EXPLAINING ENVIRONMENTALLY SIGNIFICANT INDIVIDUAL BEHAIVORS: IDENTITY THEORY, MULTIPLE IDENTITIES, AND SHARED MEANINGS

By

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To the Faculty of Washington State University:

The members of the Committee appointed to examine the dissertation/thesis of CHRIS F. BIGA find it satisfactory and recommend that it be accepted.

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EXPLAINING ENVIRONMENTALLY SIGNIFICANT INDIVIDUAL BEHAIVORS: IDENTITY THEORY, MULTIPLE IDENTITIES, AND SHARED MEANINGS

Abstract

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Chair: Louis Gray

The purpose of this research was to rejuvenate the research on the individual intent-oriented human-environment interaction by introducing a sociological social psychological theory to investigate environmentally significant individual behavior. This study utilized and expanded on identity theory to explain environmentally significant individual behavior (ESIB). Specifically, two studies were conducted. In the first study, I developed an environmental identity model of ESIB utilizing identity prominence, identity salience, and commitment to the environment identity. How one's gender identity and environmental attitudes influence the environmental identity model of ESIB was also investigated. In the second study, I evaluated the shared meanings, as measured by values, across one's gender identity, consumer identity, and environmental identity in predicting ESIB. The findings of this research revealed that extensions to the attitude-behavior model that incorporate identity processes and the dynamic relationship of multiple identities significantly contribute to our understanding of individual environmental behavior.

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DEDICATION

This dissertation is dedicated to my grandfather, Emil F. Biga Sr.

CHAPTER ONE

INTRODUCTION

> *The major problems of our time - the growing threat of nuclear war, the devastation of our natural environment, our inability to deal with poverty and starvation around the world, to name just the most urgent ones - are all different facets of one single crisis, which is essentially a crisis of perception* (Capra 1994: 334).

Sociologists have been interested in understanding and predicting environmentally significant behavior ever since Rachael Carson's *Silent Spring* (1962) put anthropogenic environmental degradation on the radar of public consciousness by exposing the hazards of the pesticide DDT. Environmentally significant behavior can be conceptualized as having two dimensions. Impact-oriented environmentally significant behavior can be defined as the degree to which an individual, group, or society alters the availability of resources in an environment that has a lasting effect on the sustainability of the ecosystem. Intent-oriented environmentally significant behavior is behavior that an individual, group, or society undertakes with the intention to benefit or change the environment (Stern 2000).

The subfield of environmental sociology, developed out of the emergence of the environmental movement, has focused on researching environmental attitudes in attempting to predict intent-oriented environmentally significant behavior (Buttel 2002; Dunlap and Catton 2002). The basic foundation of this attitude-behavior perspective is the concept that the shared social meanings of a society, as measured by environmental concern indicators, have significant consequences on the natural environment. Historically, environmental attitude research focused on public *perception* of specific environmental problems, local environmental quality, and environmental concern. The majority of this research was conducted ad hoc, atheoretical, and rarely built upon previous research and theory (Dunlap and Jones 2002). In addition, this

research seldom took into consideration the connection between the symbolic world of attitudes and beliefs and the biological world of the physical environment.

Empirical studies find a weak relationship between pro-environmental attitudes and intent-oriented environmentally significant individual behavior (Dunlap and Van Liere 1978; Scott and Willits 1994; Van Liere and Dunlap 1981); even though, individuals hold positive environmental attitudes nationally and internationally (Dunlap 1991; Dunlap, Gallup, and Gallup 1993). Due to the atheoretical orientation of environmental attitude research, these modest findings slowed the development of a theoretically rich body of research on environmentally significant individual behavior (ESIB).

At the same time that intent-oriented environmental sociologists were struggling to explain the attitude-behavior link, macro-dimensions of environmental sociology developed a workable and focused research agenda about impact-oriented significant behavior, grounded in the biophysical effects of human activity. As environmental sociology grew as a discipline, so did the unit of analysis of study. As perceptions of environmental problems grew from local ecological crises (local effects of pesticides, attitudes/perceptions of hazardous air, land, water pollution) to global environmental crises (global climate change, ozone depletion, deforestation), many environmental sociologists began to emphasize the macro impact-oriented dimensions of human-environment interaction (treadmill of production, ecological modernization, risk society, etc.). Within in the study of human-environment interactions, sociological social psychology has unique role in linking intent-oriented and impact-oriented behaviors, as well as the socially constructed and biophysical dimensions of environmentally significant behavior.

The purpose of this paper is to rejuvenate the research on the individual intent-oriented human-environment interaction by introducing a sociological social psychological theory to investigate environmentally significant individual behavior. This study utilizes and expands on identity theory to explain environmentally significant individual behavior (ESIB). Specifically,

two studies are conducted. In the first study, I develop an environmental identity model of ESIB utilizing identity prominence, identity salience, and commitment to the environment identity. In this study, I also investigate how one's gender identity and environmental attitudes influence the environmental identity model of ESIB. In the second study, I evaluate the shared meanings across one's gender identity, consumer identity, and environmental identity in predicting ESIB. I begin by providing an outline of previous attitude-behavior research on ESIB, discussing previous theoretical foundations, and subsequent theoretical limitations. I then introduce a brief discussion of the constructivist-realist debate within environmental sociology and outline ecologically-informed symbolic interactionism as a way of healing the constructivist-realist divide. I then outline identity theory and its subsequent use in two studies on ESIB.

CHAPTER TWO

THEORETICAL BACKGROUND

Theories of Environmentally Significant Individual Behavior

Understanding ESIB has fallen historically to the relationship between attitudes and behavior (Tarrant and Cordell 1997). From gauging citizens' opinions of the severity of environmental issues, their knowledge of environmental issues, and perceived willingness engage in environmental significant individual behaviors, social scientists have been studying varying dimensions of environmental attitudes and behavior. This research falls under the broad research scope of "environmental concern" research (Dunlap and Jones 2002; Fransson and Garling 1999). Several attitudinal indexes/scales have emerged over the last forty years in an attempt to measure varying aspects/components of environmental concern. Dunlap and Van Liere's (1978) New Environmental Paradigm scale; Stern and colleague's (1993, 1995) Awareness of Consequence Scale; Kaiser's (1999) Environmental Attitude Scales; Weigel and Weigel's (1978) Environmental Concern scale, in addition to several other studies (Blaikie 1992; Chandler and Dredger 1993; Ellis and Thompson 1997; Maloney and Ward 1973; Maloney, Ward, and Braucht 1975a; Organization 1990; Steel, List, and Schindler 1994; Thompson and Barton 1994a).

It is not the purpose of this chapter to outline each of these attitude indexes/scales,[1] but rather provide an overview of the social psychological and psychological theories most widely used to explain environmentally significant individual behavior: Ajzen and Fishbein's (1980; Fishbein and Ajzen 1975) Theory of Reasoned Action/ Theory of Planned Behavior and Schwartz's (1970) moral norm-activation theory. To initiate this discussion, a brief description is

[1] Several social scientists studying environmental concern have argued that the literature on environmental concern is "hopelessly disorganized and fundamentally unintegratable" leading to as many as 700 different environmental concern/attitude scales (Dunlap and Jones 2002).

presented of the most widely used environmental concern measure Dunlap and Van Liere's New Environmental Paradigm (NEP) scale. The NEP scale is not based in any social psychological tradition, but rather formulated on the conceptual construct of "worldview."

Ecological Worldview: New Ecological Paradigm. The New Ecological Paradigm Scale (NEP) measures a new "worldview" that has emerged in the latter half of the twentieth century. Rejecting the anthropocentric notion that nature exists solely for human use, the basic premise of this emerging "worldview" is the dominating Western worldview (Dominant Social Paradigm - DSP) is in conflict with the emerging understanding and conceptualization of environmental sustainability. Ideologies of the DSP, such as laissez faire government, private property rights, economic growth, and faith in material abundance, foster the possibilities of an impending ecological collapse. A new worldview (New Ecological Paradigm – NEP) propose broader outlook focusing on more sustainable ideologies: limits to growth, achieving a 'steady-state' economy, preserving the 'balance of nature,' and the need to reject the anthropocentric notion that nature exists solely for human use. Beginning with this conceptual construct of a new ecological worldview, the New Ecological Paradigm Scale was developed and comprised of 15 items (the original NEP scale contains 12 items)[2] to measure attitudes of this emerging worldview (Dunlap and Van Liere 1978; Dunlap, Van Liere, Mertig, and Jones 2000).

While the NEP was not originally based in a social-psychological theory (Stern, Dietz, and Guagnano 1995), the founding researchers later ground their environmental concern scale as an operationalization of Rokeach's (1968) conceptualization of "primitive beliefs" concerning human-environment relations (Dunlap, Van Liere, Mertig, Catton, and Howell 1992; Dunlap, Van Liere, Mertig, and Jones 2000). This notion has been supported and empirically tested by

[2] Dunlap et al. (2000) updated the classic New *Environmental* Paradigm (1978) scale to include a wider scope of an ecological worldview, methodologically balanced pro- and anti- items, and eliminate out of date terminology. The updated scale was labeled the New *Ecological* Paradigm (2000) scale. Research sited in this text used both the classic NEP scale as well as the updated version.

other researchers to bring the NEP into the social psychological theoretical fray (Pierce, Dalton, and Zaitsev 1999; Stern, Dietz, and Guagnano 1995).

Many empirical studies have since been conducted to measure the validity and reliability of the NEP scale. Although Dunlap and Van Liere (1978) found the NEP to be one-dimensional, many studies have shown at least three distinct dimensions (Albrecht, Bultena, Hoiberg, and Nowak 1982; Geller and Lasley 1985; Noe and Snow 1990; Shetzer, Stackman, and More 1991). The three dimensions were first labeled by Albrecht et. al. (1982) as 'balance of nature,' 'limits of growth,' and 'man over nature'. Roberts and Bacon (1997) confirmed Albrecht's three dimensions, except for a splitting of the 'man over nature' dimension into 'man over nature' and a religious philosophy dimension labeled 'god and nature.' Kuhn and Jackson (1989) expanded the NEP to include items from Dunlap and Van Liere's (1984) dominant social paradigm scale. Their modified scale to include four factors: consequences of growth and technology, quality of life, human-environment interaction, and limits to the biosphere (Kuhn and Jackson 1989).

Theory of Reasoned Action and Theory of Planned Behavior. The Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB) are the most alluded to theories of environmental behavior and the most accepted model in attitude research on recycling behavior (Davies, Foxall, and Pallister 2002; Oom Do Valle, Rebelo, Reis, and Menezes 2005). At the core of the TRA/TPB, one's *intention* to engage in behavior leads to behavior (Ajzen 1991; Ajzen and Madden 1986; Ajzen and Fishbein 1980; Fishbein and Ajzen 1975). Both the TRA and TPB are modeled in figure one. These theories hypothesize that *intention* is influenced by two factors: one's positive or negative *attitude* toward performing the behavior and social *norms* that encourage one to perform or refrain from behavior. The TRA has been effectively used to explain consumer, voting and recreational behaviors (Sheppard, Hartwick, and Warshaw 1988). The TRA was proposed as a model to explain volitional behaviors. If one has autonomy in

making behavior choices, behaviors would be guided by one's attitudes and the guidance of social norms.

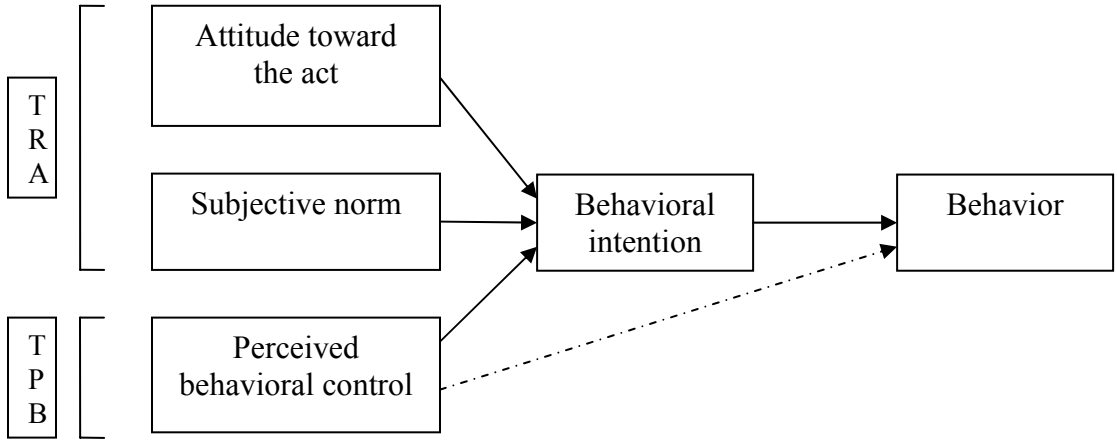

Figure One: Ajzen and Madden's Theory of Reasoned Action and Planned Behavior

Ajzen and Madden (1986) expanded the TRA in an attempt to explain behaviors not under volitional control by modeling the Theory of Planned Behavior. TPB is identical to the TRA, with the addition of *perceived behavior control* as a component influencing *intention* of behavior. Perceived behavior control is defined as one's belief in one's ability to enact a specific behavior[3]. An individual will act on his/her intention to a behavior if they judge this behavior will have the intended effects. Perceived behavior control can influence unintentional behavior due to coercion, habit, reflex, or impulse, as diagramed in figure one by the dashed line connecting perceived behavior control to behavior. The TPB has been used to explain cheating, lying, exercising, condom use, voting, weight loss, playing video games, and job seeking (Ajzen 1991).

One of the first studies to embrace attitude theory in the quest to explain ESIB is Maloney and Ward's (1973; 1975b) research developing the "Scale for the Measurement of Ecological Attitudes and Knowledge." Consisting of four subscales, Maloney and Ward's scale

[3] The definition of perceived behavior control is equivalent to Bandura's notion of self-efficacy and serves as a motivation of behavior just as efficacy is argued as having a motivation component (Gecas 1989).

inventory included items on environmental knowledge, affect towards the environment, verbal commitment to engage in ESIB, and the reporting of environmental behaviors. While not specifically grounded in the TRA/TPB, Maloney and Ward's subscales tap into each of TRA components: Environmental Knowledge and Affect summarizes TRA's "attitudes towards the act," Verbal Commitment summarizes "behavioral intention," and Actual Commitment summarizes "behavior."

While explanations of ESIB has historically fallen to the relationship between attitudes and behavior (Tarrant and Cordell 1997), few environmental attitude measures have been anchored in the TRA or TPB. Consequently, social scientists often use a more widely used atheoretical general environmental concern measure to operationalize concepts anchored in the TRA/TPB (Derksen and Gartrell 1993; Vining and Ebreo 1992). Unfortunately, research modeling TRA/TPB on ESIB, when using general measures of environmental concern (NEP, etc.), are not supported (Gamba and Oskamp 1994; Oskamp, Harrington, Edwards, Sherwood, Okuda, and Swanson 1991; Scott and Willits 1994; Vining and Ebreo 1992).

One of the few researcher groups utilizing the TRA/TPB that has broken form from using atheoretical measurements tools is Kaiser and colleagues (Kaiser, Wolfing, and Fuhrer 1999). Kaiser and collegues' (1999) research in predicting ESIB is the latest and most complete environmental psychological research utilizing the TRA/TPB. Citing the short comings of previous atheoretical research, Kaiser and colleagues set out to correct: "1) the lack of a unified attitude concept, 2) the lack of measurement correspondence between attitude and behavior on a general level, and 3) the lack of considerations of situational behavior constraints beyond people's control" (Kaiser, Wolfing, and Fuhrer 1999: 7). The result was the development of three orthogonal dimensions of environmental concern: environmental knowledge, environmental values, and ecological behavior intention. Initial findings support the TRA theory. Environmental knowledge and environmental values explained 40% of the variance of ecological

behavior intention, which in turn, explained 75% of the variance of ecological behavior. In subsequent research, perceived behavior control (added component of TPB) was found to be a significant predictor of intention and behavior, lending support to TPB (Kaiser and Gutscher 2003).

Criticisms of TRA/TPB. One of the most significant criticisms of the TRA/TPB is the operationalization of 'intent' and 'actual' behavior. When operationalizing 'actual' ESIB, indicators need to be unobstructed by the operationalization of 'intended' behavior. In practice, most research on ESIB relies on self-report measures of intent/actual behavior resulting in spurious relationships (Davies, Foxall, and Pallister 2002; Foxall 1997). Other criticisms highlight TRA/TPB inability to take into account non-attitudinal personal and situational factors (Davies, Foxall, and Pallister 2002). Several theorists have criticized the TRA/TPB, arguing that *intention* and *perceived behavior control* alone are not sufficient to understand people's behavior (Eagly and Chaiken 1993). Personal morality/values have been incorporated into the attitude behavior model (Bratt 1999; Eagly and Chaiken 1993; Harland, Staats, and Wilke 1999; Kaiser, Hubner, and Bogner in press; Thogersen 1996).

Schwartz's Moral Norm-activation Theory. Schwartz's moral norm-activation theory (1970), was one of the first social psychological theories utilized to explain environmental behavior in an attempt to capture a normative social orientation towards Leopold's "Land Ethic" (Heberlein 1972; Leopold 1948). Leopold's" "Land Ethic" represented a new moral code of the emerging environmental movement. The moral norm-activation theory argues that an individual's actions are often derived from the individual's moral code.

Figure two shows Schwartz's moral norm-activation model of altruistic behavior. Schwartz's model begins with the social norms on moral behavior of the significant/generalized other of a group/community/culture. These normative moral behaviors are endorsed and

followed by significant others. These norms are observed by and then internalized by the individual into personal norms as she/he likens these normative behaviors to the individual's self-concept.

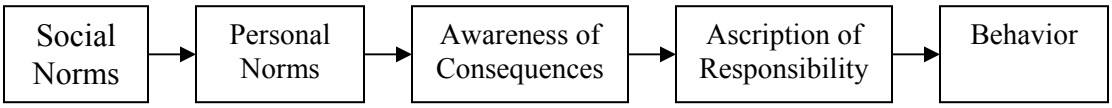

Figure Two: Schwartz's Model of Altruistic Behavior

According to Schwartz, moral decisions derived by personal norms are guided by three elements. First, any behavior enacted by a moral decision must have an effect (positive/negative) on the lives of others (Awareness of Consequences – AC); behaviors that do not have a social consequence are not covered under the moral norm-activation theory. Second, to attribute a behavior to a moral decision, the decision maker has to "knowingly and willingly" select a behavior from several behavior options. The decision maker chooses a specific behavior over other behavior options because the chosen behavior fits the individual's moral code. Finally, the events resulting from the decision maker's actions must be evaluated by the decision maker as having positive or negative consequences on others, and that the decision maker holds him/herself responsible for the resulting events (Ascription of Responsibility - AR) (Schwartz 1970).

Heberlein (1972) theorized that environmental behavior decisions, using the example of industrial pollution, could be explained by Schwartz's moral norm-activation theory of altruism. According to Heberlein, science and technology once thought of as perpetrators of environmental degradation, are necessary in turning environmental behaviors in to moral decisions. Sticking true to Schwartz's model, Heberlein argued that new scientific knowledge outlining the negative effects of industrial pollution on community health puts any decision regarding the disposal of industrial waste into the territory of "moral decision making." The

development of new technologies affording companies (actors) with cleaner and healthier options for disposing industrial waste, provide actors with different alternatives in environmental behaviors, thus addressing Schwartz's second attribute of moral decision making.

In a subsequent study, Van Liere and Dunlap (1978), found that ascription of responsibility (AR), and to a lesser extent awareness of consequences (AC), were related to yard burning. People who believed that yard burning was harmful to others, but more importantly, believed they would be responsible for the harmful consequences resulting from yard burning were less likely to engage in yard burning. The key finding in this study is the notion of responsibility as a central component to the moral norm-activation theory of altruism. Oddly, social psychological explanations of environmental significant individual behaviors briefly took a back seat to Dunlap and Van Liere's atheoretical NEP scale when published in 1978.

As the popularity and use of the NEP flourished, new researchers began to take a second look at Schwart's norm-activation model of altruistic behavior. Concerned that Dunlap and Van Liere's NEP was lacking a social psychological model, Stern and colleagues developed a social psychological environmental attitude scale (Stern and Dietz 1994; Stern, Dietz, and Kalof 1993). They contend that personal moral norms will be activated and guide environmentally significant individual behaviors when the individual becomes aware that his/her personal norms/values are being threatened (Stern, Dietz, Abel, Guagnano, and Kalof 1999b; Stern, Dietz, and Guagnano 1995).

