research that the basic hierarchical structure of the HSBD model is likely to be affected by some number of moderating variables, some of which are depicted in the integrated model. These effects may happen at different levels of the HSBD model. The examination herein of the influence of PGIA at Level 3 indicates that such moderation does happen in certain behavioral contexts. In addition to the results of H6, the overall HSBD model stepwise regression reported under supplementary results indicated that PGIA did not provide added explanatory value to the model. This further supports the notion that PGIA acts as a moderating variable outside of the main HSBD model hierarchy.

Other behavioral contexts to which the HSBD model may apply include those to which the main constructs in general (i.e., not specific to environmental responsibility) are relevant. For example, consider an amateur artist who teaches high school English. This artist may have a "creative" self-schema, expressed as "I am creative." This person may also believe that his/her significant others are creative, may believe that creativity is a socially desirable characteristic, and may have a high concern for appropriateness—resulting in "susceptibility to normative pressure to be creative" (SNPC). The "creative" self-schema and high SNPC could in turn result in a "creative teacher" role-identity, in which the person likes to be seen (by him/herself and by others) as a creative teacher. (Of course, other role-identities are also possible, such as "creative parent" role-identity, "creative consumer" role-identity, etc.) The person's attitude toward "creative teaching" behaviors, such as using artwork to teach

English, would be positively related to the strength of the "creative teacher" role-identity. The relationship between subjective norms and intentions related to such behaviors would also be positively related to the strength of the "creative teacher" role-identity, as would the behavioral intentions themselves.

Based on the empirical results of the factor analysis and an examination of the literature, the self-oriented vs. other-oriented role-identity split does not appear relevant in this context. However, there may be other role-identities for which such a split is appropriate. Such role-identities might involve a self-schema component that is socially *undesirable*, but that the person him/herself finds desirable. An example would be an "unsportsmanlike athlete" role-identity, in which the person likes to see him/herself that way, but does not want to be seen that way by others. Future research on the HSBD model may shed further light on the context-dependency of self vs. other considerations regarding role-identities.

In sum, the results of the study have important implications that contribute to the theoretical explanation of the social psychological processes that underlie behavior. While the HSBD model has been herein examined in the context of environmentally responsible consumer behavior, these theoretical implications are intended to extend beyond that context.

Practical Implications

While theoretical implications are worthy in their own right, further contributions of this study lie in the practical implications of the results. "Practical" in this context refers to the implications for marketing decision makers. This section will

thus attempt to answer the question: what do the results of this study indicate regarding marketing decisions?

The practical implications of the study again center around the ERC role-identity construct and its relationship to other variables. As the crucial variable in the theoretical structure of the HSBD model, the ERC role-identity was found in this study to be linked to both general notions of environmental concern and SNPER, and to specific behavioral variables. In addition to the results involving the dynamics of the ERC role-identity in the context of the HSBD model, the supplementary results indicated that there are sex, age, and income differences in the strength of the ERC role-identity construct. This combination of grounding in the self, behavioral relationship, and demographic variance implies potential usefulness in marketing contexts. The practical implications of these results relate to three general areas of marketing: segmentation, communications, and strategic decision-making. Each of these areas will now be addressed.

The links between the ERC role-identity and behavioral intention imply that ERC role-identity could be a useful segmentation variable. This implication is strengthened by the demographic differences (sex, age, and income) in ERC role-identity that were also found. The use of such variables would represent an interaction of benefit segmentation (environmentally beneficial effects of behaviors) and consumer characteristic segmentation (ERC role-identity).

One way to implement the ERC role-identity in segmentation would be to determine the ERC role-identity strength of a given target segment for a product or

product line. The results of this type of segmentation could suggest product and packaging modifications, positioning strategies, and/or promotional techniques for the product or product line. This market information would be useful for conditions of strong ERC role-identity (in which the environmental responsibility implications of the product could be emphasized) or weak ERC role-identity (in which resources could be diverted elsewhere).

Another segmentation application would be to use ERC role-identity strength as an a priori segmentation variable to identify target segments for the marketing of environmentally responsible products and/or services. By identifying demographic groups that exhibit strong ERC role-identity, marketers can target these groups with environmentally responsible offerings. The supplementary results of this study provide preliminary support for this assertion: for example, females were found to have stronger ERC role-identity than males, people aged 56 and over were stronger than other age groups, and people with incomes over \$75,000 had weaker ERC role-identities (see Tables 13-15). This application would be especially useful for companies that specialize in environmentally responsible products/services, enabling them to expand their product mix by entering new markets. It would also be useful for companies that are considering entering "green" marketing. With the proliferation of environmentally responsible marketing, companies need to have explicit information about their markets in order to most effectively target them.

The second general area of practical application is marketing communications. The most obvious application lies in the realm of advertising. ERC role-identity main

implication is the appeal to self/other considerations. For example, ads that involve appeals to the social desirability of environmentally responsible consumption, or to some notion of "everybody's doing it," "don't be left out," "can't you see yourself helping to save the Earth," etc. Indeed, one could even envision advertising copy that incorporates appeals to *all* (or at least several) of the major HSBD model constructs.

A broader application of the ERC role-identity and its relationships to other variables lies in integrated marketing communications (IMC). IMC involves establishing a broad public relations goal and integrating the functional areas of communication (advertising, sales promotions, public relations, and personal selling) toward that goal (Thorson & Moore 1993). Environmental responsibility appears to be an increasingly important corporate image goal. Application of ERC role-identity appeals in IMC can enhance the consistency, and indeed the total quality, of a company's marketing communication.

In addition to the advertising implications outlined above, sales promotions could include buttons or other accessories that would serve as social symbols indicating that a person had acted as an environmentally responsible consumer. Personal selling efforts could directly involve social approval (by the salesperson him/herself) of the environmentally responsible nature of a purchase, and/or imply that such approval would be forthcoming from significant others. Public relations efforts that emphasize the environmental responsibility of the company can foster a desire for customers to be associated with the company. In addition, packaging and labelling (which, though usually considered to be part of the *product*, have clear

communications implications) also harbor great potential for the application of such appeals.

Implementing information about characteristics of the target market into an IMC effort represents a more comprehensive application of the marketing concept through consideration of the receiver in the communication process. In addition, incorporating ERC role-identity appeals into an IMC effort will also help avoid environmentally related boomerang effects (antagonistic cognitive responses that persuade more than the intended message) (Schumann, Dyer, & Petkus 1993).

The third area for which the results of the study have practical implications is in marketing strategy. This is largely a result of the synergy of the segmentation and communications implications described above. The segmentation process defines the market, and the IMC effort develops unique product positioning. Such positioning is designed to establish competitive advantage. Establishing differential positioning advantages is especially important in light of the proliferation of environmentally responsible marketing efforts, which serves to increase competition for environmentally responsible market niches.

The synergy of the segmentation and communications implications of the study make the ERC role-identity a strategically actionable construct. Assael (1990) describes competitive advantage as a function of (1) market opportunity or attractiveness, (2) the company's ability to exploit the opportunity, and (3) the strength of competition. Application of the ERC role-identity and its relationship to other variables in a segmentation effort enhances the degree to which a company can

evaluate market attractiveness. Application as part of an IMC effort enhances the company's ability to exploit the market opportunity. Therefore, the results of the study have significant implications for two out of three determinants of competitive advantage.

Smaller businesses can directly benefit from the segmentation/communication synergy at the product level. In larger corporations, the strategic implications of the results herein are most likely to be first realized at the product market unit level, as the segmentation and communications applications are implemented for individual products. Then, if successful, these effects can potentially aggregate upward into strategic business units and eventually to corporate levels where SBU mix decisions are made.

In sum, the practical implications of the HSBD model and supplementary results are potentially significant for a wide range of marketing applications. The degree to which a business can take advantage of these will depend on the importance of marketing research to the business and the degree to which they can effectively implement such research. The fact that this research was paid for by several major U.S. corporations that were interested in the constructs measured is encouraging in this respect.

Finally, like the theoretical implications of the PGIA results (H6) described above, the practical implications are also somewhat marginal. The results indicated that the relationship between attitudes and behavioral intentions was stronger under strong PGIA conditions only for one of the three behaviors, recycling batteries. As a

consumer characteristic, PGIA may have some promise as a segmentation variable. In addition, PGIA has implications for marketing communication. Appeals that focus on the general effects of individual behaviors may be quite effective for groups that show strong PGIA. Again, these appeals could be readily implemented into an IMC effort.

It is perhaps worth recognizing that H6 was not supported for the two *purchasing* behaviors (CFC substitutes and electric car) but was supported for recycling batteries. It appears, then, that recycling behaviors may be perceived as having more general effects than purchasing behaviors. Of course, such a statement can only be made at this point regarding the specific purchasing and recycling behaviors assessed in this study. Indeed, such limitations apply to all aspects of the study, as will be discussed in the following section.

LIMITATIONS

As is the case in any study, this research has several limitations. The limitations of this study fall into two categories: conceptual and methodological. These limitations should be acknowledged in the consideration of the contributions of this research.

The main conceptual limitation in this study involves the existence of a multitude of other variables that can potentially influence the relationships in the HSBD model. The integrated model depicts those areas that have been studied in the context of environmentally responsible behavior, but were not included in the domain of this particular study. In the "person" context of the integrated model, information, knowledge, values, and personality variables are areas that have been shown in the

literature to have some influence on environmentally related variables. Other potentially influential individual difference variables that have not been addressed in the environmentally responsible behavior literature are likely to exist.

In the "task" context, role-identity salience and task-specific practical factors are potential influences. Role-identity salience is the perceived situational importance of a given role-identity, relative to other role-identities (McCall & Simmons 1978). Role-identity salience is grounded in the behavioral context; therefore, studies examining its influence must investigate actual behaviors. As discussed in Chapter Two, task-specific practical factors include financial and functional constraints and facilitators. Again, the influence of such factors would be manifest in studies of actual behaviors—however, experimental manipulation is also possible.

Other variables that have not been studied in the environmentally responsible behavior context may also have influences in the task context. Product involvement is one potential influence. Product involvement can be situational (the degree of personal relevance occurring in a specific purchasing context) or enduring (transcending situational influences) (Houston & Rothschild 1978). Both situational and enduring involvement may be factors that affect ERCB. For example, situational involvement seems to be a likely moderating variable of the attitude/subjective norm-behavioral intention relationship for many behavioral contexts. Enduring involvement may moderate the development of constructs at more general levels in the HSBD model, such as the environmental concern self-schema or ERC role-identity.

The physical environment and social context includes the role support

variables, self-support and role support from others. Because role support is such an important aspect of role-identity theory, the lack of consideration in this study represents a significant limitation, especially for theory development. In addition, the proliferation of global marketing efforts make multi-national and multicultural considerations an important aspect of the study of environmentally responsible behavior. This study was limited to the United States, and therefore to the physical environment and social context of the United States. Other countries and cultures may differ significantly.

Several methodological limitations are also inherent in the study. A limitation associated with the use of survey methodology is the lack of control of conditions under which the responses were obtained. The use of telephone interviewing imposed length constraints (the questionnaire took approximately 27 minutes on average to administer). Associated with this length constraint was a partial restriction on the number of items in some of the scales, such as PGIA. Demand effects, where respondents may have tried to give the "right" answer to the interviewer, were also possible.

The nationwide random sample was extremely important for this study. The demographic breadth of the sample afforded adequate variability in the constructs. However, some specific geographic areas of interest to marketers may not have similar variability. Therefore, it is important that marketers recognize that the ERC role-identity relationships should be incorporated into market research specific to the needs

of the business. In addition, the sample was limited to the United States, which, as discussed above, represents a limitation.

Many of the measures used in this study were designed specifically for this research. Though they showed acceptable psychometric properties, the measurement of most of the constructs will continue to evolve. The operationalization also involved a limited number of behaviors. In addition, self-reports of behavioral intentions were obtained instead of independent records of actual behaviors, which would be optimal.

In research, any limitation should also be considered an *opportunity*. Therefore, most of the limitations described in this section will be discussed further, in the next section, as future research considerations.

FUTURE RESEARCH CONSIDERATIONS

As demonstrated earlier in this chapter, the results of this study are theoretically and practically useful in their own right. However, a major contribution of this research lies in the generation of future research opportunities.

While the HSBD model represents the "backbone" of the integrated model, the other variables in the integrated model must be investigated in order to further the understanding of the social psychological processes associated with ERCB. Therefore, future research will address the aspects of the integrated model that were not included in the domain of this study. Such investigation will examine the individual variables as well as interrelationships among them. Many of these studies will be in the context of the HSBD model. Specific future research questions emerge directly from the discussion of limitations in the previous section, for example:

1. What are the effects of information, knowledge, and values on the development and maintenance of the environmental concern self-schema and/or ERC role-identity?
2. What other personality or other variables may influence the environmental concern self-schema and/or ERC role-identity?
3. What is the moderating effect of role-identity salience on the relationship between ERC role-identity and the behavioral context variables?
4. What are the moderating effects of practical factors (both task-specific and general) on the HSBD model relationships?
5. Under what conditions do environmentally responsible consumer behaviors elicit role support? Are there different factors involved in self-support and role support from others?