Modeled from Schwartz's norm-activation model of altruism, Stern and colleagues developed a value-belief-norm theory of environmentalism that presented three dimensions of environmental concern: social-altruistic orientation, biospheric orientation, and egoism. From a constructivist approach, they "presume that people construct their attitudes on the basis of their expectations about how the attitude object affects the particular set of people or things they value" (Stern and Dietz 1994: 67). In other words, individuals have attitudes towards an object in

relation to how the object affects those individuals and their individual values. Through a simplified process of calculating utility, individuals behave towards the environment in accordance to the perceived effects the behavior will have on the individuals and the objects the individual values. These three sub-scales taped into respondents' value orientation concerning welfare of others, nonhuman species/biosphere, and the self. Taken together these three dimensions make up the Awareness of Consequences (AC) scale. It was argued that all three dimensions of the AC scale could prompt individuals to become politically active on environmental issues.

Each of the AC subscales were found to be significant predictors of environmental political action (a component of ESIB); particularly the AC_{ego} and AC_{bio} were predictive of supporting environmental taxes (Stern, Dietz, and Kalof 1993). In a subsequent study, Stern, Dietz, and Guagnano (1995) correlated Dunlap and Van Liere's NEP scale and their AC scale with environment behavioral intentions. They found that the NEP and AC were indistinguishable from one another. While Stern's ideas of understanding human attitudes are useful, they are limited in explaining human's relationship to the environment as it only pertains to environmental attitudes that fit the effects of a rational choice calculus.

Summary. The research on environmentally significant individual behavior has fallen under the broad research scope of "environmental concern" (Dunlap and Jones 2002; Fransson and Garling 1999). This research has yielded three main theoretical directions: research on worldview/primitive beliefs (NEP), theory of reasoned action/theory of planned behavior models, and the moral norm-activation theory models of ESIB. The purpose of this paper is to rejuvenate the research on the individual intent oriented human-environment interaction by introducing sociological social psychological theory to the study of environmentally significant individual behavior. This paper will utilize and expand upon identity theory to explain ESIB. In

the following chapters, I present a discussion of ontology in environmental sociology and the place of an ecologically oriented symbolic interactionism in environmental sociology. Having outlined an ecologically informed symbolic interactionist perspective in environmental sociology, I offer identity theory as a means to theorize and predict ESIB.

Human-Environment Interactions

Global warming, deforestation, desertification, loss of biodiversity, soil erosion/degradation, and pollution (air, water, land) are just a few examples of anthropogenic environmental impacts facing our global community (Harper 2004; Oskamp 2000; Vitousek, Mooney, Lubschenko, and Melilo 1997). At the turn of the 21st century, thirty years after the first Earth Day, the unsustainable activities of human societies are rarely disputed in the academic literature (Union of Concerned Scientists 1992). The causes of these environmental threats can be traced to the overpopulation and over-consumption by human civilization - impact-oriented environmentally significant behavior (Silver and DeFries 1990; Vitousek, Mooney, Lubschenko, and Melilo 1997). While physicists, chemists, biologists, climatologists, ecologists, and other physical scientists research and theorize the physical severity of these environmental stresses, social scientists research the human-environment interaction to understand how human societies create and respond to environmental impacts (Howard 2000; Stern 1993).

The basic principle of environmental sociology is the intersection of the physical and social environment; specifically, the research of how the physical environment and social environment influence one another (Buttel 1987; Dunlap and Catton 1979). Regrettably, how social scientists investigate this intersection is not without debate. The study of human-environment interactions has been contentious, leading to varying schools of environmental sociology.

As Catton and Dunlap (1978) outlined in their influential article introducing environmental sociology to mainstream sociology, the sociological investigation of human-environment interactions has had a historical struggle for legitimacy. This was in part due to the mainstream's adherence to Durkheim's dictum,[4] reservations about biological determinism, and the historical context of sociology's emergence in a time of perceived material abundance (Catton and Dunlap 1978; Dunlap and Catton 1994).

Catton and Dunlap (1978) argued that the majority of social research, while diverse, operated within a narrow "human exemptionalism paradigm." This argument led to a paradigmatic shift within the field of sociology. Thus, human-environment interactions (now coined the "New Ecological Paradigm")[5] was opened to social research. This approach offered a new sociological orientation providing a more holistic paradigm what included the biosphere in the dynamic of human interaction (Buttel 1987). While environmental sociology has been legitimized as a sub-category of valid research within the field of sociology, ontological arguments within the field are still prevalent.

Ontological Discussions of Human-Environment Interaction

> *At once physical, organic and symbolic, environments maliciously torment many of us who worry about where sociology ends and biology, ecology, atmospheric science, and physiology, among other 'non-social' disciplines begin (Kroll-Smith 1999).*

At the center of the human-environment interaction discussion lays the ontological foundation of the competing metaphysical paradigms on how environmental sociologists should frame the environment. At one end of the continuum lies ontological constructionism and at the

[4] Durkheim's dictum states that social facts can only be explained by other social facts (economic change, class differences, etc.).

[5] Originally Catton and Dunlap coined this new sociological perspective the "new environmental paradigm." It has since been changed to the "new ecological paradigm" (Catton and Dunlap 1978). This new fundamental paradigm shift in environmental sociology, led Dunlap's research on cultural/individual dimensions of the NEP, as noted in the previous chapter.

other, environmental realism (Benton 1991; Buttel and Taylor 1992; Freudenburg, Frickel, and Gramling 1995; Kroll-Smith, Gunter, and Laska 2000). While these points represent extreme opposites of a rich spectrum, they also provide the most criticism.

Ontological Constructionism. Ontological constructionists begin by postulating that a natural environment separate from human interpretation is unobtainable knowledge. Even if there is an objective reality separate from human interpretation, it is impossible to fully grasp. All attempts to 'know' the environment is interpreted through the socially constructed lens of the human consciousness, therefore, truly unobtainable. At the extreme, an ontological constructionist perspective would argue that all interactions, whether symbolic or physical, are constructions of the mind and therefore, "nature does not matter" (Murphy 1995). Since the world is only knowable through what is socially constructed, environmental sociologists who abide by ontological constructionism focus on the social constructions of nature.

Environmental Realism. Environmental Realism (ER) on the other hand, argues that there is a physical environment separate from human interpretation and that scientific knowledge is the amassing of objective knowledge about the physical environment (Rosa 1998). While ER acknowledges the process of developing this scientific knowledge is imperfect, once common knowledge is generally agreed upon, this knowledge represents the best correspondence/understanding of the external physical environment. Environmental sociologists who follow this ontological postulate investigate the anthropogenic impacts on the natural environment.

Symbolic Realism. In between these two polar ontological foundations lies a diverse spectrum of environmental sociological research: reconstructed realism (Rosa 1998), constructionist realism

(Murphy 2004), symbolic realism (Kroll-Smith, Gunter, and Laska 2000), pragmatic social constructionism (Weigert 1997), and mild constructionism (Murphy 2004). While each of these authors articulate their perspective very differently from one another (often for different audiences and purposes), each of these perspectives acknowledge, to varying degrees, a symbolically constructed realist ontological foundation. At varying degrees, each perspective acknowledges that there is a physical world separate from the one that is socially constructed by society, and this physical world is bound by laws unaffected/unconcerned of how society socially constructs meaning of these laws.

Rosa (1998) argues for an ontological realism epistemological hierarchicalism when studying risk. The basic premise of this perspective provides a hierarchal structure to epistemological knowledge. At the core of scientific knowledge on risk lies the ontological foundation of environmental realism, but the level of certainty surrounding knowledge diminishes as knowledge becomes more susceptible to social construction. At the core of the scientific knowledge of risk, knowledge is grounded realism where certainty of knowledge is high and universal. An example of knowledge at the core (grounded realism) is the applied sciences (structural engineering, basic chemistry and biology, etc.). At the human knowledge periphery, there is greater uncertainty of knowledge and this region of knowledge is predominated by knowledge in the socially constructed form (abstract theory, scientific speculation, etc.). An example of knowledge on the fringe of human understanding is global warming/climate change. Rosa (1998) defines this form of knowledge as Post-Normal science.

Mild constructionists[6] accept that a separate physical environment exists (environmental realism) outside the socially constructed environment of the human mind and that social actions occur in the milieu of a physical environment. They, however, choose to focus investigations on

[6] Kroll-Smith et al. (2000) refer to mild constructivism as a "social subjective stance". From this perspective, how the physical world is socially constructed is more important then the concrete physical reality. Freudenburg et al. (1995) labeled this analytical primacy, accepting that both the physical and the social worlds exist, but as researchers we give primacy to either the physical or social.

how these environments are socially constructed (Macnaghten and Urry 1998; Murphy 2004). For example, climatologists have discussed the potential issues surrounding the apparent but gradual warming of the Earth's climate since 1957 (post-normal science), but it was not until a heat wave struck North America in the summer of 1988 that public conscious was awakened to the notion and the potential issues surrounding global warming (Ungar 1992). The debate on the 'reality' of global warming is further re-constructed with the re-conception of 'global warming' as 'global climate change.'

Critical realism, a constructive-aware realist perspective, investigates how social constructions (power, culture, and other social phenomenon) manipulate and alter the physical environment (Murphy 2004). For example, Rosa and colleagues investigate how population, technology and affluence, and social constructions influence environmental impacts such as climate change (Rosa and Dietz 1998; York, Rosa, and Dietz 2003).

Typology for Human-Environment Interactions. Within this gray middle of ontological soup, Freudenburg and colleagues (1995) devise a typology for investigating human-environment interactions. *Analytical separation* is the idea that although there is both a social and physical realm, each is not relevant to the research of the other. From this perspective, the physical environment serves a passive role in social research. A*nalytical primacy* acknowledges the importance of social-physical interactions, but gives greater importance to either the physical or the social. This category is best exemplified by Durkheim's dictum and the concentration of social research on 'social facts'; in environmental sociology, this category is best exemplified by mild constructivism. The third category, *dualistic balance*, the physical and the social are both considered important dimensions. Researchers do not assign greater importance to the physical or social dimensions of the human-environment interaction, nor do they attempt to merge the two. *Mutual contingency* (*conjoint constitution*) is the most integrative of the four categories.

According to this approach, 'physical facts' are shaped by social processes and 'strictly social' phenomena are shaped by the biophysical world (Freudenburg, Frickel, and Gramling 1995). This type of research integrates the physical and social realms, utilizing each as having consequences for changes in the other.

Summary

The research on environmentally significant individual behavior has fallen under the broad research scope of "environmental concern" (Dunlap and Jones 2002; Fransson and Garling 1999). In this chapter, I reviewed the three main theoretical directions used to explain ESIB: research on worldview/primitive beliefs (NEP), theory of reasoned action/theory of planned behavior models, and the moral norm-activation theory models of ESIB. Dunlap's Ecological Worldview attempts to identify attitudes of an emerging worldview of environmental sustainability, suggesting that primitive beliefs concerning the environment direct ESIB. The Theory of Reasoned Action and Theory of Planned Behavior pose that attitudes and social norms influence one's intention to act in an environmentally responsive manner. On the other hand, Schwartz's Moral Norm-activation Theory argues that individual behaviors are directly influenced by positive/negative perceived effects of an environmental behavior, the "knowing and willing" to choose an environmental behavior from several behavior options, and finally consequences of an environmental behavior must be attributed to the self when acting out an environmental behavior.

Following the review of the three main theoretical directions utilized to explain ESIB, I outlined the discussion of ontology in environmental sociology. I provide a brief description of the three main ontological perspectives in environmental sociology: ontological constructionism, environmental realism, and symbolic realism. Ontological constructionism advocates that all human perceptions are socially constructed, and therefore clarity of a physical reality is never

realized. Environmental realism, on the other hand, articulates that once scientific knowledge is generally agreed upon, this knowledge represents the closest representation of the physical environment. Symbolic Realism attempts to bridge these two polar ontological foundations by acknowledging a symbolically constructed realist ontological foundation.

This discussion of ontological foundations in environmental sociology sets the stage for integrating an ecologically oriented symbolic interactionism to help explain ESIB. In the following chapter, I outline the ontological foundation of Symbolic Interactionism. I discuss previous research on human-environment interactions from a SI approach. I will also outline an ecologically informed symbolic interactionist perspective in the scope of environmental sociology by offering identity theory as a means of to theorized and predict ESIB. I end this chapter by providing examples of research utilizing this ecologically informed sociological symbolic interactionism perspective.

CHAPTER THREE

SYMBOLIC INTERACTIONISM AND HUMAN-ENVIRONMENT INTERACTION

In the debate of favorable theoretical foundations to study the human-environment interaction, symbolic interactionism[7] (SI) is often overlooked. It has been argued that the ontological constructivist school of environmental sociology has been strongly influenced by the schools of symbolic interactionism (Rosa and Deitz 1998). Using Freudenburg et al. (1995) typology discussed in chapter two, SI has historically viewed human-environment interactions from an analytical primacy perspective. Although much of SI research focuses exclusively on social constructed reality, there are a few SI researchers who have attempted to utilize SI to investigate human-environment interactions from a mutual contingency approach based in a symbolic realism ontological foundation. In this section, I describe the ontological foundation of Symbolic Interactionism. I then discuss previous research on human-environment interactions from a SI approach. Finally, I present an argument for an ecologically informed sociological symbolic interactionism, and provide examples of research utilizing this ecologically informed sociological symbolic interactionism.

Ontological grounding symbolic interactionism

"If men define situations as real, they are real in their consequences" (Thomas and Thomas 1928: 565-567).

The central principle of symbolic interactionism (SI) is that people create symbolic meaning from interactions with the environment, other people, and themselves. These meanings are produced and shared through symbolic interactions. Thomas's dictum set a research agenda for studying the symbolic interactions between individuals and the symbolic representation of the

[7] I use the term symbolic interaction as broad as it can be stretched to include post-structuralist and post-modern ideas of symbolic interaction, as well as Mead and Blumer's sociological symbolic interactionism.

physical and social world. In short, much of symbolic interaction research focuses exclusively on the socially constructed relationships between individuals in social groups and society. While this is an admirable and comfortable agenda for sociological social psychological research, it is inhibited in scope. George H. Mead (1962 [1934]), one of the founders, and arguably the most influential author of SI, did not articulate a theoretical foundation of SI devoid of a physical world. In the following section, I begin with a brief discussion of sociological symbolic interactionism and its use in explaining human-environment interaction. I present the ontological premise of Mead's social behaviorism and how to best utilize SI in the research on human-environment interaction.

Sociological Symbolic Interactionism. Sociological symbolic interactionism is a sociological perspective with a focus on the social domain, where reality is a social product formed through shared meanings and social interactions (Gecas 1995). For many symbolic interactionists, the study of human-environment interaction is a subject of study only when it falls within the domain of the symbolic.

The three basic tenets of symbolic interactionism are:

1) Humans act toward things on the basis of the meanings that things have for them;
2) The meanings of things derives from social interaction;
3) These meanings are dependent upon, and modified by, an interpretive process of the interactants (Blumer 1969; Gecas 1995).

A formulated from the above mentioned tenets, the focus of SI is the socially constructed meaning of objects that yield social behavior. Through the process of role-taking individuals are capable of predicting a response to behaviors, by taking the role of the other. In the symbolic realm, an individual can reflect one's intended behavior to comprehend the desired response. Often this ability is isolated to the concept of the generalized other. By taking the role of the

generalized other, we can interpret how others see our behaviors, and can alter our behaviors if we interpret our behaviors as not obtaining their desired goals.

Social meanings are not universal and often produce conflict. When social meanings are not consistent across individual, groups, or societies, communication becomes problematic. In many environmental conflicts, the meaning of the environment for each constituent can lead to conflict in communication. For example, a logger may look at a forest as a resource for economic income. On the other hand, the same forest for an environmentalist may hold meaning of a spiritual refuge or a recreation area. The object is the same, but the meanings are different. The different meanings an object holds will yield different behaviors towards the object.

Utilizing the forest example, the loggers cut down trees in a forest because the trees provide economic support for their lifestyle. The environmentalist walks amongst the trees admiring the beauty of the forest. Even if the forest could hold a different meaning for the logger, the behavior of the logger is guided by the belief that the forest is a means to economic gain. What become problematic are the behaviors of humans guided by such symbolic meaning, which can have unpredicted physical responses which are not symbolic in nature. Expanding SI to account for the non-symbolic responses of human behaviors can strengthen SI's ability to explain human-environment interactions.

Historic SI investigation of Human-Environment Interaction. Historically, SI research on human-environment interactions has fallen into Freudenburg's (1995) analytical separation or analytical primacy typology. For many SI researchers, research on human-environment interactions focuses on the symbolic representation of the natural environment under the auspices of the construction of social problems.

The social construction of the natural environment through meanings attributed to 'landscapes' was found to be a product of how individuals saw themselves (Greider and

Garkovich 1994). Greider and Garkovich (1994) utilize Mead's conception of 'landscapes' to argue that the natural environment is socially constructed by individuals with different values and beliefs about the natural environment. They outlined the importance of studying the phenomenological domain of the natural environment. While two different individuals may be looking at the same physical landscape, they create different 'landscapes' depending on how they see themselves in relation to the physical landscape (Greider and Garkovich 1994). Specifically, the bio-physical changes of the environment are not important; rather, how the 'object' of the environment is recreated through social meanings of other and self.

The social construction of the natural environment has also been investigated through comparing how diverse cultures differently conceptualize the meaning of the natural environment. Skogen (1996) investigated how the symbolic construction of the natural environment is influenced by employment. Children whose parents held abstract-oriented jobs created different meanings concerning the natural environment than children whose parents held production-oriented jobs. The different jobs parents hold provide different cultural foundations from which the children were socialized on the natural environment.

Abstraction-oriented cultures focus on the individual and the development of individuality, giving support to flexibility in thought (Skogen 1996). Individuals working abstract complex jobs rely on an abstract (symbolic) reality. Complexity in the workforce extends into other areas of one's life. Parents with abstract-oriented jobs tend to socialize their children into the same abstract mindset. Having an abstract orientated mindset allows the individual to stand outside the mode of production, seeing the larger picture of the environmental process. Youths socialized in families headed by abstraction-oriented individuals have more abstract notions of the physical environment.

Production-oriented culture centers on material production and the businesses surrounding this production. Production-oriented careers are beset with routine and/or manual

labor. Production-orientated headed families hold an exploitative or functional outlook of the natural environment. Children socialized in these families see their economic futures shaped by working the earth. In production-oriented families, children are socialized to overcome the constraints of the natural environment to reach prosperity (Skogen 1996).

As we can see from these examples, symbolic interactionism focuses on the social constructivist domain of the human-environment interaction. This is not to say that the social-physical domain of human-environment interaction is outside the conceptual framework of symbolic interactionism. In a step towards a mutual contingency approach to investigate human-environment interactions in a symbolic realist approach, an ecologically informed symbolic interactionist perspective is taken. I begin with a discussion of Mead's social philosophy of social behaviorism.

Mead and the Physical Environment. Mead's social behaviorism developed a pragmatic foundation for the study of social psychology, outlining how the self develops from the physical, as well as the social milieu. Accordingly the phenomenological dimension, mind and self are developed from the biological/ physiological dimension of the physical environment (Rosenthal and Bourgeois 1991).

McCarthy (1984) outlined Mead's discussion on the relationship between the self and physical environment. The mind emerges from contact with the physical world. Through one's senses, the mind is exposed to the physical world, creating boundaries for objects as well as the self. This provides an orientation of the self in time and place. Through the sense of touch, tactical experiences construct a physical environment that serves as the source of meanings constructed by the individual.

The emergence of self is dependent on the social relationship that one develops with the physical environment. The self is also dependent on the social relationship that one develops

with an ‘other’. Just as one comes to see oneself as one believes ‘others’ see them, one comes to see oneself in relationship to the physical environment. When one acts towards a physical object, the individual assumes that the physical object will respond to that act; one imagines the response of the physical object, and acts accordingly. For Mead, the process of reflexivity is not a purely symbolic task.

> *The human being’s capacity to view itself as an object within the field of its own experience, as well as its capacity to think is dependent upon its relation to three systems of reality: the inorganic, the organic, and the human social system* (McCarthy 1984: 106).

In order to be a reflexive being, one must have an organic composition, living in an inorganic/organic world; otherwise, there could not be symbolic meaning. In essence, Mead argues for ontological realism, upon which the symbolic world is built. Not only does the physical world provide a context for the individual to create a symbolic world, but that the individual needs the physical world to create a symbolic reality. This is not to say that Mead aimed toward materialist reductionism, but rather Mead suggests that social processes are built on physical process and need to be studied separate from the physical (Weigert 1991).

Contrary to W. I. Thomas dictum, Mead suggests there is a physical world that is real, regardless of the individual’s definition of reality.

> *“The world that is there” exists apart from our knowing and apart from our perception of it. That world does not arise within consciousness. Rather, consciousness is a response to it* (McCarthy 1984: 111).

For example, think of the old Warner Brothers’ Roadrunner and Coyote cartoons. In a truly ontological constructionist world, when Coyote unknowingly runs off a cliff, which provides great humor to symbolic interactionists, he does not fall until he realizes his mistake. On the contrary, Mead would suggest, that regardless of the individual’s construction of reality, there are physical consequences to all behavior.

Ecologically-informed symbolic interactionism. Building off of Mead's social behaviorism, Weigert (1997) expands symbolic interactionism to include interactions with the physical environment in his book Self, Interaction, and Natural Environment: Refocusing our Eyesight. Weigert explores the concept of transverse interactions and generalized environmental other.

Transverse interactions. As discussed earlier, people learn to observe and react to symbolically mediated realities. In symbolic interaction research, meanings are focused on symbolic meanings. In an ecologically-informed sociological symbolic interaction, meanings are outlined by four types of interaction[8], presented in table one. These methods are symbolic interaction, signal interaction, physical interaction, and transverse interaction. In the real world, each of these types of interactions are interrelated to all other interactions (Weigert 1997).

Human interacting meaningfully with Human ---------- Symbolic Interaction
Human interacting with Ox ---------- Symbolic-Signal Interaction
Ox interacting with Ox ---------- Non-Symbolic/Signal Interaction
Human interacting with Environment ---------- Transverse Symbolic Interaction
Ox interacting with Environment ---------- Transverse Signal Interaction
Environment interacting with Environment ---------- Physical Interaction

Table One: Types of Interactions (Weigert 1997)

Symbolic interactions are reserved for interactions between humans. Interactions between individuals regularly function on the symbolic level. Interactions between individuals are mediated by shared symbols, not the physical interactions underlying these symbols. Each individual brings their history of meanings to communicate with another individual; interactions happen on this symbolic level. In a *signal interaction*, interaction happens on the level of gestures. On this level, there is no symbolic meaning. If the gesture represents a symbolic

[8] Weigert (1997) defines his new theory of SI, systematic interactionism.

meaning, it becomes a symbol. Signal interactions are best exemplified by animal communications. When a deer senses danger, it displays the white underside of its tail. This gesture elicits cautious behaviors from other deer.[9] There is no known symbolic construction or action between these deer, but rather a signal interaction of behaviors is displayed. *Physical interactions* are interactions that happen on the bio-geo-physical level. A physical act is followed by a physical response. This is exemplified by any physical or biological property, gravity, Boyles's law, osmosis, etc.; physical interactions are the subject of the physical sciences.[10] *Transverse interactions* are the foundation of Weigert's thesis.

> *Building on the parallelism of nonsymbolic interaction between biologic individuals and symbolic interaction between self-conscious actors, transverse interaction refers to a universal type of interaction between living forms and the natural environment* (Weigert 1997: 23).

What makes transverse interactions interesting is these interactions involve humans who have the ability to construct meanings, while the physical environment is restricted to physical interaction. "An interactionist argues that, though it is true that meaning is constructed in interaction with other selves, it is also true that meanings emerge in interaction with the natural environments" (Weigert 1997: 168). The environment becomes the object of interaction, but this perceived interaction is constructed in a human social context.

> *The environmental other in transverse interaction exists at two levels. It comes to us, first, as a constructed other, a perceptual object seen from self's perspective looking through cultural lenses. The environment, however, is also a nonconstructed other that reacts through naturalistic causal patterns that are only partially seen through cultural lenses* (Weigert 1997: 26-27).

[9] Interestingly when the animal behaviorists explain this signal interaction, they often anthropomorphize the deer's action by suggesting that the deer is 'warning' the other deer. 'Warning' is a social construction.
[10] This reminds me of the classic discussion, "If a tree falls in a forest, and nobody's around, does it make a sound?" Sound is a social representation of vibrations of particles (physical responses to physical acts), leading to the discussion of transverse interactions.

What the symbolic agent communicates may not be what the physical agent perceives. There is no compromising of the naturalistic causal patterns; the physical agent is confined to physical responses, regardless if the symbolic agent can create meanings that align with the physical reality. In other words if the symbolic agent can not create a symbolic meaning that is representative of the physical interaction, the agent may be at odds with the physical interaction. "Naturalistic meanings ground and eventually support or destroy social meanings" (Weigert 1997: 16).

Generalized Environmental Other. According to the standard theory of SI, individuals incorporate the values and beliefs of a social group, community, or society through social interactions with significant others and the development of the organized attitudes of the whole social group, community, or society. The individual attributes these organized attitudes to a mental construction called *social generalized other*. The individual develops a sense of self in relationship to this social generalized other. Through reflexivity, one reflects on past and impending interactions with others in different situations, developing a framework of oneself in different situations, as well as developing a holistic sense of self.

Through transverse interactions, an individual constructs principles and laws of the physical environment. These symbolic principles and laws are developed through the reflexive process of the self, but instead of looking at our relationship to others (generalized other), the self reflects on one's relationship with the physical environment. Weigert (1997) refers to this as the *Generalized Environmental Other (GEO)*. In general SI, the generalized other is the object of reference to which individuals reflect on their past and potential behaviors. Weigert expands this generalized other to include the environment. "Anything – any object or set of objects, whether

animate or inanimate, human or animal, or merely physical – towards which he responds, socially, is an element in what for him is the generalized other" (Mead 1962 [1934]: 154).

Just as the *generalized other* attempts to organize the meanings of our personal behaviors to the behaviors of others, the GEO organizes meanings of personal behaviors toward the physical processes of the environment. "The idea of generalized environmental other recognizes the order of dependencies: nature → society → individual. The interactional processes also make us aware of the impact of individuals: individual → society and individual → nature" (Weigert 1997: 16). Through the ability to mentally and symbolically take the role of the GEO, individuals predict the physical response to one's behaviors.

For most individuals, walking is an unconscious behavior utilized to travel from one location to another. But from an ecologically-informed symbolic interactionist perspective, walking can exemplify both concepts of transverse interactions and the GEO. When we learn to walk as toddlers, we are uneasy of the physical response to our attempts to mimic our parents' display of traveling upright. Walking holds symbolic properties for the child, such as joy, pride, independence, but learning to walk also holds a physical dimension. A toddler is nervous about taking her first steps, because the previous like-behaviors have yielded inconsistent and often painful consequences (falling). Learning to walk, a toddler develops a sense of how to negotiate the physical properties of gravity in order to walk. This 'sense' of gravity becomes the GEO, a understanding of how the physical environment will react to her behavior when she attempts to walk. Having mastered the prediction of the GEO as physical property (gravity), the child slowly learns to conduct her own behavior, so that the physical properties of gravity no longer give her pain. The accomplishment provides her with a means to travel in an upright fashion. Mastering walking also provides the toddler with all the symbolic accolades that come with this behavior. Walking is a transverse interaction where symbolic meaning is given to a precisely controlled behavior working with a physical property (gravity) to elicit a particular outcome.

SI in Environmental Sociology: Mutual Contingency Approaches. Although much of SI research focuses exclusively on the social constructed meanings of the natural environment as described above, there are a few SI researchers who have attempted to utilize SI to investigate human-environment interactions from a mutual contingency (symbolic realist) approach. Not only do humans construct meaning of the natural environment, but these meanings are influenced by the physical environment.

Interactions with the natural environment have been found to significantly influence individual's perception of his/her life with respect to the environment (Finger 1994). Pleasant experiences with the natural environment provide positive attitudes that enhance or continue future pleasant experiences. Continual positive experiences with nature may internalize ideas of one's identity through times spent in nature. On the other hand, unpleasant experiences or lack of experience with the natural environment may influence individuals to refrain from future contact with nature. Reinterpreting this research utilizing Weigert's concept of transverse interaction, these finding suggest that pleasant experience (symbolic constructed meanings) with the natural environment (physical processes) lead to further pleasant experiences (symbolic) with nature.

Research on emotional affinity toward the natural environment has shown that environmental protective behavior can be predicted by environmental affinity and a good deal of that environmental affinity can be sketched back to positive experiences with the environment (Kals, Schumacher, and Montada 1999). These experiences could vary from family vacations in the national forest, living near the ocean, walking outside, or playing in one's backyard. Once again we can see transverse interactions suggested in this research. Emotional affinity, a symbolic construction, leads to positive environmental behavior, having both symbolic and physical dimensions.

Experiences of environmental catastrophes and nature experiences have also been found predictive of higher sensitization towards environmental issues. A study found that students

majoring in environmental studies were more likely to have explored nature as a child than students in other majors. This study strengthens the argument that childhood experiences in nature influence environmental identity socialization (McKnight 1990).

In a qualitative study, Thomashow (1995), an environmental educator, found that all of his students, who develop what he labels an ecological identity, describe cultivating their environmental identities from memories of childhood interaction with the physical environment (transverse interactions). "They have fond memories of special childhood places, formed through their connections to the earth via some kind of emotional experience, the basis of their bonding with the land or their neighborhood" (Thomashow 1995: 9). Adults with nature-inclusive environmental identities recall childhood experiences of playing in undeveloped areas where they felt like they were pioneers and discovers of new land untouched by any other human.

I have demonstrated that the study of human-environment interaction through symbolic interactionism can be broadened to a mutual contingency perspective, where the natural environment can influence and shape the social construction of nature. In all of the studies that I have reviewed in this section, the social constructions of the natural environment were influenced by direct experiences with the natural environment, highlighting Weigert's concept of *transverse interactions*. Having broadened the scope of symbolic interactionism to be more ecologically inclusive, we can outline identity theory, setting the stage for investigating ESIB.

Identity Theory

Although the majority of Americans hold positive attitudes toward the environment, research regarding the relationship between attitudes and ESIB has yielded modest results (Buttel 1987; Dunlap and Van Liere 1978; Scott and Willits 1994; Van Liere and Dunlap 1981). As I outlined earlier, attitude theory has been criticized on many fronts. From a symbolic interactionist perspective, the use of attitude theories to predict behavior has been criticized for

not referencing the self or one's identity (Biddle, Bank, and Slavings 1987; Burke 1991b; Chang, Piliavin, and Callero 1988; Sparks and Shepherd 1992). An important assumption underlying research on the self is that the self is a primary motivator of behavior (Stets and Burke 2002). In order to predict behavior, one needs to examine self-proclaimed identities and the corresponding sets of meanings attributed to these identities. Several studies have demonstrated this identity-behavior link (Burke 1989; Burke and Reitzes 1981; Stets and Burke 1996). In this section, I present the identity theory model, the three identity types, and the cognitive process of multiple identities, setting the stage to investigate ESIB utilizing identity theory grounded in a ecologically-informed symbolic interactionism.

Identity is the self-characterizations individuals construct of themselves (Gecas and Burke 1995). How one views oneself in relationship to others is the backbone of identity theory. Identity theory, grounded in structural school (Iowa) of symbolic interactionism (Gecas 1982), postulates that one's identity is a stable cognitive structure of the self shaped by society (Stryker 1980). Identity is the meaning one attributes to the self as to who one is, and provides a blueprint for individual behavior, as well as a standard or frame of reference for interpreting the world (Burke and Reitzes 1981). An identity is the meaning that an individual attributes to oneself as an individual in a social role, group membership, or personal characteristics (Smith-Lovin 2003).[11] Through socialization and the ability of the self to be reflexive, the individual develops a sense of self through negotiating meanings between the individual and her/his position within the social structure (Stryker 1980).

By connecting self to society, identity theory connects seemingly individualized behaviors to larger social structures. There are two "threads" of research developed from the foundation of structural symbolic interaction (Stryker and Burke 2000). First, the "external thread" focuses on the study of multiple identities in relationship to social structure (Serpe 1987;

[11] This definition is more inclusive than Styker's (1980) original notion of identity which focused exclusively on role-identities.

Stryker and Serpe 1982). The second "internal thread," through development of affect control theory and identity control theory (ICT), models the cognitive process of engaging an identity (Burke 1996; Burke 1991a; Heise 1979). In the following discussion, I begin with a description of ICT (internal thread), and then broaden the scope of identity research to include ecology of identities (external thread).

Identity Control Theory. Identities provide self-meanings, are a source of motivation, and are created through interaction with others as well as interaction with oneself (Burke 1980). Burke and his colleagues (Burke 1991c; Cast, Stets, and Burke 1995; Cast, Stets, and Burke 1999; Stets and Burke 1994; Tsushima and Burke 1999) applied a perceptual control model to illustrate the control and implementation of human behavior within ICT (Figure three). ICT outlines the control process of maintaining an identity through behavior and reflected appraisals. ICT focuses on the cognitive process that leads to a situational behavior, and assumes that the identity being enacted has been brought to the cognitive forefront from the multiple identities that an individual holds in the larger social structure (Smith-Lovin 2003).

The perceptual control model illustrates how internal perceptions of the physical and social environment regulate behavior. Internalized meanings defined by an individual's identity comprise the identity *standard*. As an individual receives information from the social environment (*input*), the information is compared to the identity *standard* in the *comparator*.

The *comparator* identifies any discrepancy between the perception of the social environment and the internalized identity *standard*. If the perception of the social environment is quantitatively and/or qualitatively different from the standard, the individual elicits a behavior (*output*), with the intention of rectifying the perceived discrepancy. Once the discrepancy is remedied, behavior will continue to maintain that standard. The perceptual control model can be

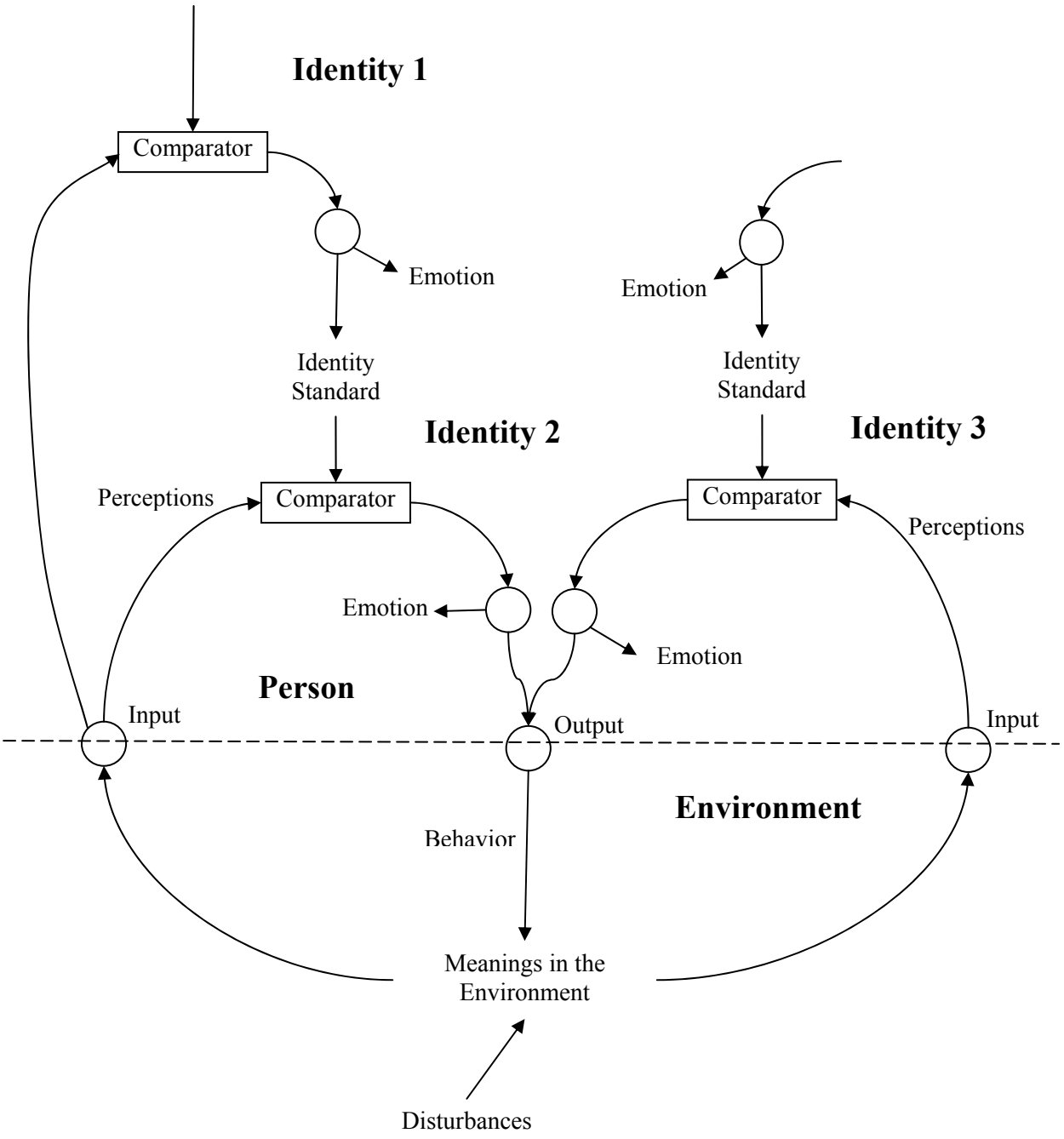

Figure Three. Identity Model

"thought of as having a goal – matching the environmental inputs to internal standards" (Burke 1991a: 837). If the perceptual discrepancy is not corrected, and the identity standard is consistently unsupported from the lack of self-verification, the identity standard will change to match the incoming perceptions (Burke 1999; Burke 2003a).

Social, Role and Person Identities. Identities can refer to group membership (social identity), specific roles (role identity), or personal values or individual uniqueness (person identity). Group membership is the foundation of social identities and studied within the scope of social identity theory. Social identities are meanings individuals attach to the self in reference to a category or group (nationality, political affiliation, sports team) to which they belong or identify with (Hogg and Abrams 1988; Tajfel and Turner 1979). Individuals come to see themselves as stipulated by one's group membership. Accordingly, how an individual sees oneself, as a member of a social group (in-group) and in contrast to other social groups (out-groups), shapes one's sense of self, and sets the *standard* of the perceptual control process outlined earlier. A central dimension of social identities is to maintain group cohesion and maintain an in-group/out-group distinction (Hogg, Terry, and White 1995).

Through the process of *self-categorization* individuals structure their reality in accordance to group ideals with the degree of the individual's membership or alliance guiding and directing their behaviors (Oakes, Haslam, and Turner 1994). When an individual identifies with a group or category, that individual goes through a process of *depersonalization*. *Depersonalization* is when the individual no longer sees oneself as independent of the group, but as one with the group (Turner, Oakes, Haslam, and McGarty 1994). From this *depersonalization* perspective, an individual no longer has self-perception of behavior, but rather one's behaviors are representative of the group. Group membership has a broader scope for self-meaning than role identities (discussed next) and often sets the stage for the types of structural role relationships that are accessible to people of different social groups (Deaux and Martin 2003).

Identity theory suggests individuals' identities are tied to the roles to which they subscribe (Burke 1991c; Stets and Burke 2000a; Stryker 1980). In other words, identity theory is tied to social structure through the roles individuals occupy. Individuals come to see themselves through a series of role relationships. For every role, there is a counter-role (parent/child,

employer/employee, masculine/feminine, and teacher/student). The role identity process seeks to verify roles when situations call for the role identity to be brought to the cognitive forefront. For example, an individual may claim both a parent and professor identity. While at university, the professor role-identity is activated and a professor behaves in accordance to the professor identity standards. Conversely, when the professor returns home, the role-identity of parent takes center stage. The different role identities people occupy and the actions people take to maintain them sustains the social structure in which the roles occupy (Cast and Burke 2002).

Person identities are identities that are tied to the person (Deaux 1992; Deaux 1993; Reid and Deaux 1996; Stets 1995), and exhibit characteristics that can differentiate individuals that share the same role or group membership. Person identities often operate across roles and situations, and in some situations guide the type and manner in which an individual identifies with a role or group (Gecas 2000)[12]. At the core of the person identity is the organization and structure of values (Hitlin 2003). For example, many fathers identify 'compassion' as a guiding attribute to their father role-identity, while other fathers identify 'discipline' as the guiding attribute to the father role-identity. Both 'compassion' and 'discipline' would be person identities, and higher ordered identities that serve as standards to the lower father role-identity. Person identities also link individuals to the larger cultural systems which share and socialize specific values to its members.

Multiple Identities. One of the foundations of symbolic interactionism, as outlined by William James (1890), is that people have multiple identities. While most research on identities concentrates on one identity and the causes/effects of having such an identity, the relationship between the multiple identities of an individual is rarely investigated (Burke 2003b). The intersection of different role identities can often lead to role conflict, strain, and inconsistency, leading to confusion and augmenting one's behavior. When conflicting identities are not

[12] Gecas (2000) uses value identity to refer to what I label here person identities.

simultaneously activated, conflict, strain, or inconsistency are not perceived (Burke 2003b). Multiple identities interact on two foci, the structural and the cognitive (Stryker and Burke 2000).

Ecology of Identities: Salience, Prominence, and Commitment. According to the structural dimension of identity theory, the self is made up of multiple identities and often these identities are potential competitors in behavior choice (Stryker 2000). Identity theorist, Lynn Smith-Lovin (2003) has argued that members of larger and more technologically advanced societies have more complex identity systems leading to less unified selves.