While the above questions represent some research priorities, other questions will also be pursued. For example, cross-cultural and multi-national investigations of integrated/HSBD model relationships are important. Also, after traditionally studied variables from the integrated model are investigated, constructs such as involvement will be examined.

Future research designed to address the aforementioned research questions will also address the methodological limitations discussed earlier. An important aspect of future research will be triangulation of methodologies. Field research that examines ERCB (and the rest of the HSBD model) in its actual context will contribute greatly. There may also be potential for incorporating social interaction in an experimental context (Stryker 1983). This would provide good control for the manipulation of variables in some studies.

Future research will also incorporate further evolution of the measures. This is

especially important for the ERC (and other) role-identity measures because of its significant role in the HSBD model. In addition, the measures that were developed specifically for this study (e.g., environmental responsibility of significant others; social desirability of environmental responsibility; PGIA) will need to be assessed programmatically. Continued refinement of all measures is a crucial aspect of the research program.

A very important consideration for future research is the examination of the integrated/HSBD model relationships in a wider variety of environmentally responsible behaviors. A larger array of environmentally responsible consumer behaviors, including purchase, use, and disposal behaviors, will be addressed. Such research will enhance the generalizability of the HSBD model in the ERCB context. Also, different specialized types of consumers (such as children, the elderly, industrial buyers, etc.) will be the subject of future studies.

Finally, future research will examine the general HSBD model relationships in other self-schema/role/behavioral contexts besides ERCB. For example, the "creative teacher" role-identity example given earlier in this chapter exemplifies the type of behavioral context for which the HSBD model would be relevant. Any context in which there is a self-schema dimension (e.g., "I am (generous) (healthy) (punctual) (etc.)") is potentially relevant for the HSBD model dynamics. It is hoped that future research will establish the HSBD model as a theoretically and practically useful theory for explaining the social psychological processes underlying many types of behavior.

In sum, the title of this dissertation begins, "*An Investigation....*" There will be

many more—the investigation of the social psychological processes associated with behavior will be ongoing for a long time. Just as a detective puts together a myriad of clues in solving a case, future research will continue to accumulate clues as to the nature of social psychological processes. It is hoped that the research performed in this dissertation has provided a crucial lead.

FINAL REFLECTIONS

It is difficult to pinpoint the exact beginning of this project. The initial stages were less an active conceptualization than they were a *crystallization*. As ice crystals form spontaneously on a cold window, the fundamental notions on which this research is based emerged spontaneously in various media—readings, papers, discussions, lectures, experiences, and both fleeting and persistent thoughts arising in myriad contexts.

Although research tends to be based on the past (literature) and to point to the future (programmatic research), actual research proceeds *moment to moment*. A discrete study, paper, presentation, etc. is not where the ideas exist. The phenomena to which we ascribe "ideas" exist in nature—we just dance with them for a moment, then they move on.

The ideas put forth in this research thus exist independent of my consideration of them—my task is to nurture them, coax them along. The phenomena represented by the ideas will mature as a result of their own inherent creative intelligence. As they mature, they will continue to generate progeny, continue the bloodline.

What is research then? For me, it is a spontaneous, creative dance with ideas.

Learning this dance is the development of Research Mind. I think this is a good thing.

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APPENDICES

APPENDIX 1

Environmental Concern Scale

1. When things are done that help save the environment, how does it make you feel? Does it make you feel:

Extremely good
Very good
Somewhat good, or
No different
2. Do you think that saving the environment is:

Always the right thing
Mostly the right thing
Sometimes the right thing, or
Seldom the right thing
3. When it comes to saving the environment, do you feel:

A great deal of responsibility
A fair amount of responsibility
Very little responsibility, or
No responsibility at all
4. When it comes to the environment, do you feel:

A great deal of respect
A good deal of respect
A fair amount of respect, or
Very little respect
5. Do you think that things that benefit the environment:

Are worth any cost
Are mostly worth the cost
Are sometimes worth the cost, or
Are seldom worth the cost

6. Do you think that saving the environment for future generations is:

Extremely important
Very important
Somewhat important, or
Not very important

7. How much do you think should be done to save the environment?

Very much more
A good deal more
Not very much more, or
Nothing more

8. Does seeing the environment made better make you feel:

Extremely good
Very good
Somewhat good, or
No different

9. Do you think that respecting the environment is:

Extremely important
Very important
Somewhat important, or
Not very important

APPENDIX 2

Concern for Appropriateness Scale
(Lennox & Wolfe 1984)

1. I tend to show different sides of myself to different people.

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
2. Different situations can make me behave like very different people.

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
3. Different people tend to have different impressions about the type of person I am.

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
4. When I am uncertain how to act in a social situation, I look to the behavior of others for cues.

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

5. It's important for me to fit in the group I'm with.
- Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
6. My behavior often depends on how I feel others wish me to behave.
- Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
7. I try to pay attention to the reactions of others to my behavior in order to avoid being out of place.
- Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

APPENDIX 3

Environmental Responsibility of Significant Others (SOER) Scale

1. Most people who are important to me are environmentally responsible. Do you:

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

2. I consider my family to be environmentally responsible.

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

3. Most of my friends are environmentally responsible.

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

APPENDIX 4

**Perceived Social Desirability of
Environmental Responsibility (ERSD) Scale**

1. It is socially acceptable to be environmentally responsible.

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

2. Most of the general public is environmentally responsible.

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

3. Environmental responsibility is socially correct.

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

APPENDIX 5

ERC Role-Identity Scales

Self-Oriented ERC Role-Identity Scale

1. I like thinking of myself as an environmentally responsible consumer.

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

2. How important is it to you that you see yourself personally as an environmentally responsible consumer? Is it:

Very important
Somewhat important
Neither important nor unimportant
Somewhat unimportant, or
Very unimportant

Other-Oriented ERC Role-Identity Scale

1. I like others to see me as an environmentally responsible consumer.

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

2. How important is it to you that others see you as an environmentally responsible consumer? Is it:

Very important
Somewhat important
Neither important nor unimportant
Somewhat unimportant, or
Very unimportant

APPENDIX 6

Attitude, Subjective Norm, and
Behavioral Intention Items

Attitude Items

1. Please describe your feelings toward recycling batteries. Do you feel:

Very favorable
Somewhat favorable
Neither favorable nor unfavorable
Somewhat unfavorable, or
Very unfavorable
2. Please describe your feelings toward buying products that contain CFC substitutes. Do you feel:

Very favorable
Somewhat favorable
Neither favorable nor unfavorable
Somewhat unfavorable, or
Very unfavorable
3. Please describe your feelings toward buying an electric car. Do you feel:

Very favorable
Somewhat favorable
Neither favorable nor unfavorable
Somewhat unfavorable, or
Very unfavorable

Subjective Norm Items

1. Most people who are important to me would think I should recycle batteries. Do you:

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

2. Most people who are important to me would think I should buy products that contain CFC substitutes.

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

3. Most people who are important to me would think I should buy an electric car.

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

Behavioral Intention Items

1. How likely are you to recycle batteries? Are you:

Very likely
Somewhat likely
Somewhat unlikely, or
Very unlikely

2. How likely are you to buy products that contain CFC substitutes? Are you:

Very likely
Somewhat likely
Somewhat unlikely, or
Very unlikely

3. How likely are you to buy an electric car?

Very likely
Somewhat likely
Somewhat unlikely, or
Very unlikely

APPENDIX 7

Perceived General Influence of Action (PGIA) Scale

1. Individuals can have an impact on world events.

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

2. Many times I feel that I can have an influence over things that happen in the world.

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

APPENDIX 8

Figures

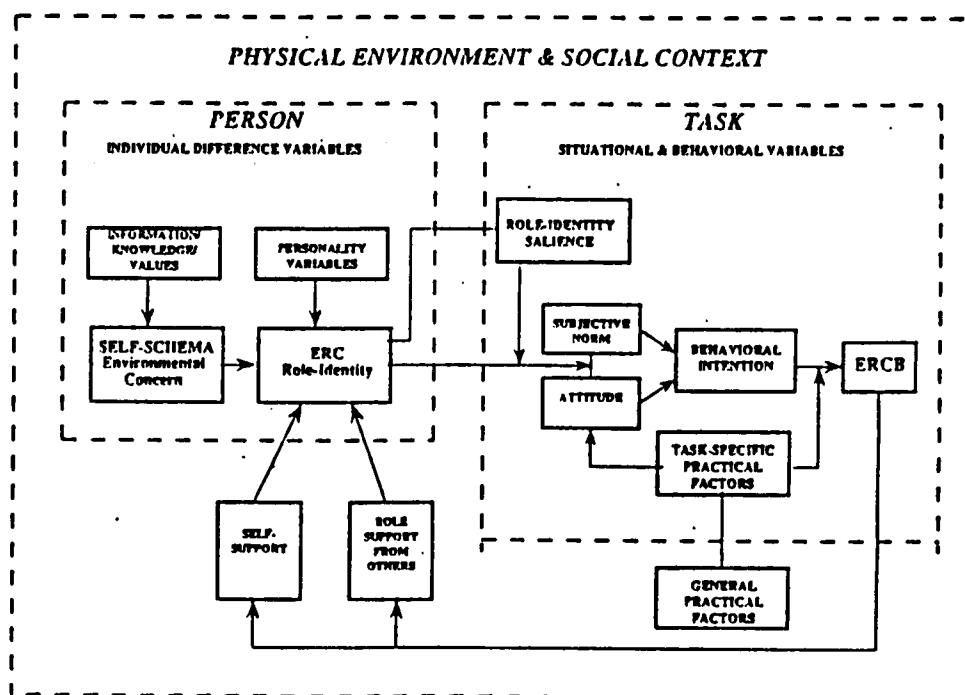


Figure 1: An Integrated Model of Environmentally Responsible Consumer Behavior

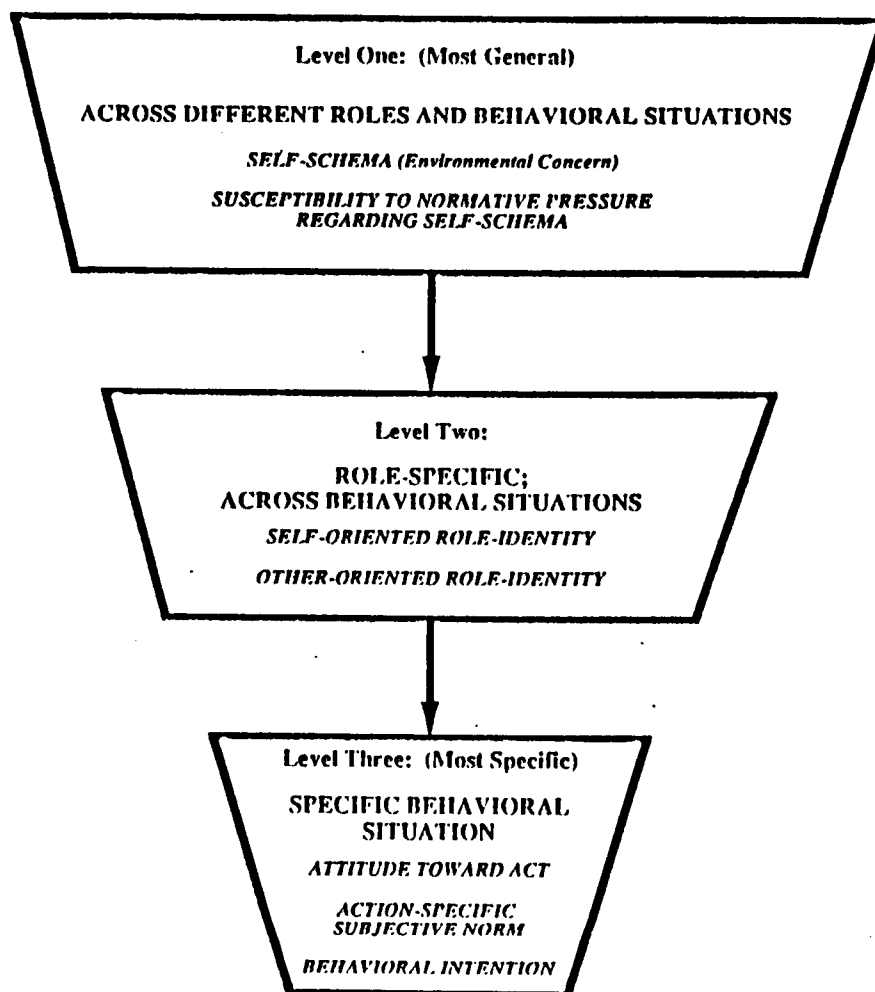


Figure 2: Hierarchy of Sequential Behavioral Determinants (HSBD) Model

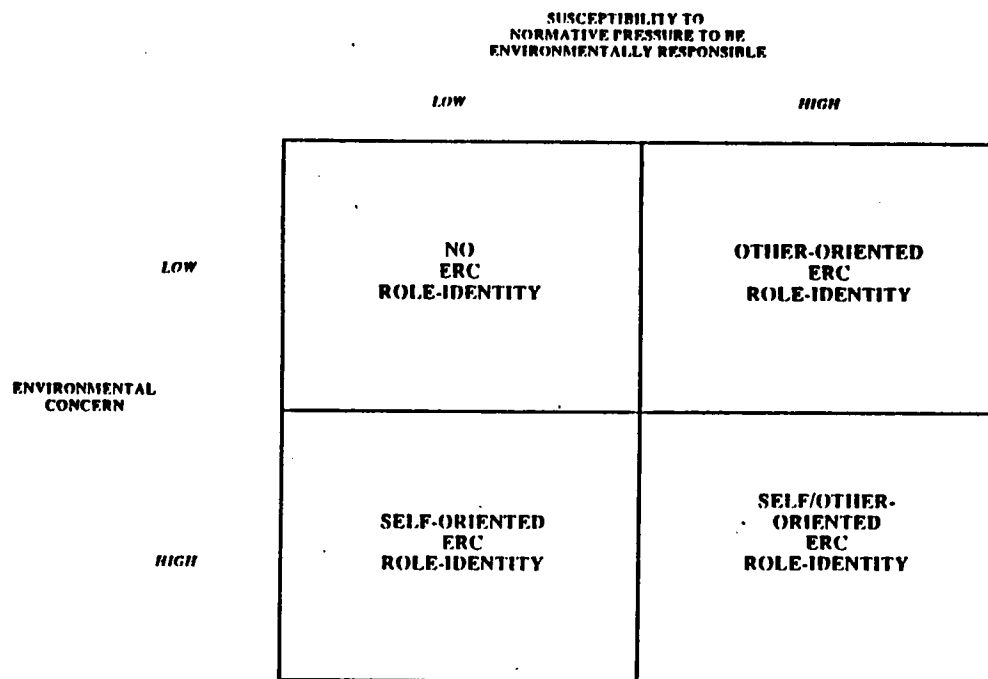


Figure 3: ERC Role-Identity Types

ENVIRONMENTAL CONCERN	SUSCEPTIBILITY TO NORMATIVE PRESSURE REGARDING ENVIRONMENTAL RESPONSIBILITY	TYPE OF ENVIRONMENTALLY RESPONSIBLE CONSUMER ROLE-IDENTITY	PREDICTED WEIGHTING OF ATTITUDES AND SUBJECTIVE NORMS INFORMATION OF I_{act}
<i>HIGH</i>	<i>HIGH</i>	SELF/OTHER- ORIENTED ERC ROLE-IDENTITY	$A = SN$
<i>LOW</i>	<i>LOW</i>	NO ERC ROLE-IDENTITY	$A = SN$
<i>HIGH</i>	<i>LOW</i>	SELF-ORIENTED ERC ROLE-IDENTITY	$A > SN$
<i>LOW</i>	<i>HIGH</i>	OTHER-ORIENTED ERC ROLE-IDENTITY	$A < SN$

Figure 4: Proposed Relationships Among EC, SNPER, ERC Role-Identity Types, and Attitudes and Subjective Norms

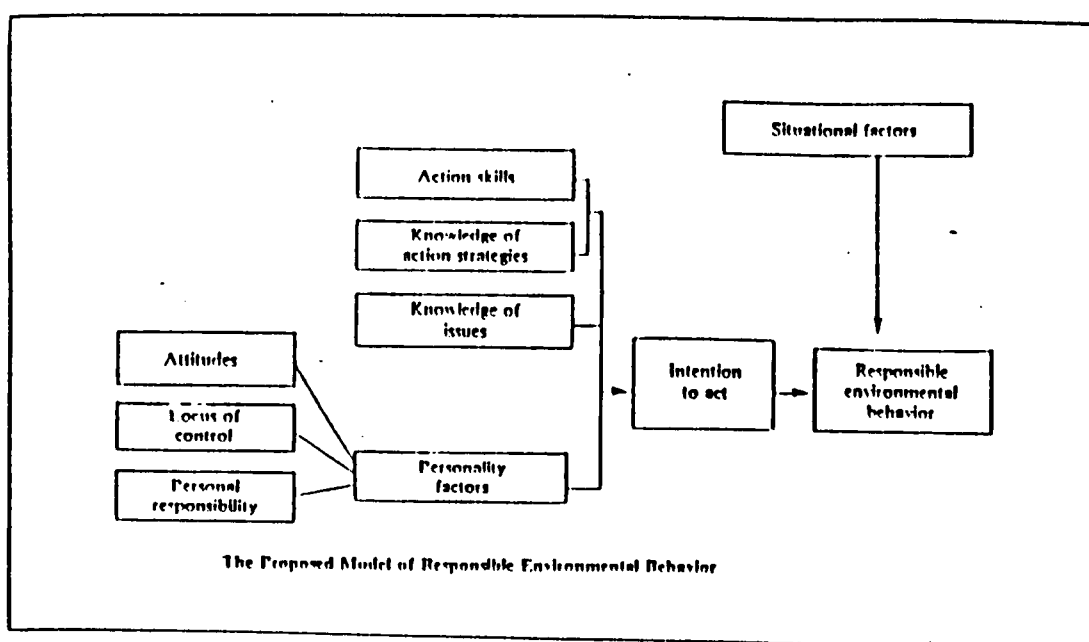


Figure 5: A Proposed Model of Responsible Environmental Behavior
(Hines, Hungerford, & Tomera 1986-87)