Individuals occupy different roles in society, and the different roles an individual holds often intersect and compete for the individual's attention. Multiple identities are structurally linked to each other through one's place within a social structure as identity commitment and salience organize identities; identity theory argues that identities are organized into a salience hierarchy (Stryker 1980). Salience is the "probability of invocation of an identity in a situation or situations" (Stryker 1980: 61). A hierarchy of identities includes the most salient identities at the top and the more situated, less salient identities at the bottom. More salient identities are more likely to be endorsed than less salient identities. The higher an identity is within the hierarchy, the more attached the individual is to that identity, and the more stress and/or negative emotion the individual will feel if the identity is not verified (Burke 1991c; Ellestad and Stets 1998; Thoits 1992). The more salient identities influence and help organize the less salient identities. Less salient identities that are more consistent with salient identities become more salient than those identities that are less consistent with salient identities controlling for situational demand of identity salience. Figure four gives a visual representation of the salience hierarchy.

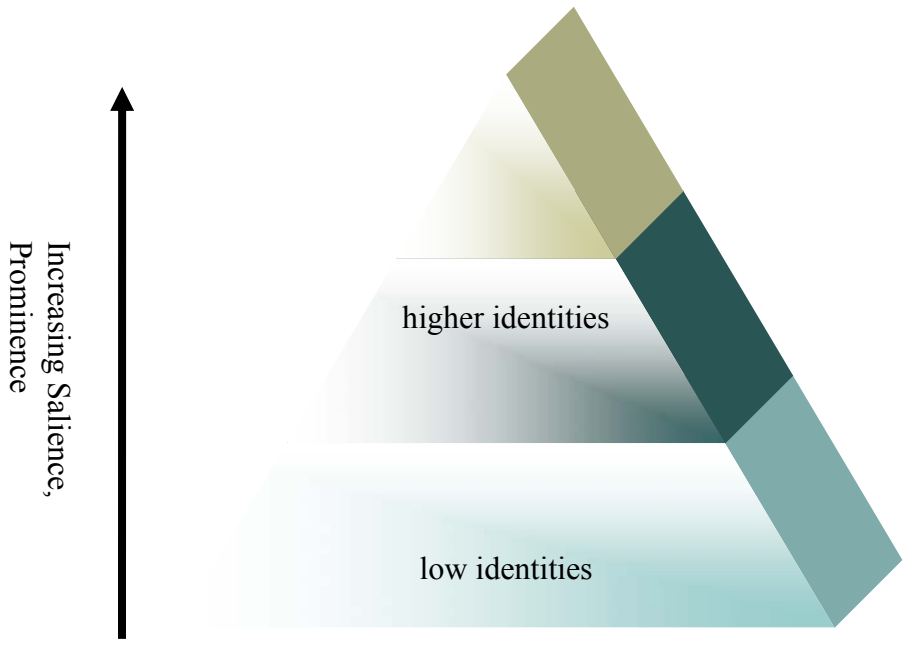

Figure four: Identity salience/prominence hierarchy

The two components of identity commitment influence identity salience: interactional/quantitative and affective/qualitative commitment (Stryker and Serpe 1982; Stryker and Serpe 1994). Interactional/quantitative commitment echoes the number of people one is connected to through an identity. The more people that one is connected to through an identity, the greater the interactional/quantitative commitment. Affective/qualitative commitment identifies the strength of the connections to others an identity provides. The stronger one's relationship to others, due to a role identity, the stronger one's affective/qualitative commitment. Research demonstrates the positive relationship between identity commitment and identity salience on role behavior (Callero 1885; Stryker and Serpe 1982).

Identities are not only organized in terms of salience, but also are organized in terms of prominence (McCall and Simmons 1978)[13]. Prominence is the *importance* of the identity to the individual, not the probability of invocating the identity (salience). Although an identity may be salient, this does not suggest that it is prominent (although it is often the case that identities with

[13] Stryker and Serpe (1994) coined the term "psychological centrality" and is conceptually equivalent to McCall and Simmons (1978) "prominence".

high salience are also high in prominence). For example, an individual's *work* identity may be most salient, as one can occupy this role eight to twelve hours a day. But one's *work* identity may be less prominent than one's *parent* identity which might be enacted only three to eight hours a day (less salient). Identities are also organized in a prominence hierarchy that reflects what an individual sees as most central to one's self-concept. Identities are more prominent to the self when the identity is supported by others, when one is committed to the identity, and the identity provides internal and external rewards (McCall and Simmons 1978). Salient, higher in commitment, and/or prominent identities are more likely to be enacted in a situation.

Hierarchy of cognitive perceptual control system. According to the cognitive dimension of identity theory, multiple identities are linked through a cognitive perceptual control system. Identities are hierarchically organized where several control systems are simultaneously activated. Higher feedback loops act as standards for lower level identity standards (Tsushima and Burke 1999). Looking back at figure three, identity *one* acts as the identity standard for identity *two*. Within this control systems, identities *two* and *three* are lower level standards and influence behavior more directly (Burke 2003b). Identity one is a higher identity and sets the standards for lower standards. Tsushima and Burke (1999) investigated the hierarchical relationship between the meanings of the parental identity. They found that parents who identified higher ordered, abstract (principle-level) identity standards such as values and beliefs (critical thinking, loving, etc.) as important identifies of their parent identity, experienced more agency in their parental role. Parents who identified lower ordered, concrete (program-level) identity standards, such as specific behavior cues (cleaning the bedroom, completing homework, etc.), experienced less agency in their parental role.

Identities hierarchically organized must have aligned meanings and the resulting behavior must attempt to verify identities on all levels. Identities at higher levels serve as the standards for

lower identities, and identities that are higher on the system represent more *personal* attributes of the individual (Tsushima and Burke 1999). When an individual enacts a behavior, like recycling a soda can, the entire identity control system is enacted where different hierarchically organized identities (ecologically conscious) serve as the standard for the lower identities (recycler) until the act of placing the soda can in the recycling bin is enacted (Burke 2003b). Consistently, all identities within the same hierarchal process must be aligned in the same hierarchal system and the identities must have consistent meanings for any action to take place.

For example, if a woman considers herself as frugal and a mother, taking her children to dinner at a fast-food restaurant would be out of character if the two identities were within the same cognitive system. On the other hand, if identities are orthogonal or on different cognitive structures, actions that may seem contradictory and cause an identity crisis may have no effect on the individual (Burke 2003b).

Person identities often operate across roles and situation (Gecas 2000). I suggest that person identities operate as higher ordered identities to other person, role, and social identities. Person identities bring individualization to role and social identities, bringing distinctive characteristics that set apart an individual from others in the same role/group (Thoits and Virshup 1997).

Values and Identities. At the core of a person's identity is the organization and structure of values (Hitlin 2003). Values are enduring beliefs about behaviors that go beyond particular situations and serve as evaluation standards for past and future behaviors (Rokeach 1973; Schwartz and Bilksy 1990). Accordingly, values guide and motivate behaviors that will confirm one's values. Values are higher ordered abstractions than attitudes (Rokeach 1973) and role/group identities (Hitlin 2003), and are an important element of the self-concept, as they provide people with meaning, purpose, and direction (Gecas 2000).

Rokeach (1973) distinguished between two types of values: instrumental and terminal values. Instrumental values comprise of belief of character such as "ambitious," "forgiving," "obedient," and "intellectual." Terminal values comprise of beliefs of goals, such as "equality," "salvation," "wisdom," and "pleasure." Terminal and instrumental values in an individual's value system are hierarchically organized, much like identity salience and prominence.

Schwartz (Schwartz and Bilksy 1990; 1992) argued that Rokeach's instrumental/terminal value dichotomy overly simplistic, and built off this dichotomy creating a circumplex model of ten value types (power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity, and security). Table two lists Schwartz's universal value typology and each type's motivational goals. Schwartz (1992) makes a distinction in the dimensionality of the value motivational types (figure five). The first dimension organizes values on whether the value type serves individual or collective interests (self-transcendence → self-enhancement). The second dimension organizes values that encourage individuals to follow their own intellectual/emotional goals/change or preserve the status quo (openness to change → conservation). In addition to the bi-polar dichotomies, value types that are adjacent in Schwartz's model share close motivational importance. For example, universalism and benevolence both emphasize concern for the well-being of others. Power and achievement both emphasize personal success and power. Schwartz's model of universal values has been seen as a practical estimation of the structure of values (Schwartz 1994). Conversely, values that are on opposing axes of Schwartz's model have opposing meanings. If one values obedience he is less likely to also value self-direction.

In previous research on values and the self, Verplanken and Holland (2002) suggest that individuals identify values central to the self (equality, success, etc.), and these values then frame social situations, through attenuating value-related information and motivating behavior.

Table Two: Schwartz's Universal Value Types

Power: control through status
- Social Power
- Authority
- Wealth
- Preserving my public image
- Social recognition

Achievement: personal competitive success
- Successful
- Capable
- Ambitious
- Influential
- Intelligent

Stimulation: risk taking and adventure
- Daring
- A varied life
- An exciting life

Hedonism: personal corporeal fulfillment
- Pleasure
- Enjoying life

Self-Direction: independent thought and action
- Curious
- Creativity
- Freedom
- Choosing own goals
- Independent
- Self-respect

Universalism: concern and tolerance for global other
- Protecting the environment
- Unity with nature
- A world of beauty
- Broad-minded
- Social Justice
- Wisdom
- Equality
- A world at peace
- Inner harmony

Benevolence: concern for welfare significant others
- Helpful
- Honest
- Forgiving
- Loyal
- Responsible
- A spiritual life
- True friendship
- Mature love
- Meaning in life

Tradition: traditional and religious activities
- Accepting my portion in life
- Devout
- Humble
- Respect for tradition
- Moderate
- Detachment

Conformity: subordination of one's will to the expectation of others.
- Obedient
- Honoring of parents and elders
- Politeness
- Self-discipline

Security: stability and safely in one's life
- Clean
- National Security
- Reciprocation of favors
- Social order
- Family security
- Sense of belonging
- Health

From an identity perspective, the values that are central to the self would serve as higher ordered identity standards that function as higher ordered standards across multiple identities. Values that are shared across multiple role and social identities would be considered more central to the self. Values can be conceived as higher-ordered person identities, serving as standards for lower role identities.

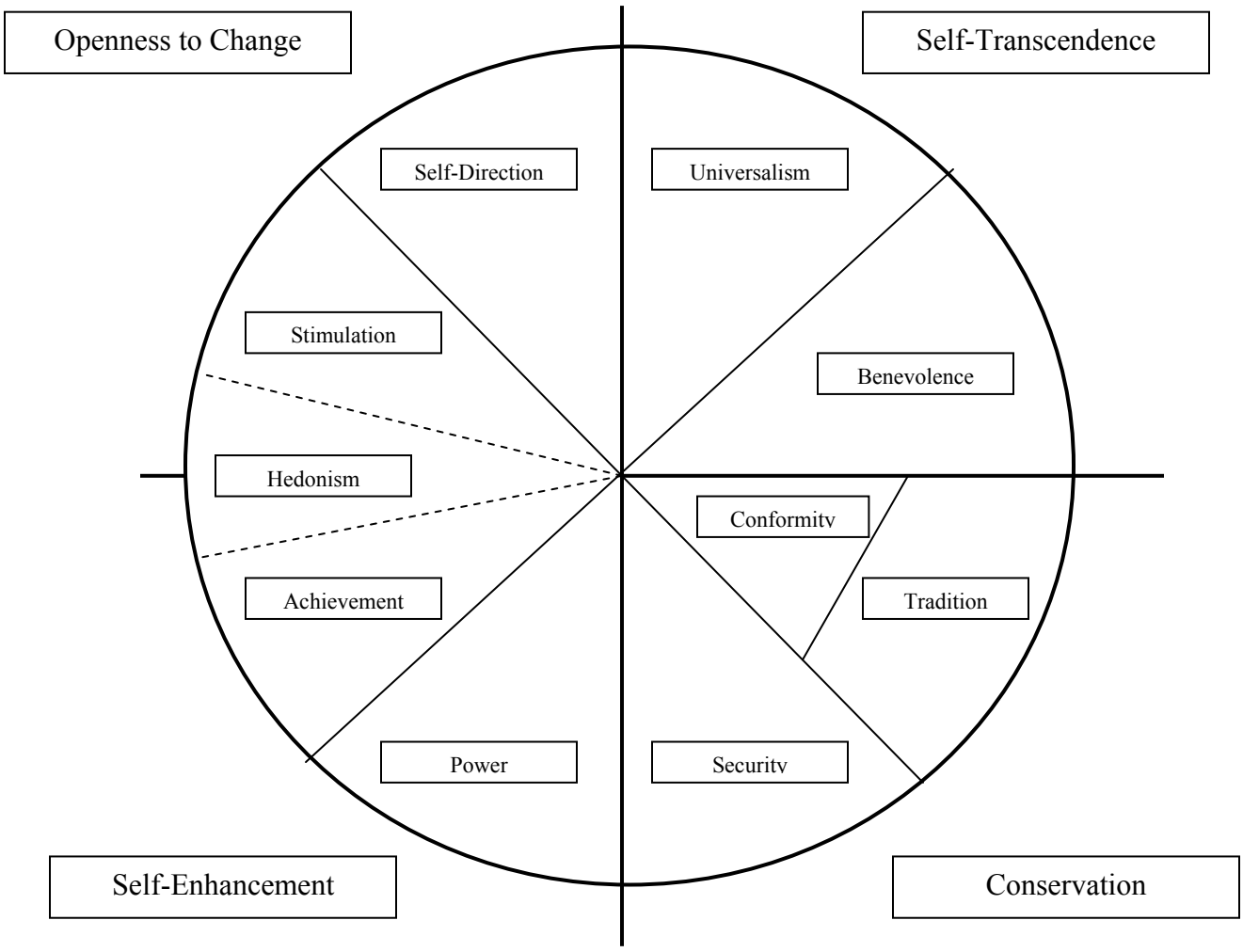

Figure five: Schwartz's Model for Universal Structure of Values

Summary

In this chapter, I draw on the ontological foundations of symbolic interactionism and past research of human-environment interactions utilizing SI to demonstrate how researchers utilizing SI has historically focus solely on the symbolic construction of the natural environment. I argue that neglecting SI capacity to investigate human-environment interactions via a mutual contingency approach has limited SI's ability to accurately investigate human-environment interactions. In this direction, I provide Mead's social philosophy social behaviorism, documenting his ontological foundation in symbolic realism, acknowledging the importance of the physical as well as the social in constructing the self and reality. From this foundation, I outline an ecologically-informed symbolic interactionism theorized by Weigert (1997), through an outline of transverse interactions and the generalized environmental other. This entire discussion of an ecologically-informed symbolic interactionism sets the stage for introducing identity theory as a model for investigating ESIB. By introducing the identity theory model, the types of identities, and the cognitive process of multiple identities, I provide the theoretical foundation to properly investigate ESIB.

In the following two chapters, I utilize identity theory to investigate the relationship between various identities including one's environment identity on ESIB. In chapter four, we develop an environment identity model of ESIB that includes not only the meanings of the environment identity, but also the prominence and salience of the environment identity, and commitment to the environment identity. We also investigate the meanings of the gender identity on ESIB. To compare the validity of our environment identity measure we also investigate it's predictability over commonly used environmental attitude scales (NEP and AC scales). In chapter five, I evaluate how shared values (person identities) influence one's gender, consumer,

and environmental identity and ESIB. In this study, I develop a shared meaning of multiple identities model of ESIB that includes not only the meanings of the environment identity, as seen in the first study, but included shared meanings across one's gender and consumer identity through higher ordered person identities: values.

CHAPTER FOUR

STUDY ONE:

BRINGING IDENTITY THEORY TO ENVIRONMENTAL SOCIOLOGY

The first study introduces identity theory to the study of environmentally significant individual behavior. This chapter was conducted in full collaboration with Jan E. Stets, and has subsequently been published in *Sociological Theory* (Stets and Biga 2003). In this study, we develop an environment identity model of environmental behavior that includes not only the meanings of the environment identity, but also the prominence and salience of the environment identity, and commitment to the environment identity. We examine the identity process as it relates to ESIB, though not to the exclusion of examining the effects of prominent measures of 'environmental concern.'

Environment Identity Model and Hypotheses

We bring the components of the identity process into a theoretical model of environmental significant individual behavior. Figure six presents the model. We are particularly interested in how the meanings of the environment identity, and the prominence, salience and commitment to the environment identity, together with their environmental attitudes, are related to ESIB. Additionally, since earlier environmental attitude studies have addressed two external, "non-attitudinal" factors believed to influence environmental behavior: gender and political orientation (Tarrant and Cordell 1997), we include these in our model.[14] We begin with the most distal causes of environmental behavior in our model: gender and gender identity.

[14] While previous results have been somewhat conflicting as to the effects of gender and political orientation, they have explained some of the variance in both environmental attitudes and environmental behavior.

Gender and Gender Identity. Environmental studies have shown that women tend to express higher levels of concern for the environment than men, although the findings are somewhat mixed (Davidson and Freudenburg 1996). The explanation that has received the most consistent support as to why women express higher levels of environmental concern is that women *care more* about the health and safety of their families and communities than men (Davidson and Freudenburg 1996). Caring is believed to be an orientation that women adopt more than men (Gilligan 1982). Indeed, the roles that women occupy in society such as domestic worker and primary caretaker foster a concern for the welfare of other people (Cancian and Oliker 2000; Eagly 1987).[15] This orientation would encourage pro-environment attitudes and ESIB.

The mixed support for gender and environmental outcomes may be due to the fact that one's environmental attitudes and behavior may have less to do with being female or male (being a member of a social category), and more to do with the meanings that people attribute to themselves as feminine or masculine (their gender identity). While masculinity is *agency-focused* where competition and independence are emphasized, femininity is *communion-oriented* in which sensitivity and a concern for others is highlighted (Eagly 1987; Spence and Helmreich 1978). Identity theory assumes that people choose behaviors that are similar in meaning to the meanings of their identities (Burke and Reitzes 1981). Therefore, we would expect ESIB to be linked more to femininity than masculinity.

[15] Whether a care orientation is rooted in nature or nurture is not directly relevant to the current research.

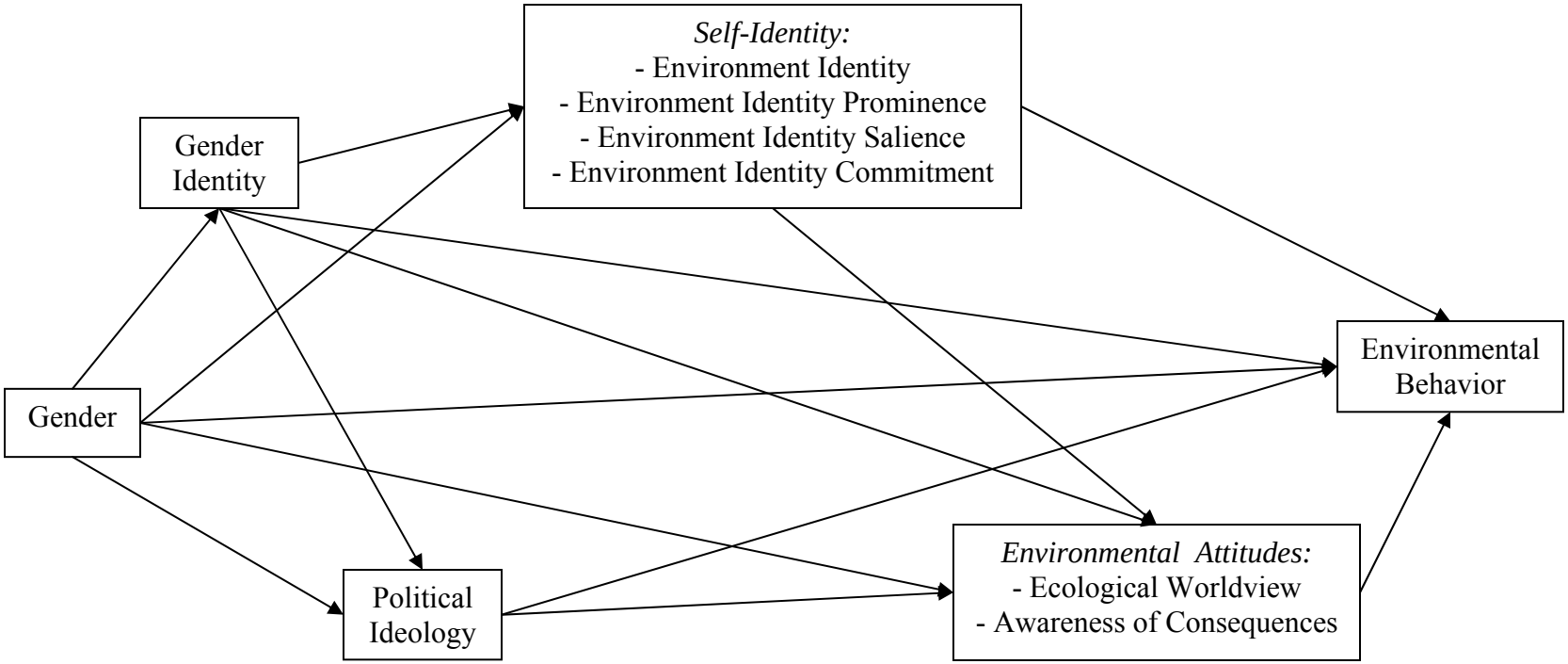

Figure 6. Environment Identity Model

Prior research has shown that *gender identity* in addition to gender is a good predictor of behavior. For example, studies on conversational behavior have found that the inconsistency as to whether men use more dominant and assertive speech patterns than women (James and Clark 1993; James and Krakich 1993) could be resolved by examining gender identity rather than gender (Drass 1986; Spencer and Drass 1989). Masculinity predicted more dominant and assertive speech patterns rather than being male. In the present research, while females may report pro-environmental attitudes and behavior, femininity may produce similar effects, and perhaps more reliably, since self-meanings are the guide rather than one's membership in a category. In the latter case, identification with category membership may vary as well as the behaviors that follow from it.