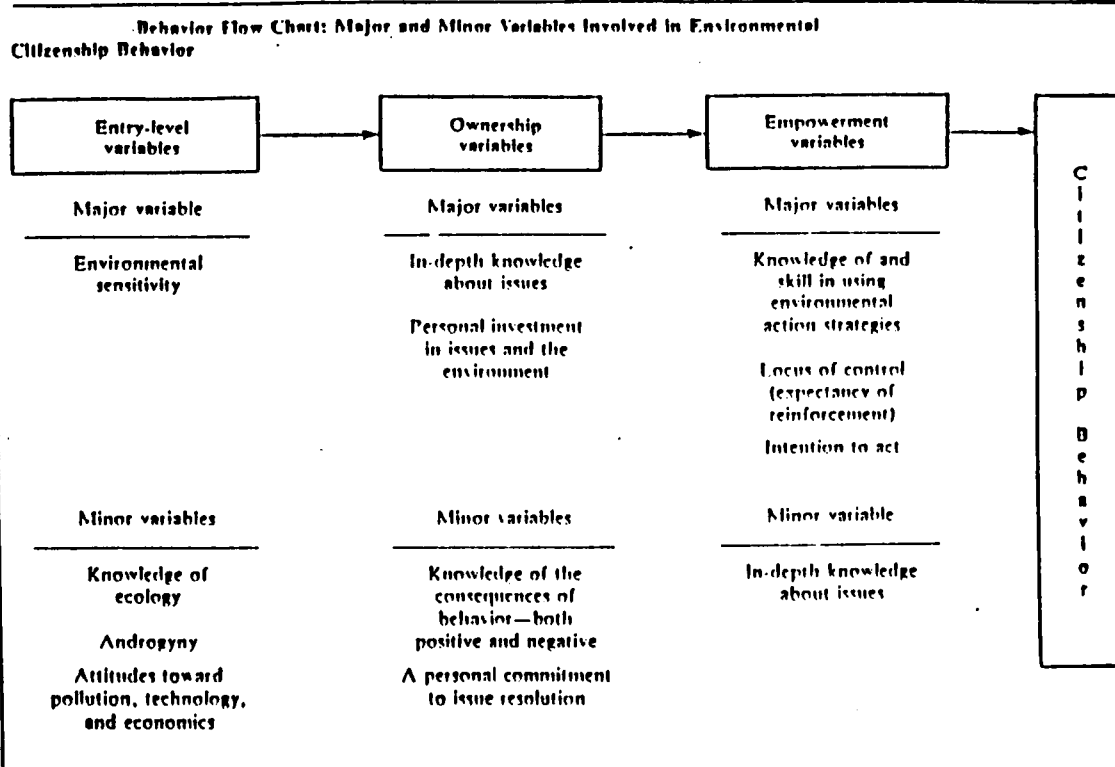


Figure 6: Behavioral Flow Chart: Major and Minor Variables Involved in Environmental Citizenship Behavior (Hungerford & Volk 1990)

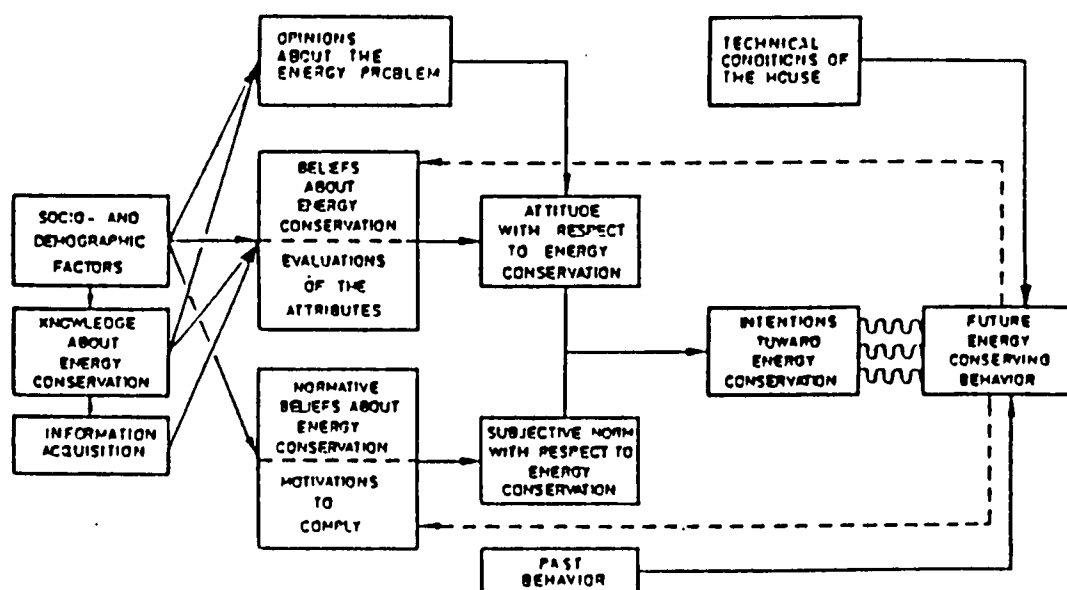


Figure 7: Determinants of Energy Conserving Behavior
(Midden & Ritsema 1983)