Given the above, we offer the following hypotheses:

HYPOTHESIS 1: Females will be more likely than males to report: a) pro-environmental attitudes and b) pro-environmental behavior.

HYPOTHESIS 2: Femininity will be positively related to: a) pro-environmental attitudes and b) pro-environmental behavior.

The Environment Identity, and its Prominence, Salience, and Commitment. In our model, we conceptualize the meanings that one attributes to the self as they relate to the environment (the environment identity) as the basis for one's environmental attitudes and behavior. Once one's environment identity is formed, environmental attitudes will develop and environmental behavior will follow.

As depicted in the model (figure six), the environment identity and its prominence, salience, and commitment will influence environmental behavior directly, but also indirectly

through an ecological worldview and awareness of consequences. We conceptualize the environment identity and its prominence, salience, and commitment at the same temporal level.[16] We are less concerned with whether identity prominence guides the salience of the environment identity and commitment to that identity, or alternatively, whether the salience of the environment identity and commitment to that identity influences the importance of that identity for the self. Rather, we are more concerned with how the environment identity, identity prominence, identity salience, and identity commitment influence environmental attitudes and behavior.

Since individuals likely develop their gender identity before their environment identity, we have placed gender identity as prior to the environment identity. Since femininity is linked to a concern for others, this other-directedness should influence self-meanings of a pro-environment identity, and an environment identity that is prominent, salient, and that which the individual is committed to. Similarly, since being female implies an ethic of care, females should be more likely than males to report a pro-environment identity as well as a prominent, salient, and committed environment identity.

Therefore, our next set of hypotheses includes the following:

HYPOTHESIS 3: Females will be more likely than males to report: a) the environment identity, b) a more prominent environment identity, c) a more salient environment identity, and d) a more committed environment identity.

[16] While some have argued for a causal ordering between identity prominence and identity salience with an important identity influencing that identity being played out in a situation (McCall and Simmons 1978; Nuttbrock and Freudiger 1991) others have argued that there is no causal ordering but simply an association between the two (Stryker and Serpe 1994). In the latter case, playing out an identity would simply *reflect* the importance of that identity.

HYPOTHESIS 4: Femininity will be more likely than masculinity to be positively linked to: a) the environment identity, b) the prominence of the environment identity, c) the salience of the environment identity, and d) commitment to the environment identity.

HYPOTHESIS 5: The environment identity will be positively associated with: a) pro-environmental attitudes and b) pro-environmental behavior.

HYPOTHESIS 6: The prominence of the environment identity will be positively related to: a) pro-environmental attitudes and b) pro-environmental behavior.

HYPOTHESIS 7: The salience of the environment identity will be positively associated with: a) pro-environmental attitudes and b) pro-environmental behavior.

HYPOTHESIS 8: Commitment to the environment identity will be positively related to: a) pro-environmental attitudes and b) pro-environmental behavior.

Environmental Attitudes. We do not assume a causal ordering of the environmental attitudes but rather see them as related to each other.[17] Based on the most recent analysis as to the relationship between environmental attitudes and behavior in environmental sociology, we expect that an ecological worldview and the awareness of the consequences of environmental conditions will positively influence environmentally responsive behavior. Tarrant and Cordell (1997) found that these two measures positively predicted pro-environmental behavior. Thus are final hypotheses are:

[17] Some have argued that the ecological worldview influences awareness of consequences because the former measures general beliefs and the latter reflects more specific beliefs (Stern 2000; Stern, Dietz, Abel, Guagnano, and Kalof 1999a; Stern, Dietz, and Guagnano 1995). While we are not convinced of this causal ordering, we do assume that the measures are similar and thus related, for example, persons who provide positive responses on one scale will respond positively on the other scale. We take this relationship into account by assuming that the errors between the two measures are correlated.

HYPOTHESIS 9: An ecological worldview will be positively associated with pro-environmental behavior.

HYPOTHESIS 10: Awareness of the consequences of environmental conditions will be positively associated with pro-environmental behavior.

In estimating the model in figure six, we assume that there are correlated errors not only between the ecological worldview and awareness of consequences scale, but also among the environment identity measures (environment identity, prominence, salience, and commitment to the environment identity). For simplicity, we have not diagrammed these correlated errors but they are estimated. This is a block-recursive recursive structural model with variables to the left of the model influencing factors to the right. To estimate the model, we use the maximum likelihood procedure of AMOS which incorporates information from all of the equations in the model at once (Arbuckle 1999). This is a full-information method rather than a limited-information method where the model's parameters are estimated one at a time. Assuming that the model is properly specified, the full-information method provides estimators with small mean-square errors.

Sample

An internet based survey on the environment was administered to students in seven upper- (course on human values, social psychology, deviance, and four sections of research methods) and one large introductory sociology courses at Washington State University in 2001. Students received a cover letter with a unique identification number requesting students to take

an internet based survey on environmental and consumer attitudes.[18] Students were told that their participation was voluntary, but that they would receive extra class credit for participating in the survey. It was also noted that all information collected by the research team would be held anonymously, and only aggregate information would be published.

Upon 'pulling-up' the study website, respondents were directed through 'welcome' page that repeated much of the same information provided in the cover letter (voluntary participation, anonymity, etc.). Students were then directed to a 'gateway' page. This page served as the gateway, allowing only people who received a cover sheet access, via the use of an assigned identification code. Respondents who provided a valid ID number were then asked to navigate ten web pages, answering questions on ESIB, environmental and consumer attitudes, identity measures, and basic demographics.[19] Upon completing the questionnaire, respondents were thanked on the "good-bye" page, and if prompted taken to the WSU website. As with traditional paper questionnaires mailed to respondents, the technology utilized in this internet questionnaire allowed for respondents to leave questions blank, providing the possibility of item nonresponse. The survey took approximately 20 minutes to complete. Appendix A provides the student cover letter and appendix B the internet questionnaire. A total of 437 students completed the questionnaire for a response rate of 78%.

The convenient sample used for this study was not intended to be representative of any population, as it is not the aim of this study to describe a population.[20] Instead, it is the purpose

[18] The use of unique identification numbers helped us track who participated in the research project, and to allow class instructors to assign extra credit. Students, who wanted to receive extra credit, turned in the cover letter with the unique identification number and their names. When the survey was removed from the internet for analysis, only the identification numbers were returned to the class instructors.

[19] The nature of this particular web questionnaire involved lengthy scrolling. It has come to my attention that, scrolling lends to questions being left unanswered leading to incomplete data. As with all research, this new information provided a learning experience, and this mistake remedied in the second study in chapter five.

[20] It has been noted that 80% of psychological studies use students as a research sample, while only 3% of the general population are students (Schultz 1972), leading many to argue that the science of human behavior

of this study to investigate the existence and direction of the hypothesized relationships based on the theoretical foundations of Identity Theory.[21]

Measurement

Dependent Measure. *Environmental Behavior*. The environmental behavior measure is made up of eight items taken from the Cambridge Reports, Yankelovich et al., and Gallup on environmental behaviors (Dunlap and Scarce 1991). In general, the items reflect respondents willing to take action to protect the environment. The first five items ask respondents to answer "No" or "Yes" (coded 0/1) to the following questions: 1) "Increased efforts by business and industry to improve environmental quality could lead to higher consumer prices. Would you be willing to pay higher consumer prices so that industry could better preserve and protect the environment?", "In the past several years, have you: 2) "Made any changes in your day-to-day behavior because of concerns about the environment?", 3) "Contributed money to an environmental, conservation, or wildlife preservation?", 4) "Boycotted a company's products because of its record on the environment?", and 5) "Volunteered for an environmental, conservation, or wildlife protection group?" The other two items ask respondents to indicate how much one strongly disagreed to strongly agreed (coded 1-4) with the following statements: "I would be willing to give up convenience products and services I now enjoy if it meant helping preserve our natural environment," and "I would be willing to spend a few hours a week of my own time helping to reduce the pollution problem."

(particularly social psychology and psychology) is the study of college and university sophomores (McNemar 1942).

[21] It is argued that identity theory is useful in explaining ESIB. As Zelditch so eloquently noted on laboratory experiments (Zelditch Jr. 1969), the same justification applies with convenient samples, there is no reason why results from convenient samples "*must* be directly extrapolated for them to be applied, because it is *theories* that are applied to concrete settings."

The above items are factor analyzed.[22] The results are shown in Table 3. The findings reveal that the items form a single factor with an eigenvalue greater than one only on the first factor. While the items share the underlying meaning of acting in an environmentally responsive manner, several different aspects are captured from these questions. Items 1 and 3 reflect the respondents' willingness to economically contribute to environmental causes. Items 2, 4, and 6 refer to behavioral changes respondents may engage to protect the environment including not purchasing products that represent exploiting the environment. Items 5 and 7 signify respondents' readiness to donate their time to preserve the environment. The items are standardized and summed, with a high score representing behavior that is environmentally responsive. The omega reliability (Heise and Bohrnstedt 1970) for this scale is .68.[23]

Table 3. Principal Component Factor Analysis of Environmental Behavior

1. Pay higher prices to preserve and protect the environment.	.37
2. Make changes in day-to-day behavior due to concerns about the environment.	.36
3. Contribute money to an environmental, conservation, or wildlife preservation group.	.32
4. Boycott a company's products because of its record on the environment.	.43
5. Volunteer work for an environmental, conservation, or wildlife protection group.	.34
6. Give up convenience products and services to preserve natural environment.	.47
7. Spend a few hours a week helping to reduce the pollution problem.	.48
Eigenvalue	1.12

Independent Measures. Environment Identity. The environment identity is the set of meanings attached to the self as the person interacts with the natural environment. As Weigert (1997)

[22] Factor analysis is utilized to find simple patterns among multiple variables in an attempt to uncover whether or not multiple variables can be reduced to a smaller number of variables or factors. Factor analysis is used in our analysis of variable constructs to confirm that each indicator of the larger measurement domain groups well (shares common patterns) with the other indicators of the same theoretical domain.

[23] While Cronbach's alpha is a score of the lower bound to interval consistency, the omega reliability provides a higher, less conservative score of internal consistency.

argues, the environment identity is an "experienced social understanding of who we are in relation to, and how we interact with, the natural environment" (p. 159). To operationalize the environment identity, we turn to a distinction in the literature as to how individuals see themselves in relation to the environment. This distinction involves the worldviews of anthropocentrism and ecocentrism (Brown 1992; Thompson and Barton 1994b).[24]

In anthropocentrism, humans are seen as intrinsically valuable, unique from all other species, and are shaped by their social and cultural environment. The biophysical environment is largely irrelevant to human action. The environment does not have intrinsic value; instead, it is a means to human ends. Thus, those holding an anthropocentric view would see themselves as independent and separate from the environment. In ecocentrism, while humans are valuable and unique, they are seen as one among many other species and objects (such as rivers and forests) that are of worth. When humans act, they must consider environmental forces that may impose constraints on human affairs. Essentially, those holding an ecocentric view would be concerned with the environment, define their relationship to it as interdependent, and be active and involved in the biophysical world.

Eleven bipolar statements comprise the environment identity measure. Respondents are asked to think about how they *view themselves* in relationship to the environment, identifying where they would place themselves between each bipolar statement referencing the environment. For example, respondents are asked whether they see themselves as "in competition with the natural environment" or as "in cooperation with the natural environment," as "superior to the natural environment" or "inferior to the natural environment," and so forth. The statements are listed in Table 4. Responses range from 1-5 where 1 reflects agreement with one bipolar

[24] An alternative distinction which is very similar in connotation is the human exemptionalism and new ecological paradigm (known as the HEP/NEP differentiation) (Buttel and Humphrey 2002).

statement, 5 reflects agreement with the other bipolar statement, and 3 indicate placing the self in between the two statements. Notice that in answering these questions, the focal point is the *person* rather than a role or position that one holds in the social structure. In this way, our conceptualization of the environment identity as a person identity is reflected in how it is measured. The results of the factor analysis show that the items form a single factor with an eigenvalue greater than one only on the first factor. Five items were reverse coded and then the items were standardized and summed with a high score representing an 'environmentally friendly' identity. The omega reliability for this scale is .91.

Table 4. Principal Component Factor Analysis of the Environment Identity

1. In competition with the natural environment…in cooperation with the natural environment.	-.60
2. Detached from the natural environment…connected to the natural environment.	-.68
3. Very concerned about the natural environment…indifferent about the natural environment.	.79
4. Very protective of the natural environment…Not at all protective of the natural environment.	.77
5. Superior to the natural environment…Inferior to the natural environment.	-.36
6. Very passionate towards the natural environment…not at all passionate towards the natural environment.	.68
7. Not respectful of the natural environment…Very respectful of the natural environment.	-.57
8. Independent from the natural environment…Dependent on the natural environment.	-.49
9. An advocate of the natural environment…Disinterested in the natural environment.	.74
10. Wanting to preserve the natural environment…Wanting to utilize the natural environment.	.57
11. Nostalgic thinking about the natural environment…Emotionless thinking about the natural environment.	.58
Eigenvalue	4.39

Prominence, Salience, and Commitment to the Environment Identity. When answering questions concerning the prominence, salience, and commitment to one's environment identity, respondents are to think about themselves when they are in the environment role. One's

environment role is defined for respondents as "how you relate to, interact with, and use the natural environment." Prominence of the environment identity is measured by asking respondents to indicate how important the environment role is to him/her. Response categories include "Not at all Important," "Somewhat Important," "Important," "Very Important" (coded 1-4).

Salience of the environment identity is measured by asking respondents to identify whether they would refer to themselves in the environment role when they initially met a person for the first time (Stryker and Serpe 1994). Three situations are presented including: 1) meeting a roommate for the first time, 2) meeting someone at a party for the first time, and 3) going on a date for the first time. Among a list of five roles (the worker, environment, friend, consumer, and student roles), respondents indicate which role they would tell the person first, which they would tell the person second, and so on in each of the three situations. Responses range from "Least Likely to Tell" to "Most Likely to Tell" (coded 1-5). For the environment role, the responses were standardized and summed across the three situations with a high score representing a more salient environment identity. The omega reliability for the salience measure is .86.

We measure both the quantitative/interactional/extensive and qualitative/affective/intensive dimensions of identity commitment (Stryker and Serpe 1982; Stryker and Serpe 1994). For the quantitative dimension, two questions are asked (Stryker and Serpe 1994). First, respondents are to indicate whether they have joined any organizations related to their environment role. Responses of "No" or "Yes" are coded 0/1. A second question asks respondents whether they have met any friends through activities related to the environment role. Responses of "No" or "Yes" are coded 0/1.

For the qualitative dimension, two additional questions are asked (Stryker and Serpe 1994). First, respondents are asked how important it is to them that their friends view them in the environment role. Responses include "Not at all Important," "Somewhat Important," "Important," and "Very Important" (coded 1-4). Respondents are also asked how important it is to them that their parents view them in the environment role. Responses are the same as those above and coded 1-4.

The items from both the interactional and affective dimensions were factor analyzed. The results are presented in Table 5. The analysis shows a single factor with an eigenvalue greater than one only on the first factor. The items were standardized and summed with a high score representing more commitment to the environment identity. The omega reliability for the commitment scale is .86.

Table 5. Principle Component Factor Analysis of Environment Identity Commitment

1. It is important that my friends view me in the environment role.	.67
2. It is important that my parents view me in the environment role.	.67
3. I have joined environmental organizations.	.64
4. I have met friends through activities while in the environment role.	.67
Eigenvalue	1.75

Environmental Attitudes: Ecological Worldview and Awareness of Consequences. The widely used and recently revised version of the New Ecological Paradigm (NEP) Scale (Dunlap, Van Liere, Mertig, and Jones 2000) is a 15-item scale, which is concerned with individuals' beliefs toward the environment and human's relationship to it. Examples of items include, "We are approaching the limit of the number of people the earth can support," "The balance of nature is strong enough to cope with the impacts of modern industrial nations," and "Humans are meant to

rule over the rest of nature." The response categories range from "Strongly Disagree" to "Strongly Agree" (coded 1-5).

Table 6. Principal Component Factor Analysis of Ecological Worldview

1. We are approaching the limit of the number of people the earth can support.	.40
2. Humans have the right to modify the natural environment to suit their needs.	-.39
3. When humans interfere with nature it often produces disastrous consequences.	.44
4. Human ingenuity will insure that we do NOT make the earth unlivable.	-.39
5. Humans are severely abusing the environment.	.42
6. The earth has plenty of natural resources if we just learn how to develop them.	-.29
7. Plants and animals have as much right as humans to exist.	.43
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations.	-.58
9. Despite our special abilities, humans are still subject to the laws of nature.	.32
10. The so-called "ecological crisis" facing humankind has been greatly exaggerated.	-.65
11. The earth is like a spaceship with very limited room and resources.	.42
12. Humans are meant to rule over the rest of nature.	-.48
13. The balance of nature is very delicate and easily upset.	.55
14. Humans will eventually learn enough about how nature works to be able to control it.	-.36
15. If things continue on their present course, we will soon experience a major ecological catastrophe.	.59
Eigenvalue	3.14

While early research identified three dimensions to the NEP scale, more recent research reveals only a single dimension (see Dunlap et al. 2000 for a review). Given the inconsistency in the multidimensionality of this scale, we treat the items making up the NEP as representing a single underlying construct: an ecological worldview. The items were factor analyzed. The results are presented in Table 6. The items form a single factor with an eigenvalue greater than

one only on the first factor. The items are reverse scored, standardized and summed, with a high score representing an ecological worldview. The alpha reliability for this scale is .79.

When we compared the mean responses across the NEP items in our population with those of Dunlap and his associates representative sample of Washington State residents (Dunlap, Van Liere, Mertig, and Jones 2000), there was not a significant difference ($t = 1.64$, n.s.). However, there was a slight reduction in the variability of responses in our sample with a somewhat smaller standard deviation than the Washington residents ($t = -2.21$, $p < .05$). This latter finding may be due to the greater homogeneity of our population in comparison to the Washington State residents.

The Awareness of Consequences (AC) Scale (Stern and Dietz 1994; Stern, Dietz, and Kalof 1993) is an alternative measure of environmental attitudes. Like the NEP, the AC measures beliefs on the environment, but people's responses on this scale presumably reflect an underlying value orientation that is threatened, and this threat then motivates individuals to act in an environmentally responsive manner. The nine-item scale is comprised of three components: an egoistic, social-altruistic, and biospheric value orientation. The response categories for all items in all components range from "Strongly Disagree" to "Strongly Agree" (coded 1-4).

The egoistic aspect involves people's concern to protect the environment based on self-interest. An individual favors protecting the environment only when the expected benefits *for the individual* outweigh the expected costs. The concern is with how environmental conditions affect the individual personally. Items that reflect this component include: 1) "Protecting the environment will threaten jobs for people like me," 2) "Laws protecting the environment limit my choices and personal freedom," and 3) "A clean environment provides me with better opportunities for recreation."

The social-altruistic feature is concerned with aspects of the environment that are likely to harm others. Persons valuing this orientation may bear personal costs to safeguard the environment so that others are protected. This orientation is other-directed rather than self-directed. They include the statements: 1) "We don't need to worry much about the environment because future generations will be better able to deal with these problems than we are," 2) "The effects of pollution on public health are worse than we realize," and 3) "Pollution generated here harms people all over the earth."

Finally, the biospheric component addresses the costs or benefits of aspects of the environment to other species, ecosystems, and the biosphere itself. Here, individuals go beyond humanity to other species and places that could be affected by environmental conditions. Items for this aspect include: 1) "Claims suggesting that current levels of pollution are changing the earth's climate are exaggerated," 2) "Over the next several decades, thousands of species will become extinct," and 3) "The balance of nature is delicate and easily upset."

Table 7. Principal Component Factor Analysis of Awareness of Consequences

1. Protecting the environment will threaten jobs for people like me.	-.31
2. Laws protecting the environment limit my choices and personal freedom.	-.35
3. A clean environment provides me with better opportunities for recreation.	.35
4. Future generations will be better able to deal with these environmental problems.	-.43
5. The effects of pollution on public health are worse than we realize.	.52
6. Pollution generated here harms people all over the earth.	.53
7. Current levels of pollution changing the earth's climate are exaggerated.	-.39
8. Over the next several decades, thousands of species will become extinct.	.44
9. The balance of nature is delicate and easily upset.	.50
Eigenvalue	1.68

We created several different scales. First, we generated a scale from the nine items. We factor analyzed the items. The results are shown in Table 7. The items form a single factor with an eigenvalue greater than one only on the first factor. Four items are reverse coded, and then all the items are standardized and summed, with a high score representing values that support protecting the environment. The omega reliability for this scale is .77.

Second, we examine the three components of this scale in separate analyses. For this, we created three subscales to represent the egoistic, social-altruistic, and biospheric aspects. Because three items will always factor into one scale (Schuessler 1971), we examine the correlations for the items making up the three scales. All of the inter-item correlations for each subscale are significant. These results are presented in Table 8. Each subscale is summed, with a higher score reflecting higher egoistic, social-altruistic, and biospheric values, respectively.

Table 8. Correlations of Egoistic, Social-Altruistic, and Biospheric Dimensions

Egoistic		
	(1)	(2)
(2)	.41*	
(3)	-.11*	-.20*
Social-Altruistic		
	(1)	(2)
(2)	-.18*	
(3)	-.20*	.45*
Biospheric		
	(1)	(2)
(2)	-.10*	
(3)	-.27*	.39*

* $p < .05$

Gender Identity. We use the Burke-Tully (1977) method to measure gender identity. This is a method now used in many studies on gender identity (see Stets and Burke 2000a for a review). It involves identifying people's meanings of being male or female, and then using these meanings as applied to the self to form a scale of gender identity. To operationalize gender identity, the

method uses the meanings of the people in one's sample rather than the meanings from another source such as the researcher or another population (Burke and Tully 1977). Discriminant function analysis is used to select those characteristics/meanings which discriminate most clearly between being male and being female. The most highly discriminating characteristics are weighted by the discriminant function, and then summed to form a gender identity scale.

In this study, the meanings of being male and female are taken from the Personal Attributes Questionnaire (PAQ) (Spence and Helmreich 1978). This is one of the most widely employed set of bipolar adjectives used to capture the meanings of maleness and femaleness in our society (Stets and Burke 2000b). The PAQ lists a series of attributes that are positively valued for both sexes, but are more normative for either males or females to endorse. Respondents rate themselves on these bipolar attributes. Result from the discriminate function analysis[25] (distinguishing males from females with respect to their self-meanings) reveal that five of the bipolar items discriminate most clearly between being male and being female: 1) not at all aware of the feelings of others…very aware of the feelings of others, 2) never cries…cries very easily, 3) feel very superior…feels very inferior, 4) not at all understanding of others…very understanding of others, and 5) very little need for security…very strong need for security. The items are weighted according to the discriminant function and summed, with a high score reflecting femininity and a low score reflecting masculinity.

Demographic Characteristics. *Gender* is coded 1 for males and 2 for females. *Political ideology* is measured using a seven-point scale ranging from extremely conservative to extremely liberal (coded 1-7).

[25] Discriminant function analysis is used to establish which variables differentiate between two or more naturally occurring groups (StatSoft 2006). In developing a measure of gender identity, we use discriminant analysis to determine which variables of the PAQ are the best predictors of one's sex (male or female).

Results

The means and standard deviations for each of the variables are presented in Table 9. Table 10 presents the correlations among the variables. Without other controls in the analysis, being female is positively related to a feminine gender identity and environmentally friendly attitudes, but males (rather than females) report a more salient environment identity. Femininity is positively associated with the awareness of consequences scale (though not the ecological worldview scale), and masculinity (rather than femininity) is associated with the salience of the environment identity.

Table 9. Means and Standard Deviations for Variables (N = 365)

Variables	Means	S.D.	Range
Gender	1.60	.49	1-2
Gender Identity	1.60	.27	.72-2.21
Political Ideology	4.26	1.21	1-7
Environmental Identity	-.01	.66	-2.24-1.87
Environment Identity Prominence	2.67	.81	1-4
Environment Identity Salience	-.01	.89	-.87-2.46
Environment Identity Commitment	-.01	.76	-.98-2.02
Ecological Worldview	-.01	.51	-1.58-1.35
Awareness of Consequences	-.01	.53	-1.65-1.23
Environmental Behavior	-.01	.54	-1.58-1.48

Table 8 reveals that the more ecocentric the environment identity, the more prominent and salient is the environment identity and the more the person is committed to the environment identity. Additionally, the more ecocentric the environment identity, the more environmentally friendly are the environmental attitudes and behavior. The prominence, salience, and one's commitment to the environment identity are all positively correlated with each other. They are also all positively related to pro-environmental attitudes and behavior. In general, the results show that not only are environmental attitudes significantly related to environmentally responsive behavior, but also one's environment identity as well as its prominence, salience, and one's commitment to that identity.

Table 10. Correlations of Variables (N = 365)

Variables	1	2	3	4	5	6	7	8	9	10
1. Gender	1.00									
2. Gender Identity	.54*	1.00								
3. Political Ideology	.08	.08	1.00							
4. Environment Identity	.05	.09	.21*	1.00						
5. Environment Identity Prominence	-.04	.01	.11*	.49*	1.00					
6. Environment Identity Salience	-.19*	-.14*	.04	.29*	.43*	1.00				
7. Environment Identity Commitment	.01	.06	.09	.48*	.51*	.40*	1.00			
8. Ecological Worldview	.12*	.10	.31*	.54*	.33*	.17*	.27*	1.00		
9. Awareness of Consequences	.12*	.18*	.24*	.48*	.35*	.17*	.32*	.61*	1.00	
10. Environmental Behavior	.04	.06	.23*	.59*	.52*	.33*	.50*	.40*	.43*	1.00

* $p < .05$

Table 11 shows the error correlations among the variables that we expected would be significantly related. The results show that factors that are related to the environment identity also are related to environment identity prominence, salience, and commitment. Additionally, identity prominence, salience and commitment are interrelated indicating that variables that are associated with one identity measure are also likely to be associated with the other identity measures. Finally, the errors for the two attitude scales are significantly correlated. In general, the findings support the correlation among the error terms, and these are taken into account in our estimation procedure.

Table 11. Error Correlations of Variables (N = 365)

Variables	1	2	3	4	5	6
1. Environment Identity	1.00					
2. Environment Identity Prominence	.49*	1.00				
3. Environment Identity Salience	.30*	.43*	1.00			
4. Environment Identity Commitment	.47*	.51*	.41*	1.00		
5. Ecological Worldview	---	---	---	---	1.00	
6. Awareness of Consequences	---	---	---	---	.45*	1.00

* $p < .05$; --- = not estimated

Table 12 shows the structural equation model[26] estimates of the theoretical model outlined in Figure 6.[27] While gender is related to gender identity, gender also influences the salience of the environment identity and holding an ecological worldview. While we expected women to report a more salient environment identity (Hypothesis 4c), the results reveal that the reverse is true ($\beta = -.16$, $p < .05$). While women have a more ecological worldview ($\beta = .10$, $p < .05$), they are not more likely to be aware of the consequences of environmental conditions.

[26] Structural equation modeling (SEM) is a hypothesis-testing cross-sectional statistical technique to determine if a certain specified model (series of structural equations) is a valid representation of a given data set (Bollen 1989). We utilize SEM because it not only allows for testing of non linear structural models, but also because SEM accounts for the modeling of interactions, nonlinearities, correlations between our independent variables, measurement error, and correlated error terms.

[27] In our model, we utilize listwise deletion, where missing values are ignored in the calculation of covariance matrices, as recommended when sample size is fairly large and the number of cases dropped is manageable (Kline 1998). Unlike pairwise deletion methods which can result errors in calculations in correlations and covariance, listwise deletion is prone to fewer errors.

Thus, there is mixed support for Hypothesis 1a. Further, because women do not show more pro-environmental behavior than men, Hypothesis 1b is not supported. Overall, gender has no direct effect on environmental behavior, or any indirect effect on behavior is weak and applies to men, through the salience of the environment identity.

Turning to gender identity, the more feminine one's gender identity, the greater the awareness of the consequences of environmental conditions ($\beta = .11$, $p < .05$), although more feminine people do not hold an ecological worldview. Therefore, there is also inconsistent support for Hypothesis 2a. Since greater awareness of the consequences of environmental conditions is related to pro-environmental behavior ($\beta = .13$, $p < .05$), more feminine individuals are more likely to enact environmentally responsive behaviors through concerns over environmental conditions. Thus, gender identity has an indirect effect on environmental behavior.

Moving forward in the theoretical model, the environment identity has the strongest significant effect, relative to the other effects, on environmental attitudes ($\beta = .45$, $p < .05$; $\beta = .35$, $p < .05$)) (Hypothesis 5a), and behavior ($\beta = .31$, $p < .05$) (Hypothesis 5b). In this way, the environment identity has a direct effect on environmental behavior and an indirect effect, through environmental attitudes. In addition, the more prominent the environment identity is, the more likely it is that one will hold positive environmental attitudes ($\beta = .10$, $p < .05$; $\beta = .13$, $p < .05$) (Hypothesis 6a) and enact environmentally responsive behaviors ($\beta = .19$, $p < .05$) (Hypothesis 6b). Thus, the effect of the prominence of the environment identity on environmental behavior is both direct and indirect, through environmental friendly attitudes.

Table 12. Standardized Estimates of Equations in Environment Identity Model (N = 365)

	Dependent Variables								
Independent Variables	Gender Identity	Political Ideology	Environment Identity	Environment Identity Prominence	Environment Identity Salience	Environment Identity Commitment	Ecological Worldview	Awareness of Consequences	ESIB
Gender	.54	0	0	0	-.16	0	.10	0	0
Gender Identity		0	0	0	0	0	0	.11	0
Political Ideology			.21	.12	0	0	.20	.14	.09
Environment Identity							.45	.35	.31
Environment Identity Prominence							.10	.13	.19
Environment Identity Salience							0	0	.07^{+}
Environment Identity Commitment							0	0	.17
Ecological Worldview									0
Awareness of Consequences									.13
R^2	.30*	.01	.05*	.02	.04*	.01	.34*	.29*	.47*

$^{+}$p < .10; *p < .05; non-zero coefficients = p < .05; zero coefficients = n.s.

The salience of the environment identity has a tendency to be related to environmental behavior ($\beta = .07$, $p < .10$) (Hypothesis 7b). Commitment to the environment identity ($\beta = .17$, $p < .05$) is also associated with environmental behavior (Hypothesis 8c). However, neither identity salience nor identity commitment are related to environmental attitudes (Hypothesis 7a and Hypothesis 8a). We more closely examined the effect of commitment to the environment identity on environmental behavior by analyzing the separate effects of the quantitative/interactional/extensive dimension and qualitative/affective/intensive dimensions. We found that the extensiveness of the ties ($\beta = .17$, $p < .05$) but not their intensiveness ($\beta = .04$, n.s.) was positively related to pro-environmental behavior.

With respect to the role of gender and gender identity on the environment identity and its dimensions, aside from the negative effect of gender on the salience of the environment identity, neither gender or gender identity are associated with the ecocentic-ness of the environment identity (Hypothesis 3a and 4a), the prominence of the identity (Hypothesis 3b and 4b), its salience (Hypothesis 3c and 4c) or commitment to the environment identity (Hypothesis 3d and 4d). Nor do they directly influence environmentally responsive behavior. Only gender identity has an effect (indirect) on environmental behavior.

While we expected environmental friendly attitudes to be positively associated with pro-environmental behavior, the relationship held only for the awareness of consequences scale ($\beta = .13$, $p < .05$) (Hypothesis 10), but not holding an ecological worldview (Hypothesis 9). Since the awareness of consequences scale has three components: the egoistic, social-altruistic, and biospheric, we examined how the factors in our theoretical model were related to these aspects in separate analyses. The results are presented in Table 13.

Table 13. Standardized Estimates of Equations Using Awareness of Consequences Components (N = 365)

	Dependent Variables		
Independent Variables	Egoistic	Social-Altruistic	Biospheric
Gender	0	0	0
Gender Identity	0	.12	0
Political Ideology	-.10	.11	.11
Environment Identity	-.32	.16	.27
Environment Identity Prominence	0	0	0
Environment Identity Salience	.13	0	0
Environment Identity Commitment	0	0	0
R^2	.18*	.13*	.18*

*p< .05; non-zero coefficients = p< .05; zero coefficients = n.s.

In Table 12, we found that having a more feminine identity was associated with being aware of the consequences of environmental conditions. The results in Table 13 reveal that femininity is only related to the social-altruistic component ($\beta = .12$, $p < .05$). Recall that this component is concerned with aspects of the environment that are likely to harm others. Further, recall that the gender identity measure we used discriminates between being male and female on such items as the degree to which one is "aware of the feelings of others" and "understanding of others" with these items characterizing females (and thus femininity) more than males (and masculinity). Therefore, femininity and social-altruism likely implicate similar meanings such that identifying with femininity becomes associated with identifying with the social-altruistic value.

While the results in Table 12 revealed that an pro-environmental identity is positively related to the awareness of consequences scale, the findings in Table 13 indicate that the effect of the environment identity is negative for the egoistic dimension ($\beta = -.32$, $p < .05$) and positive

for the social-altruistic ($\beta = .16$, $p < .05$) and biospheric ($\beta = .27$, $p < .05$) features.[28] Persons who claim the environment identity are not individuals who subscribe to environmental attitudes that imply a self-interested orientation. Rather, they are people who are concerned about the environment for reasons that are other-oriented. Behaving in an environmentally irresponsible manner can hurt other humans and the biosphere, more generally.

Finally, while the results in Table 12 showed that the salience of the environment identity is not related to the awareness of consequences scale, the results in Table 11 reveal that the salience of the environment identity is associated with the egoistic component ($\beta = .13$, $p < .05$). Since our findings in Table 12 indicated that men have a more salient environment identity, this higher salience may increase their endorsement of the egoistic component.

In a subsequent analysis, we examined how each of the components above related to environmental behavior. We found that only the social-altruistic aspect was associated with environmental behavior ($\beta = .12$, $p < .05$). Thus, those who engage in environmentally responsive behavior do so because they are motivated by concerns that are not ego-oriented or globally-oriented but other-oriented.

Discussion

One might argue that there is a futile quest in environmental sociology to look for increasingly refined concepts and better measures of environmental attitudes and behaviors in order to establish a stronger link between what people favor and how they behave. Derksen and Gartrell (1993) label this quest "methodological individualism" because it ignores the effects that

[28] As a reminder, the items in each of the three components are summed with a higher score reflecting a higher value on that component. In the creating the full scale, some items had to be reverse coded, such as those in the egoistic component, so that a higher score meant a higher value on being aware of the consequences of environmental conditions.

the social context has on behavior. While we agree that more studies are needed to examine the social context in which ESIB occurs, we maintain that a more fundamental change is needed to account for environmental behavior. We argue that sociological social psychology needs to be brought into this research. By relying on identity theory and introducing one's environment identity, that is, the set of self-meanings on the environment that one projects and sustains, we can much better account not only for environmental behavior, but also the environmental attitudes one holds as a result of this identity.

Identity theory brings social structure into environmental sociology by taking into account the fact that actors have multiple identities, one for each of the many positions they hold in a complex society. Because the identities associated with each position that one holds in the social structure cannot be activated at the same time without conflict, multiple identities are hierarchically arranged with those identities higher in the hierarchy, representing identities that are more prominent and salient, are activated more often than other identities. This hierarchical conceptualization of the self reflects a society that is similarly organized.

Commitment in identity theory makes explicit the embeddedness of individuals in particular locations in the social structure. The number of people in society that one is linked to by virtue of an identity and the strength of those social ties represent greater commitment to that identity. While prominence and salience represent the self and the strength of the link to the inside, to all of the other identities a person claims by virtue of the many positions he or she occupies, commitment represents society and the strength of the link to the outside, as reflected in the connections with others in the social structure.

When we investigate individuals' environment identity, as well as the prominence, salience, and commitment, and we relate this to environmental behavior, we keep actors attached

to the social structure in which they are embedded and from which action emerges. This is in contrast to psychological theory where actors are conceptualized as isolated entities, impervious to societal influences. We treat actors as having individual agency while recognizing that this agency may be constrained when interactions with particular social ties limit our resources and opportunities given the exclusion of other social ties.

Our results reveal that the environment identity, its prominence, commitment, and salience significantly influence pro-environmental behavior. Controlling for one's environment identity, the ecological worldview attitude has no effect on environmental behavior. Additionally, the effect of the awareness of consequences attitude is not as strong as the environment identity. Interestingly, when the environment identity and its prominence, salience, and commitment are excluded from the analysis, an ecological worldview is significantly associated with pro-environmental behavior ($\beta = .19$, $p < .05$), and to a greater extent, the awareness of consequences attitude measure ($\beta = .30$, $p < .05$). However, when the environment identity is added to the analysis, its effect is very strong (($\beta = .48$, $p < .05$), while the effect of the awareness of consequences measure is reduced ($\beta = .18$, $p < .05$), and the effect of the ecological worldview is markedly reduced and no longer significant ($\beta = .01$, n.s.). With the inclusion of the environment identity, the amount of variance explained in the model is significantly increased ($R^2 = .23$ to $R^2 = .38$; $F = 88.23$, df (1), $p < .05$). Further, when the prominence, salience, and commitment to the environment identity are added, the ecological worldview remains non-significant (see Table 10) and the awareness of consequences attitude measure is further reduced ($\beta = .13$, $p < .05$). When all of the environment identity measures are included in the model, the amount of explained variance again significantly increases ($R^2 = .38$ to $R^2 = .49$; $F = 20.00$, df (3), $p < .05$).

Holding an ecological worldview is not associated with pro-environmental behavior perhaps because it is a set of beliefs toward the environment that are too general and therefore not specific enough (Stern, Dietz, Kalof, and Guagnano 1995). Alternatively, the evaluative dimension of an attitude may be missing from this measure (Tarrant and Cordell 1997), and this may be important in predicting behavior. Indeed it is included in the awareness of consequences measure given the underlying emphasis on values. The value dimension that significantly influences environmental behavior is social-altruism, which is, safeguarding the environment to protect the welfare of other humans. [29] In general, our findings reveal that the relationship between pro-environmental attitudes and behavior is, in part, spurious due to the influence of the environment identity. One's identity serves as an important motivator for behavior because people act in ways to verify their identity meanings. This is a human process that environmental sociologists need to incorporate into their research.

In addressing actors' multiple identities in this research, we expected gender identity and the environment identity to have overlapping meanings along the dimension of care and other-directedness with the result that greater femininity would be positively associated with a pro-environment identity. We were surprised to find that gender identity is not associated with the environment identity or its prominence, salience, or commitment. Further, gender identity only influences pro-environmental behavior through the awareness of consequences of environmental conditions. More feminine persons hold social-altruistic values, which in turn, is associated with pro-environmental behavior. We can gain some insight on gender identity in environmental sociology research through an analysis of gender.

[29] We do not know whether a different attitude measure than the NEP or even the AC would be better associated with our measure of environmental behavior, or alternatively, whether a different environmental behavior measure would be related to these attitude measures. However, this focuses on measurement issues and not theory, the latter which we see as critical to advance environmental research.

In this study, females are more likely to hold an ecological worldview than males, but this pro-environmental attitude is not related to pro-environmental behavior. However, males have higher environmental identity salience than females, and a salient environment identity is only weakly associated with environmentally responsive behavior. In general, when examining gender as a *category*, the results are somewhat contradictory and there is no strong link between one's membership in a gender group and environmental behavior. When studying gender as an *identity*, the findings reveal only an indirect connection to environmental behavior, through one of the attitude measures. The above leads us to conclude that however gender is defined, either as category or as a set of meanings individuals attribute to themselves, it does not significantly add to our understanding of environmentally responsive behavior, particularly when we consider a more important factor, that is, the set of meanings individuals attribute to themselves in terms of their relationship to their environment – their environment identity.

While the environment identity and its prominence are positively associated with pro-environmental attitudes, salience and commitment to the environment identity are not related to environmental attitudes. Previous research has argued that identity prominence assumes a level of self-awareness that identity salience does not (Stryker and Serpe 1994). People are aware of more important identities compared to less important ones, but they may not be aware of how salient an identity is in their hierarchy, although their behavior would inform them of its ranking in the hierarchy. If persons are self-aware of identities that are more important, this should then lead them to endorse particular attitudes toward objects that correspond to identity self-meanings. Indeed, as earlier mentioned, Burke (1991a) argues that one's attitude and behavior toward an object must include one's attitude toward oneself. The environment identity and the prominence of the environment identity may be better proxies of one's attitude toward the self

than the salience of the environment identity or commitment to that identity, the latter of which may be relatively unconscious.