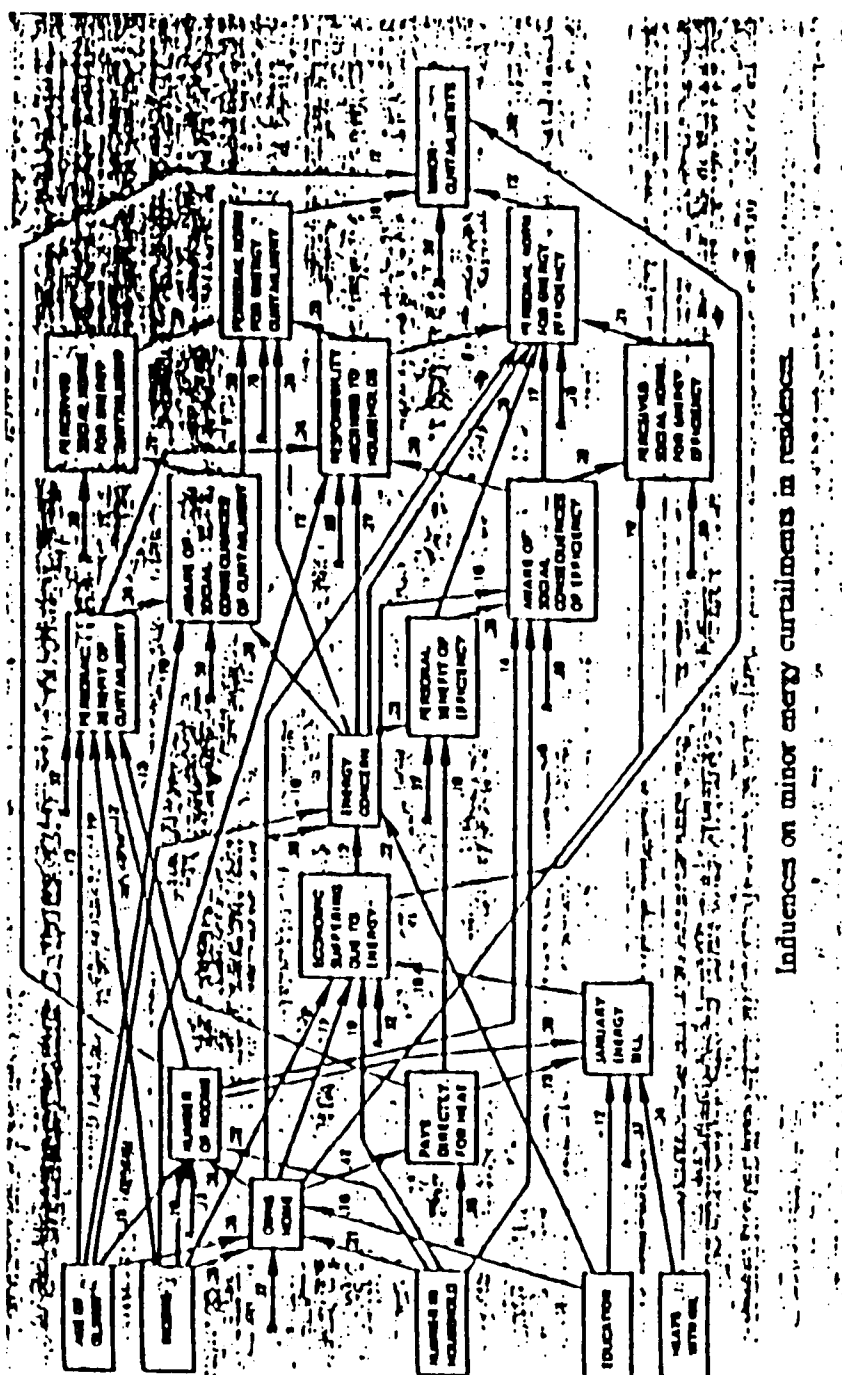


Figure 8: Influences on Minor Energy Curtailments in Residences
(Black, Stern, & Elworth 1985)

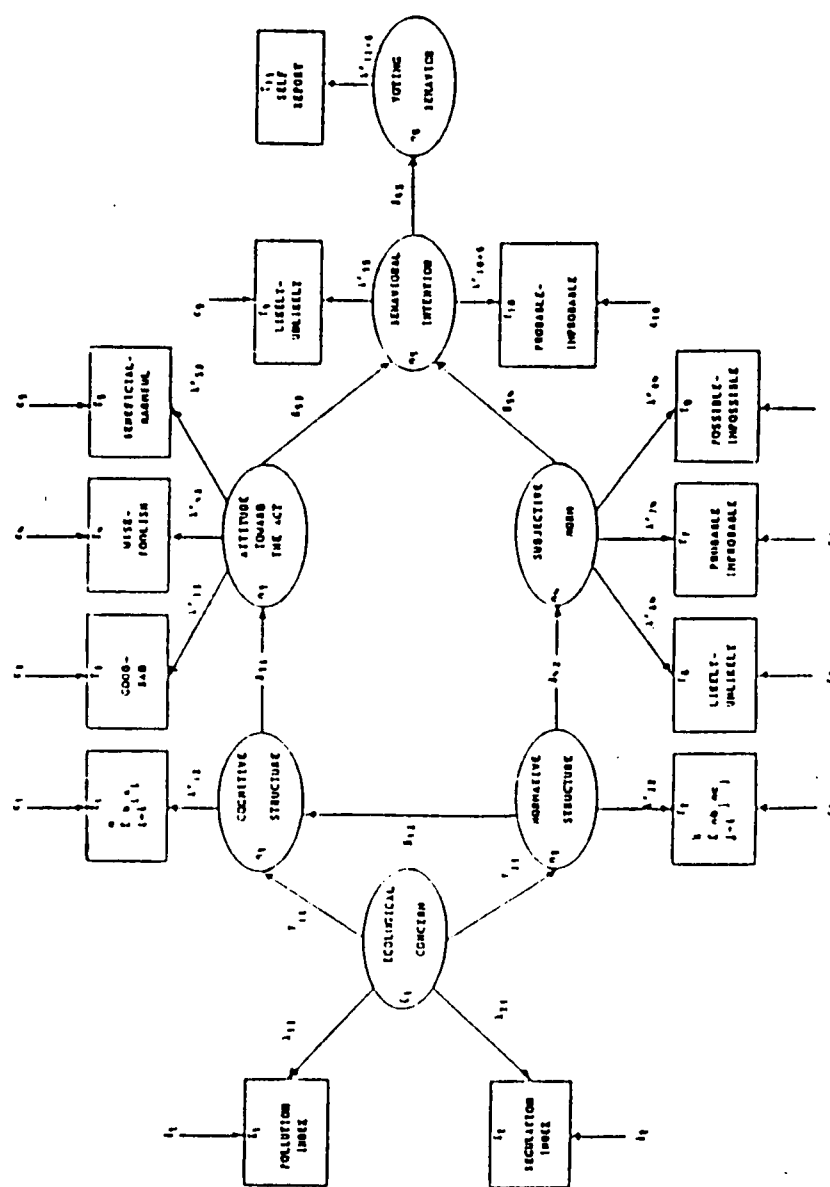


Figure 9: Determinants of Environmentally Responsible Voting Behavior
(Gill, Crosby, & Taylor 1986)

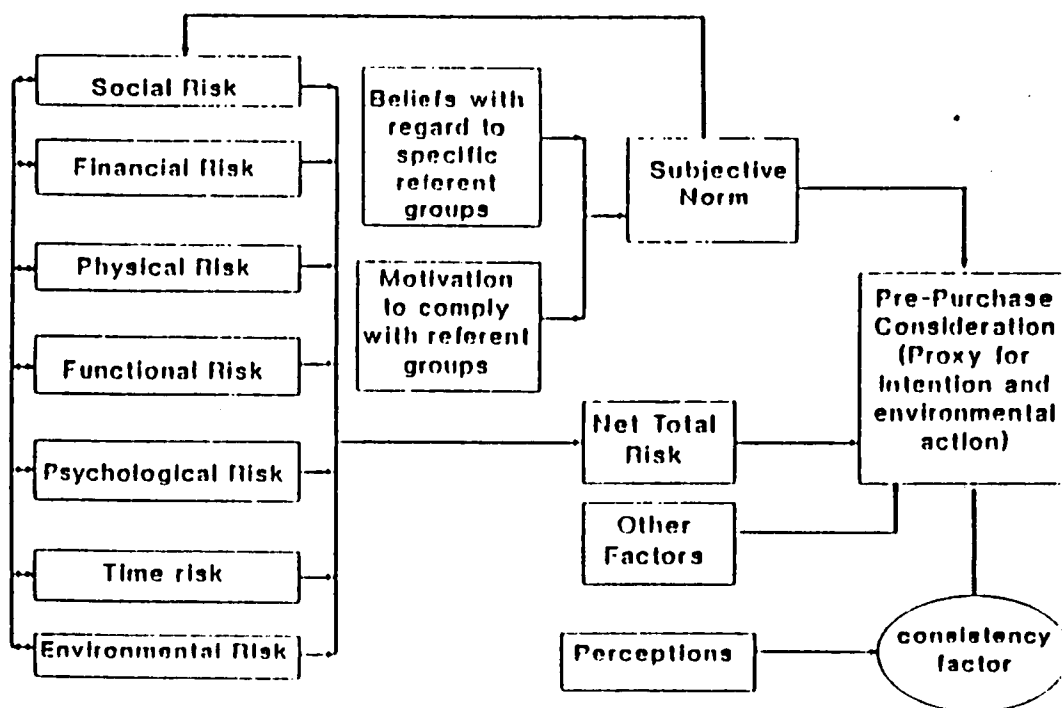


Figure 10: A Theory of Environmental Buyer Behavior
(Suchard & Polonsky 1991)

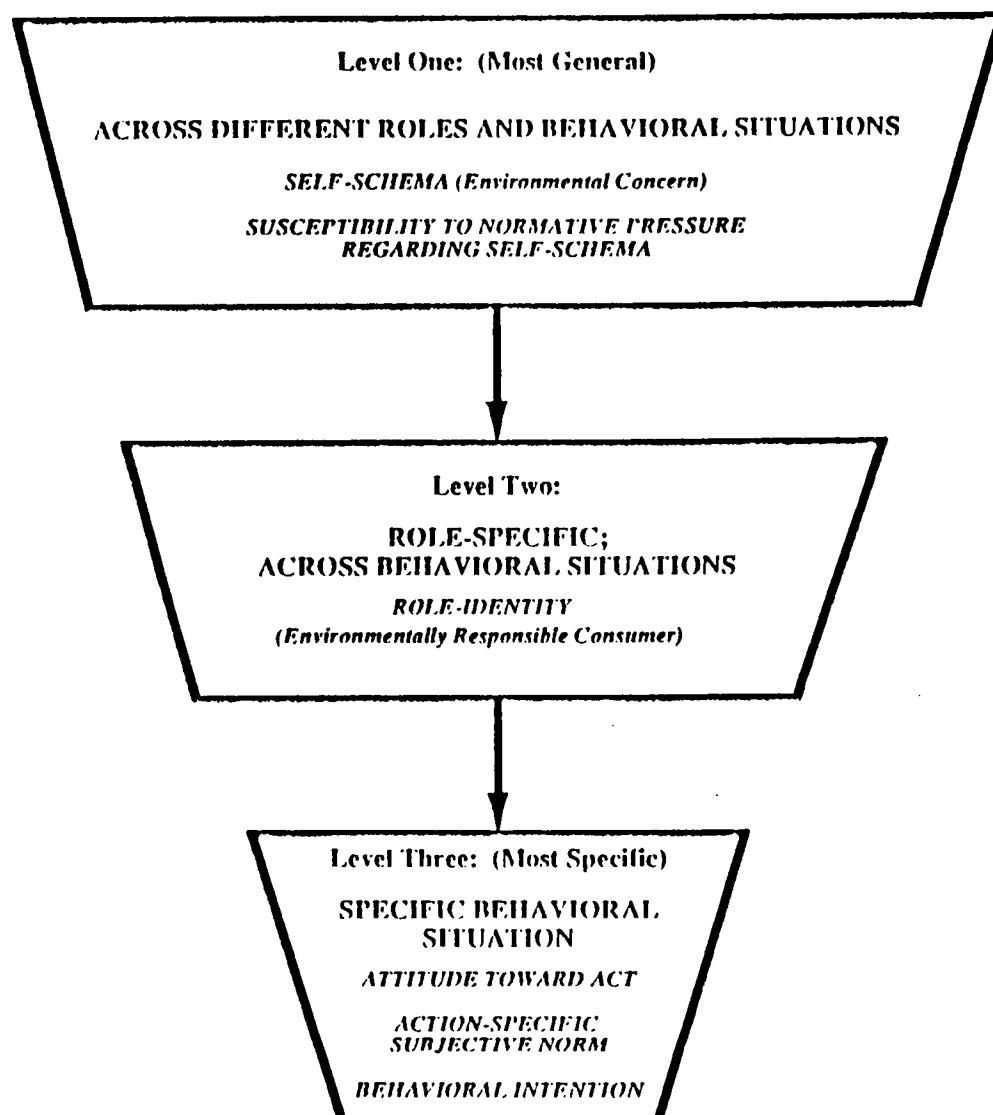


Figure 11: Revised Hierarchy of Sequential Behavioral Determinants (HSBD) Model

VITA

Edward Petkus, Jr. was born in northeast New Jersey on March 24, 1964. Upon graduation from Manchester Regional High School, he headed south to Virginia Tech, where he changed direction a few times and eventually earned a Bachelor of Science in Biochemistry & Nutrition in 1986. Unable to leave lovely southwestern Virginia, he stayed at Virginia Tech and received a Master of Business Administration in 1988. Following a brief stint as an assistant brewmaster at the Weeping Radish Brewery in Manteo, North Carolina (on the northeast end of Roanoke Island, (former) home of the famous Lost Colony), he worked for one year in the Media & Opinion Research Division of Gordon S. Black Corporation in northwest Washington, D.C. He again headed southwest, entered the University of Tennessee in August 1989 and received a Doctor of Philosophy in Marketing in May 1993. Following graduation, he headed northwest and was employed as an Assistant Professor of Marketing at Boise State University in Boise, Idaho.