The findings of this research reveal that extensions to the attitude-behavior model that incorporate identity processes significantly contribute to our understanding of environmental behavior. We argue that the reason why identity factors improve our power to predict environmental behavior is because identity theory rests on the important sociological assumption that humans are embedded in a social structure where behavior is chosen not on the basis of discrete, personal decisions, but on the basis of competing demands stemming from the many positions one assumes in society. When we take into account actors' participation in the broader social structure and the networks of others that they are differentially tied to, we increase our ability to predict what they will do. Their behavior is no longer highly variable, but it is consistent and patterned across situations. It is the job of sociologists to discover, attend to, and understand individuals' actions, but this must be done within the context of a full set of patterns of action and interaction among all persons, all of which constitutes the structure of society.

CHAPTER FIVE

STUDY TWO:

ENVIRONMENTALLY SIGNIFICANT INDIVIDUAL BEHAVIORS: SHARED MEANINGS OF MULTIPLE IDENTITIES

Environmentally Significant Individual Behavior Model and Hypotheses

The second study expands research investigating the sociological social psychological properties influencing ESIB. The aim of this study is to evaluate how shared values (person identities) influence one's gender, consumer, and environmental identity and ESIB. In this study, I develop a shared meaning of multiple identities model of ESIB that includes not only the meanings of the environment identity, as seen in the first study, but included shared meanings across one's gender and consumer identity through higher ordered person identities; specifically, values. We begin with the most distal causes of ESIB in our model: person identities (values). The research model is presented in figure seven. As outlined earlier, identities are hierarchically organized where several control systems are simultaneously activated when eliciting a behavior. Higher ordered identities act as standards for lower level identities (Tsushima and Burke 1999), and values serve as higher ordered person identities (Hitlin 2003).

Universal value scale and gender identity: The roles that women occupy in society such as domestic worker and primary caretaker foster a concern for the welfare of others (Cancian and Oliker 2000; Eagly 1987). Therefore, a feminine gender identity would more support self-transcendence (universalism and benevolence) and unsupportive of self-enhancement (power and achievement) values types. While masculinity is *agency-focused* (self-enhancement and

conservation), where competition and independence are emphasized, femininity is *communion-oriented* (self-transcendence and openness to change) in which sensitivity and a concern for others is highlighted (Eagly 1987; Spence and Helmreich 1978).

Rokeach (1973) reported that women identified communal/expressive values to be more important, while men identified agentic/instrumental values to be more important. Subsequent research has found that women articulated concern and responsibility for the well-being of others more often than men, but men were more likely to identify finding purpose and meaning in life as more important than women (Beutel and Marini 1995).

Using Schwartz's universalism of value scale, Prince-Gibson and Schwartz (1998) hypothesized gender differences across their ten value types, suggesting that men would find power, hedonism, stimulation, and self-direction more important and women would find universalism, benevolence, conformity, and tradition more important than men. Contrary to hypothesis, they found no value difference between men and women (Prince-Gibson and Schwartz 1998). In an attempt to link gender, values and environmentalism, Dietz and colleagues (2002) studied the difference in value priority and meaning for men and women. While there were no structural difference in how men and women conceptualized values, women did rank altruism (universalism) higher in importance than men (Dietz, Kalof, and Stern 2002). While gender differences in values has been historically observed, the emergence of women from traditionally feminine roles (caretakers) into power and self-directed roles (such as breadwinners in the business world), it is foreseeable that the observable values of women would also change. It is argued that value differences between men and women are fading. How women define femininity is becoming less stereotypically 'feminine.' I hypothesized that the value differences between masculinity and femininity can not be articulated on the basis of shared values.

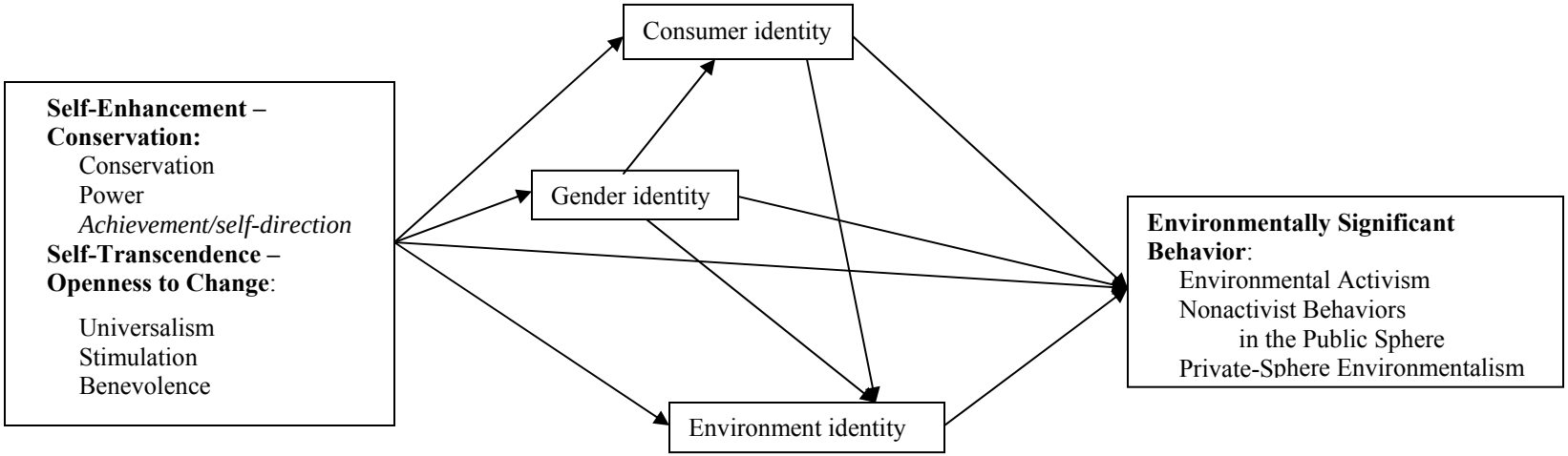

Figure Seven: Environmentally Significant Behavior Model

Universal value scale and consumer identity: While identity theory has yet to investigate the existence of a consumer identity, research has shown that consumption plays an significant role in the manufacture and maintenance of identities (Gentry, Baker, and Kraft 1995; Hogg and Michell 1996; Wilska 2002). I contend that a consumer identity is a higher ordered person identity[30].

In an attempt to ground the theories of postmodern consumption in a social psychology construct, Dittmar (1992) suggested that material possessions and consumption are defining attributes in an individual's self-concept. "This means that people express their personal and their social characteristics through material possessions, both to themselves and others"(Dittmar 1992: 11). Materialism is widely viewed as an important life value that guides consumerism (Kasser and Ryan 1993; Richins and Dawson 1992). Richins and Dawson (1992) define materialism as a "set of centrally held beliefs about the importance of possessions in one's life."

Not only do we identify ourselves through possessions, but possessions can also represent a plethora of values concerning the self. For example, a car does not just identify the owner as a car owner, but a car can identify the owner's sense of independence. In addition, if an individual sees oneself as exciting, purchasing a sports car can verify that person identity (exciting). A Sport Utility Vehicle (SUV) may verify an outdoorsman identity, while a hybrid/electric vehicle may identify an environmentalist or conversationalist identity. Therefore, through the act of consumption, identities are verified. Quoting Volkswagen, "we care what a car communicates" (Volkswagon 2004). Consumer products and their consumption provides an individual with an external physical construction of the self (Belk 1988).

[30] I argue that a consumer identity is a lower-level value than Schwartz's universal value model, but higher than the environment identity.

The sociology of consumption is largely influenced by postmodern thought. Postmodern theorists suggest that consumption has become 'a way of life.' In a postmodern society, Miles (1998) suggests individuals can become anything they want, so long as they are prepared to consume it. Sardonically, in a consumer society, the individual is never satisfied and further consumption is required to maintain a positive sense of self. Viewing this concept through an identity theory lens, the consumer identity needs to be continually monitored and verified through behavior and social interaction. One must continually go through the verification process or the identity suffers. People are often defined by what they consume, and not who they are (Fromm 1955). Through the act of consumption, people are provided with a sense of mastery over the self, as well as, individualization, as they can purchase happiness and a cultural identity.

A postmodern society perpetuates the ideology that – all human needs are only accessible through consumerism. In a postmodern society all cultural identities are products of a universal consumer identity. The act of consumption, guided by the materialism value, becomes a person identity of its own, where the self creates meaning through the consumption of material goods. The role of a consumer identity guides the formation of other identities, serving as a higher ordered person identity.

It is theorized under Schwartz's model of universal values, that self-enhancement and conservation values motivate a sense of success, ambition, wealth and social power. Utilizing Schwartz's model, it hypothesized that the values of self-enhancement and conservation values lead to a materialist-oriented consumer identity, on the foundation that materialism provides a behavioral outlet for individual oriented values. Reversely, the value dimension of self-transcendence and openness-to-change are motivated by harmony, wisdom, and equality, leading

me to hypothesize that self-transcendence and openness-to-change would be negatively related to a materialist-oriented consumer identity.

Richins and Dawson (1992) investigated the relationship between the materialism value scale and Kahle's (1986) List of Values Scale. They found that their material value scale related positively with the value of 'financial security' and negatively related to 'warm relations with others.' A study on materialism and well-being found that materialism is strongly related to the Schwartz's self-enhancement values of power and hedonism and negatively related to the self-transcendent values of benevolence and universalism (Burroughs and Rindfleisch 2002).

Schwartz's universal value scale, environment identity, and ESB: In Schwartz's model of universal values, self-enhancement and conservation values motivate a sense of success, ambition, wealth and social power, while self-transcendence and open-to-change values motivate a sense of tolerance, acceptance and harmony. The environment identity is the set of meanings attached to the self as a person interacts with the natural environment. As discussed earlier in chapter four, the environment identity is viewed on a continuum of distinct worldviews (anthropocentrism and ecocentrism). It is theorized that self-transcendence (universalism and benevolence) values are motivated by universal understanding and appreciation for the welfare of the global community. People who value self-transcendence are more likely to occupy roles and behave in ways that contribute to the collective good (Schwartz 1992). It is hypothesized that the values of self-transcendence will be positively related to a more communal ecocentric environmental identity. On the polar axis, self-enhancement (power and achievement) is theorized to motivate status differentiation and dominance over others. People who value self-enhancement will more likely occupy roles and behave in manners that will contribute to

individual needs of control and personal success (Schwartz 1992). It is hypothesized that the values of self-enhancement and conservation values will be positively related to an anthropocentric environmental identity and negatively related to pro-ESIB. It is also hypothesized that the values of self-transcendence and openness-to-change values would be positively related to an ecocentric environment identity and pro-ESIB.

While the investigation of higher ordered person identities is a new area of ESIB research, the investigation of values on ESIB is not. Many researchers have turned to understanding the effects Schwartz's universal value scale has on environmental attitudes and ESIB (Grunert and Juhl 1995; Nordlund and Garvill 2002; Schultz and Zelezny 1999; Stern et al. 1999a; Stern, Dietz, Kalof, and Guagnano 1995).

Grunert and Juhl (1995) found that self-transcendence values were positively correlated with pro-environmental attitudes. Schwartz's self-transcendence value typology includes indicators on the natural environment: "unity with nature" and "protecting the environment." Schultz and Zelezny (1999) investigated the extent that values predicted environmental attitudes [Dunlap's (2000) New Ecological Paradigm (NEP)] across 14 countries from North America, South America, and the European country of Spain. The NEP was predicted by the value categories of universalism (a sub-category of self-transcendence), and negative related to power and tradition (sub-categories of conservation). Using an environment identity scale (EID) based on social identity theory, Clayton (2003) found that her EID was positively correlated to several of the universal value indicators in Schwartz's universal value scale. Self-reported environmental behaviors were also positively related to self-transcendence values (Karp 1996; Nordlund and Garvill 2002). On the other hand, Schwartz's self-enhancement and conservation value

typologies have been found to be negatively related to pro-environmental attitudes (Schultz and Zelezny 1999; Stern et al. 1999a).

Given the above theoretical threads, I test the following hypotheses:

HYPOTHESIS 1: Self-Enhancement – Conservation Values (SE/C) will be (a) unrelated to gender identity; (b) positively related a pro-consumer identity; (c) negatively related to an ecocentric environment identity and (d) environmentally significant individual behaviors.

HYPOTHESIS 2: Self-transcendence – Openness to Change Values (ST/OC) will be (a) unrelated to gender identity; (b) negatively related to a pro-consumer identity; (c) positively related to an ecocentric environment identity, and (d) environmentally significant individual behaviors.

Gender identity and consumer identity: Richins (2004) found no correlation between sex and the Material Values Scale across several studies. On the other hand, using only three indicators of materialism, Beutel and Marini (1995) reported that men were more likely to accept materialism as important life value than women. Research suggests that men and women are different types of shoppers (one aspect of consumerism). Men have a tendency to be motivated by functional factors of shopping, while women have a tendency to be motivated by emotional and social factors of shopping (Dittmar, Long, and Meek 2004). Babin, Darden, and Griffin (1994) investigated sex differences in hedonic and utilitarian shopping value.[31] Women were more likely to find shopping to satisfy a hedonic value, where men were more likely to find shopping satisfying a utilitarian value.

[31] Within consumer research, utilitarian consumer value is the degree that the act of shopping successfully produces an outcome (the purchase of a product); whereas, a hedonic consumer value is the process of shopping that provides entertainment and emotional value in the act itself

Gender identity, environment identity, and ESB: The study of gender and environmental attitudes has yielded inconsistent and conflicting results. Many studies have shown females to have greater concern for the environment than males (McStay and Dunlap 1983; Stern, Dietz, and Kalof 1993; Tarrant and Cordell 1997), while others have shown modest or no relationship (Arcury, Scollay, and Johnson 1987; Mohai 1992; Mohai 1997). In addition, others have found conflicting results and argued that what gender differences are observable are products of gender-role socialization (Brasier 1995). Many of these differences are the result of the varying types of questions asked. Operationalization of concepts like environmental concern, environmental attitudes, and environmental action, measure different conceptual constructs (Dunlap and Jones 2002). Conducting a meta-analytic review of 32 articles between 1988 and 1998 on gender and environmentalism, Zelezny and collegues found that women are more likely to support the NEP (environmental attitudes) than men, and report greater participation in ESB (Zelezny, Chua, and Aldrich 2000).

As argued in chapter four, it is suggested that inconsistent relationship between gender, environmental attitudes and ESIB is better explained as a product of the meanings of being male/female, rather than with being of a certain sex. Socialization theorists have argued that women are socialized into an 'ethic of care' and men are socialized to be independent and competitive (Chodorow 1974; Gilligan 1982).

Chapter four investigated the effect of gender identity on environmental identity and ESB. It was hypothesized that femininity and pro-environment self-meanings would have overlapping meanings of 'care' and 'communion.' Contrary to hypothesis, one's gender identity was not associated with the environmental identity. In this chapter we further test the link

between gender identity, environmental identity, and ESB, but we expand the analysis to include shared values and the intersection with the consumer identity.

> *HYPOTHESIS 3: A feminine gender identity will be positively linked to (a) pro-consumer identity, (b) an environment friendly environment identity, and (c) environmentally significant individual behavior.*

Consumer and environmental identities. The consumer identity has been chosen as a pertinent identity in studying one's environmental identity. The increased importance consumption has gained in our post-World War II society (Miles 1998) warrants this addition. The consumer identity informs many subordinate identities that they can only live up to one's identity standard through the act of consumption. It was earlier hypothesized (1b, 1c, 2b, 2c) that that the pro-consumer identity and ecocentric environment identity do not share value meaning; therefore, we tested the following hypotheses:

> *HYPOTHESIS 4: A pro-consumer identity will be negatively related to (a) an ecocentric environment identity and (b) environmentally significant individual behavior.*

> *HYPOTHESIS 5: An ecocentric environment identity will be positively related to environmentally significant individual behavior.*

Sample

An internet survey on the environment and consumer attitudes was announced to members of a community environmental organization list-serve in the Pacific Northwest and to parents of four elementary schools within the local system in late 2003. The local environmental group announced the survey/study via email to 400 members, and yielded an 11% response rate. Parents of elementary school students were notified of the survey/study via cover letter, sent

home to parents along with the school's weekly announcements. 1260 cover letters were delivered to the four elementary schools to be included in the weekly school announcements. Twenty-eight parents completed the survey (2% response rate)[32]. The survey was also announced to 562 students in 5 upper- and 3 lower- level sociology classes at Washington State University[33] (70% response rate) and 113 students in two sociology courses at the University of Victoria in Canada (60% response rate) in the early part of 2004.[34,35] Preliminary analysis revealed that respondents from the various groups did not differ significantly between groups, therefore, all respondents were treat in the same analysis.[36] Cover letter is provided in appendix C and the questionnaire in appendix D.

All respondents were informed that their participation was voluntary and student respondents would receive extra class credit for participating in the survey. The survey took approximately 20-25 minutes to complete. Question topics included respondent's behavior

[32] It was known that the response rate of the 'parent' group would be extremely small as the mode of announcing the survey (via letter given to children to give to their parents), as well as the difficulty of accessing the survey (receiving the announcement → logging on to the website to complete the survey).
[33] Respondents from WSU included students from Introduction to Sociology, Marital and Sexual Lifestyles, Research Methods, Social Psychology, Juvenile Delinquency, and Corrections. Special care was taken to ensure students who happen to be in multiple courses only took the survey once.
[34] The varying methods for obtaining respondents was utilized to "cast the largest net" to capture a diverse group of people, lifestyles, and varying values/identities towards the environment. Having a diverse group of people in our survey increases the variability on the independent variables (consumer identity, environment identity, etc.), but the cognitive process of an hierarchy of identities with shared meanings is the same for all groups.
[35] Several nation wide environmental organizations (from polar perspectives on the environmental spectrum) were contacted in an attempt to gain cooperation in announcing this study/survey to their members. Two regional organizations (one 'pro-environment' and one 'pro-growth') were initially receptive to announcing the study/survey to their members, but due to communication difficulties, subsequently the announcement did not follow through.
[36] Identity theory specifies that one's hierarchy of identities influences ones behaviors; therefore, multiple identities are controlled for. Preliminary analysis revealed sample groups did not significantly vary in model analysis; therefore, sample groups were assumed irrelevant; therefore, the entire sample was treated as one research group. Once again this research project is designed to test the existence (and direction) of hypothesized relationships between ESIB and multiple identities.

toward the environment, their environmental identity, consumer identity, gender identity, general values, and demographic questions.[37]

Upon 'pulling-up' the study website, respondents were directed through 'welcome' page that repeated much of the same information provided in the cover letter (voluntary participation, anonymity, etc.). Students were then directed to a 'gateway' page. This page served as the gateway, allowing only people who received a cover sheet access, via the use of an assigned identification code.[38] Respondents who provided a valid ID number were then asked to navigate several web pages, answering questions on ESIB, environmental and consumer attitudes, identity measures, and basic demographics.[39] Upon completing the questionnaire, respondents were thanked on the "good-bye" page, and if prompted taken to the WSU website. As with traditional paper questionnaires mailed to respondents, the technology utilized in this internet questionnaire allowed for respondents to leave questions blank, providing the possibility of item nonresponse.

A total of 537 questionnaires were collected. More women (60%) completed the survey than men (40%). 92% of respondents were between the ages of 18-29 and have never been married (85%), and had a family (or own) income greater than $45,000 (57%). The racial make up of the sample was 80% White, 8% Asian, 4% Black, 3% Hispanic, and 5% claiming 'other.'[40]

[37] Twelve cognitive interviews were conducted before the survey was announced to respondents. Several changes were made to the design and ordering/working of questions.
[38] The use of an educated programmer helped streamline the ID code process. In the first study, entering a respondents ID number was cumbersome, and often required the researcher to help respondents to navigate the 'gateway' page. The assistance of an 'expert' programmer helped alleviate this issue.
[39] The nature of the questionnaire in the first study involved lengthy scrolling. Research suggests that respondents have an easier time navigating web questionnaires if scrolling is held to a minimum (Dillman 1999). With the help of our 'expert' programmer, the second study kept scrolling to a minimum to provide for easier navigation.
[40] Due to the small numbers of the community members, comparison between groups (environment group, parents, and students) was not quantified.

Measurement

Dependent Measure: Environmentally Significant Individual Behavior (ESIB): A criticism of study one: environment identity model of ESIB, is that the ESIB measure did not provide the depth of the different types of ESIB. Stern (2000) identified four categories of environmentally significant individual behavior (ESIB), including environmental activism, nonactivist behaviors in the public sphere, private-sphere environmentalism, and "other" environmentally significant behaviors. ESIB in study one was operationalized using four indicators of environmental activism and three indicators of non-activist behaviors in the public sphere.

In the present study, I expand the measurement of ESIB. I created three ESIB indexes using Stern's typology. I did not measure 'other environmentally significant behavior' since this category reflects ESIB that occurs within an organizational setting. Operationalizing this type of ESIB would be extraordinarily difficult to accomplish due to the unlimited types of behaviors in equally unlimited types of occupational and organizational settings. Stern (2000) gives the example of an engineer designing products that have little or no environmental impact, or a maintenance workers' decision to reduce/increase pollution at his/her factory of 'other' environmentally significant behavior.

Environmental Activism. Environmental activism measures the extent that individuals actively participate in the environmental movement. While Stern (2000) states that environmental activism and environmental citizenship are qualitatively different types of ESIB, previous measures of environmental activism and environmental citizenship are worded similarly. For this study, an environmental activism index is developed. This measure is made up of ten items taken and modified from Dunlap and Scarce (1991), Seguin et al. (1998), and Stern et al.(1999a). Four items within Seguin et al.(1998) measure of environmental activism were similar to items within

Stern et al. (1999a) measure of environmental citizenship, but utilized different response categories. My environmental activism index measures individual behaviors that directly support the environmental movement.

Table 14: Environmental Activism with Factor Loadings

How often do you participate in events organized by ecological/environmental groups?	.77
How often do you provide financial support for or gave money to an environmental group?	.74
How often do you circulate a petition demanding an improved movement of government policies regarding the environment?	.67
How often do you participate in protests against current or past environmental conditions?	.69
How often do you vote for a candidate proposing environmentally conscious policies?	.62
How often do you write letters to firms that manufacture products that are harmful to the environment?	.68
How often do you write letters or called your member of Congress or another government official to support strong environmental protection?	.80
How often do you boycott or avoid buying products of a company because you felt that company was harming the environment?	.62
How often do you read newsletters, magazines, or other publications written by environmental groups?	.70
How often do you volunteer your time to an environmental cause?	.63
Ω	.94

The environment activism measure asks respondents whether they participated in behaviors: "never," "rarely," "sometimes," "often" or "whenever an occasion arises" to ten questions on activities that lend support to the environmental movement. The environmental activism items were factor analyzed, illustrating that the items formed a single factor with an eigenvalue greater than one on only the first factor. The items were standardized and summed, with a high score mirroring behaviors that would benefit the environmental movement. The

omega reliability (Heise and Bohrnstedt 1970) for this scale is 0.94. Environmental activism indicators are provided in table 14, including factor loadings and omega reliability scores.

Nonactivist Behaviors in the Public Sphere. Stern (2000) identifies non-behaviors in the public sphere as nonactivist support of public policies that benefit the environment. These items are qualitatively different from environmental activism items, because they only indirectly affect the environmental movement through supporting policies that will directly have an environmental impact. The nine nonactivist behaviors in the public-sphere items include three items indicating one's willingness to sacrifice (Stern et al. 1999a), and six items created to coincide with recommendations made by The Union of Concerned Scientists (Brower, Leon, and Scientists 1999).

The nine nonactivist behaviors in the public sphere items ask respondents to "strongly agree," "somewhat agree," "somewhat disagree," or "strongly disagree" on each of the items. Results from factor analysis revealed that the items form a single factor with an eigenvalue greater than one only on the first factor. The items were standardized and summed, with a high score supporting more environmentally oriented policies. The omega reliability for this scale is 0.91. Nonactivist behaviors in the public sphere indicators are provided in table 15, including factor loadings and omega reliabilities.

Private-Sphere Environmentalism. Private-Sphere Environmentalism includes environmentally responsible consumer behaviors (products containing recycled material, organically grown food, etc.), purchasing/using major house goods (homes, automobiles, recreational travel),

Table 15: Nonactivist Behaviors in the Public Sphere

I would be willing to pay much higher taxes in order to protect the environment.	.73
I would be willing to accept cuts in my standard of living to protect the environment.	.71
I would be willing to pay much higher prices on consumer products in order to protect the environment.	.71
I support product certifications (ex. Energy Star certification for energy efficiency, Forest Steward Council's certification of forestry products) so consumers know what products have meet strict environmental standards.	.60
I support the use of renewable energy (wind and solar energy) over nonrenewable energy (coal and oil).	.65
I support laws that require companies to make their products more energy efficient.	.67
I support charging a deposit on recyclable materials (cans, tins, and glass) to encourage people to recycle.	.54
I support imposing taxes on companies who pollute the natural environment.	.65
I support higher taxes on gasoline to help combat air pollution.	.68
Ω	.91

using/maintaining appliances that are major drains of home energy use (furnace, AC, refrigerator, freezer, etc.), and the disposal of household waste (recycling, compost, etc.). As one could imagine, choosing measurement items of private-sphere environmentalism could become an endless endeavor. Previous items of private-sphere environmentalism have included as little as four items (Stern et al. 1999a), to as many as a 30-item scale (Roberts and Bacon 1997). In the spirit of measuring 'effective' consumer behaviors, ten items were created to coincide with recommendations made by The Union of Concerned Scientists on environmentally conscious consumer behaviors (Brower, Leon, and Scientists 1999).

Table 16: Private-Sphere Environmentalism

When looking for a place to live, I choose a place that reduced my need to drive.	.53
When I purchased my last car, I tried to find the most fuel efficient and least polluting car that fits my everyday needs.	.60
Whenever practical, I walk, ride a bike, or take public transportation instead of driving my car.	.58
I have reduced my consumption of meat (beef, chicken, pork, and fish) for environmental reasons.	.55
I make a special effort to buy foods grown without pesticides or chemicals; also know as organic food	.66
I have chosen the size of my house that does not exceed the needs of my family.	.52
I have taken steps to reduce the environmental costs of heating the house by turning down the thermostat to 68° or less.	.50
When purchasing appliances (like refrigerators, stove, dish/clothes washers) I make an effort to buy the most efficient appliances I can afford.	.61
I have installed compact fluorescents or other energy efficient light bulbs in my home.	.47
I make a special effort to buy detergents and cleaning solutions that are environmentally friendly.	.62
	Ω .87

The private-sphere environmentalism items asked respondents to "strongly agree," "somewhat agree," "disagree," "strongly disagree," with ten items measuring personal behaviors with environmental consequences. The items were factor analyzed, revealing that the items formed a single factor with an eigenvalue greater than one only on the first factor. The items were standardized and summed, with a high score representing consumer behaviors that lessen one's environmental impact. The omega reliability for this scale is 0.87. Private sphere environmentalism indicators are provided in table 16, including factor loadings and omega reliability.

Independent Measures: Environment Identity. In study one, we designed the environment identity measure to illuminate self-perceptions of how one sees themself in relationship to the natural environment on the dimension of ecocentric/anthropocentric.[41] Ecocentrism outlines a self-environment relationship that highlights a human-environment connection, while anthropocentrism highlights the human's independence from the environment (Brown 1992; Thompson and Barton 1994b).

Table 17: Environmental Identity with Factor Loadings

in competition with the natural environment…in cooperation with the natural environment (R)	.51
detached from the natural environment…connected to the natural environment (R)	.67
very concerned about the natural environment…indifferent about the natural environment	.78
very protective of the natural environment…not at all protective of the natural environment	.79
superior to the natural environment…inferior to the natural environment (R)	.31
very passionate towards the natural environment…not at all passionate towards the natural environment	.77
not respectful of the natural environment…very respectful of the natural environment (R)	.52
independent from the natural environment…dependent on the natural environment (R)	.55
an advocate of the natural environment…disinterested in the natural environment	.77
wanting to preserve the natural environment…wanting to utilize the natural environment	.69
nostalgic thinking about the natural environment…emotionless thinking about the natural environment	.71
(R) – reverse coded	Ω .93

Eleven bipolar statements comprise the environment identity measure. Respondents were asked to think about how they view themselves in relationship to the environment, identifying where they would place themselves between each bipolar statement referencing the natural environment. Responses range from 1-5 where one reflects agreement with one bipolar statement and five reflects agreement with the other bipolar statement. The person is the focus of each of

[41] Within social psychology, the environment identity has been conceptualized across several dimensions, from a awareness of an ecological identity (Thomashow 1995) to seeing the environment as other (Weigert 1997). Several other dimensions of the environment could include the difference between the environment identity as a person, role, or social identity. See Clayton and Opotow's edited volume on Identity and the Natural Environment: The psychological Significance of Nature (Clayton and Opotow 2003). For the present research, we focus on the environment identity as a person identity that is measured across the anthropocentric/ecocentric dimension.

the items reflecting the nature of the environment identity as a person identity. The Burke-Tully (1977) method of measuring role identities requires a categorical distinction (ex. male/female, student/teacher). In the environment identity measure there is no such distinction, so factor analysis was utilized as the appropriate alternative. All items loaded highly on only one factor with an eigenvalue greater than one. Six items were reverse coded. The items were standardized and summed with an omega reliability coefficient of 0.93. Environment identity indicators are provided in table 17, including factor loadings and omega reliabilities.

Consumer Identity. The consumer identity illuminates self-perceptions of how one sees oneself as a consumer. The consumer identity measure was made up of thirteen items that were inspired by measures of materialism (Richins and Dawson 1992) and a consumer orientation index (Saunders and Munro 2000). Both Richins and Dawson's (1992) materialism scale and Saunders and Munro (2000) consumer orientation index used Likert response categories. When measuring identities, bipolar statement measures are normative (Burke and Tully 1977), so items from the materialism and consumer orientation index were combined and worded on five-point bipolar statements to referent the self. Respondents were asked to think about what kind of person they are when placing themselves between the item's bipolar statements.

Responses rage from 1-5 where one reflects agreement with one bipolar statement and five reflects agreement with the other bipolar statement. As with the environment identity measure, we do not have criterion categories for discriminant function analysis; therefore, factor analysis was utilized. All items only factored highly on one factor with an eigenvalue greater than one. Seven items were reverse coded, and then the items were standardized and summed. A high score on the consumer identity measure acknowledges the respondents awareness of the

importance consumption and consumerism is to their lifestyle. The omega reliability for the consumer identity measure is 0.92. Consumer identity indicators are provided in table 18, including factor loadings and omega reliabilities.

Table 18: Consumer Identity with Factor Loadings

admires people who own expensive things…loathe people who own expensive things (R)	.59
aspires to acquiring material possessions…shun the acquisition of material possessions (R)	.77
thinks material possessions does not equal success…thinks material possessions equal success	.62
likes to impress people with the things I own…is unconcerned with what people think about what I own(R)	.61
buys only the things I 'need'…buys things that I 'want'	.63
thinks the things I own are of little value to me …thinks the things I own are very valuable to me	.26
thinks shopping is pleasurable…thinks shopping is monotonous (R)	.58
strives for luxury…is uncomfortable with luxury (R)	.77
is happy with what I have…would be happier if I had more	.49
does not need what I can not afford …is frustrated that I can not afford the things I want	.56
has a lot of personal possessions …has very little personal possessions (R)	.51
keeps up with the latest fashions…is not in tune with the latest fashion (R)	.65
thinks enjoying one's job is more important than being well paid…thinks a career that is well paid is more important that enjoying ones job	.42
( ) – reverse coded Ω	.92

Gender Identity. The Burke-Tully (1977) method to measure gender identity was utilized. By identifying people's meanings of being male or female within the sample to measure ones gender identity, the meanings that people hold directs the research, rather than an outside source. Discriminant function analysis was used to select the meanings that best discriminate between being male or female. Items were taken from the Personal Attributes Questionnaire (PAQ) to measure maleness/femaleness because it includes items that are normatively valued by either males or females (Spence and Helmreich 1978). Results from the discriminate function analysis reveal that five of the bipolar items discriminate most clearly between being male and female:

1) very submissive … very dominant
2) can make decisions easily … has difficulty making decisions

3) never cries … cries very easily
4) feels very inferior … feels very superior
5) very little need for security … very strong need for security

Responses rage from 1-5 where one reflects agreement with one bipolar statement and five reflects agreement with the other bipolar statement. The items are weighted according to the discriminant function and summed, with a high score reflecting femininity and a low score reflecting masculinity.

"*Values" measure*. Twenty-four items from Schwartz Value Survey (1992) were included in this study. Schwartz (1992) makes a distinction in the dimensionality of value motivational types across the self-enhancement/self-transcendence and conservation/openness to change axis (figure five). When selecting items for study we maintained this distinction in mind. Three value items were selected from each of Schwartz's motivational types of values: self-direction (freedom, choosing own goals, curious), stimulation (varied life, daring, exciting life), achievement (ambitious, capable, successful), power (social power, wealth, preserve public image), security (national security, social order, clean), tradition/conformity (respect for tradition, accepting my portion in life, humble), benevolence (helpful, forgiving, honest), and universalism (unity with the environment, protecting the environment, social justice). The category of hedonism traditionally overlaps with the categories of achievement and stimulation and was therefore excluded. Religiosity does not fall on the self-enhancement/self-transcendence or conservation/openness to change dimensions and was subsequently excluded.

While Schwartz asked respondents to rate a list of values form –1 to 7, in this study respondents were asked, "On this scale, how important is this concept as a guiding principle in my life." Respondents rated these values on a nine-point scale from "not at all important" (0) to

"of supreme importance" (8). We followed Schwartz's lead and provided "additional explanatory phrases in parentheses."

Table 19: Value Index with Factor Loadings							**Ω**
Power							**0.70**
Social Power	-0.18	-0.13	-0.29	-0.17	0.80	0.07	
Wealth	0.11	-0.19	-0.04	0.19	0.66	-0.25	
Preserving my Public Image	-0.10	-0.02	-0.24	0.23	0.61	0.03	
Social Order	0.04	0.27	0.19	0.28	0.52	0.00	
Conservation (security/tradition)							**0.68**
Respect for Tradition	-0.17	0.14	-0.02	0.75	0.16	-0.01	
Accepting My Portion in Life	-0.17	0.07	-0.09	0.72	-0.05	0.14	
Clean	0.32	0.02	0.03	0.55	-0.06	-0.04	
National Security	0.12	0.07	0.30	0.54	0.31	-0.03	
Achievement/Self-Direction							**0.79**
Capable	0.84	0.01	-0.08	0.00	-0.19	-0.08	
Choosing own Goals	0.80	0.11	-0.10	-0.11	-0.10	-0.06	
Successful	0.69	-0.33	-0.10	0.01	0.17	0.02	
Freedom	0.64	0.15	0.02	-0.17	0.11	-0.01	
Ambitious	0.58	-0.14	-0.03	-0.03	0.19	0.16	
Stimulation							**0.70**
Daring	0.01	-0.01	-0.73	0.01	0.29	0.03	
Curious	0.09	0.27	-0.70	0.04	-0.06	0.03	
A Varied Life	0.23	0.29	-0.61	-0.11	0.05	-0.03	
Universalism							**0.82**
Unity with Nature	-0.01	0.87	-0.27	0.19	-0.18	-0.14	
Protecting the Environment	-0.08	0.86	-0.10	0.09	-0.06	0.07	
Benevolence							**0.65**
Helpful	0.00	0.09	0.01	-0.08	0.04	0.76	
Forgiving	-0.11	-0.14	-0.14	0.16	-0.15	0.73	
Humble	-0.01	-0.13	-0.11	0.26	-0.05	0.62	
Dropped for Weak Factor Loading							
An Exciting Life	0.08	-0.01	-0.55	-0.02	0.48	0.08	
Social Justice	0.03	0.41	0.23	-0.26	0.17	0.53	
Honest	0.43	-0.02	0.08	0.21	-0.28	0.38	

Factor analysis using promax rotation[42] was utilized to construct the value measures that reflected our sample rather following Schwartz's theoretical groupings. While Schwartz (1992)

[42] Rotation is utilized to clarify underlying latent factors, when indicators are given large weight on several factors. Varmax rotation was initially utilized, because it was assumed that the underlying factor structure was orthogonal. Initial varmax rotation was not satisfactory in clarifying the underlying latent factors of our data. Promax rotation is an oblique (non-rigid) rotation method and better clarifies the latent factors of our data.

found 10 value groups (eight excluding hedonism and religiosity), our analysis showed six value groups (factors) with an eigenvalue greater than one (table 19). Items were summed and standardized. Six value measures were constructed and shown in table six (omega): power (0.70), conservation (0.68), achievement/self-direction (0.79), stimulation (0.70), universalism (0.82), and benevolence (0.65).

Looking at table nineteen[43], we see that the value items from our Value Indexes correspond closely to Schwartz's value typology, with a couple of discrepancies. First, in our achievement/self-direction index, items that group in Schwartz's self-direction (choosing own goals, and freedom) factor well with measures of achievement (ambitious, capable, and successful). We treat the achievement/self-direction measure separate from the self-enhancement/conservation and self-transcendence/openness to change axis. Second, this study's conservation dimension is made up of Schwartz's security and tradition factors, sub-categories of the conservation axis. Third, the dimensions of power, stimulation, universalism, and benevolence matched well with Schwartz's typology, with a few exceptions.[44]

Results

Variable means and standard deviations are presented in table 20. Table 21 illustrates the correlations among the variables. The achievement/self-direction value is positively correlated with the consumer identity, environmental identity, and nonactivist and private-sphere environmental behaviors. The more one values conservation and power (SE/C axis) as a guiding value, the more likely they are to identify themselves as having a pro-consumer consumer

[43] Use Table Two to compare with table six for discrepancy between Schwartz's value typology and this sample.
[44] Social order, a security item in Schwartz's typology, factored well in our power factor. Humble, a tradition item in Schwartz's typology factored well in our benevolence factor. Curious, a self-direction item in Schwartz's typology factored well in our stimulation factor. The items an exciting life, social justice, and honest factored well on several categories and were subsequently dropped from the analysis.

identity, less likely to identify themselves with an ecocentric environment identity, and less friendly with ESIB. The universalism value (ST/OC axis) is negatively correlated to the consumer identity, but positively correlated to the environment identity, and all three measures of ESIB. The stimulation (ST/OC axis) value is negatively related to gender identity, but positively related to the environment identity as well as all three measures of ESIB. The value of benevolence (ST/OC axis) is positively related to gender identity, nonactivist and private-sphere environmental behaviors. Gender identity is positively related to the environment identity, nonactivist and private-sphere environmental behaviors. The consumer identity is negatively related to the environment identity as well as all three measures of ESIB. All three ESIB measures are strongly related to each other.

Table 20: Means and Standard Deviations for Variables (N = 537)

Variables	Means	Standard Deviation	Range
Achievement/self-direction	0	.74	-4.99 – 0.99
Power	0	.73	-2.59 – 2.01
Conservation	0	.72	-2.64 – 1.29
Universalism	0	.92	-3.09 – 1.71
Stimulation	0	.79	-3.38 – 1.45
Benevolence	0	.77	-3.87 – 1.28
Gender Identity	1.61	.25	1.01 – 2.32
Consumer Identity	0	.61	-1.75 – 1.79
Environmental Identity	0	.68	-2.11 – 1.54
Environmental Activism	0	.73	-0.84 – 3.32
Nonactivist Behaviors in the Public Sphere	0	.70	-2.77 – 1.14
Private-Sphere Environmentalism	0	.63	-1.71 – 1.44

Table 21: Correlations of Variables (N=537)

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Achievement/self-direction	1.00											
2. Power	.37*	1.00										
3. Conservation	.39*	.47*	1.00									
4. Universalism	.25*	-.06	.07	1.00								
5. Stimulation	.47*	.28*	.14*	.35*	1.00							
6. Benevolence	.44*	.15*	.41*	.25*	.30*	1.00						
7. Gender Identity	.01	-.02	.07	.08	-.11*	.18*	1.00					
8. Consumer Identity	.15*	.63*	.25*	-.29*	.04	-.06	.05	1.00				
9. Environmental Identity	.10*	-.24*	-.19*	.66*	.19*	.05	.12*	-.31*	1.00			
10. Environmental Activism	-.04	-.30*	-.25*	.46*	.12*	-.03	.07	-.40*	.54*	1.00		
11. Nonactivist Behaviors in the Public Sphere	.17*	-.18*	-.17*	.55*	.19*	.12*	.22*	-.26*	.58*	.46*	1.00	
12. Private-Sphere Environmentalism	.12*	-.21*	-.09*	.56*	.24*	.18*	.15*	-.38*	.58*	.57*	.63*	1.00

*p<.05.

Generally speaking, several values on the self-enhancement – conservation axis are positively related to the consumer identity, but negatively related to the environment identity and ESIB. Values on the self-transcendence – openness to change axis are generally negatively related to the consumer identity, but positively related to the environment identity and ESIB.

Table 22 presents the error correlations among the value variables as well as the ESIB measures, which are expected to be significantly related. Results show that all of the error correlations among value measures are positively related to each other, except for the correlation of errors between stimulation with conservation and power values, which are not significantly related. All three ESIB variables are significantly correlated to each other. These results support the use of structural equation modeling which allows for correlated errors in the model estimation.

Table 22: Error Correlations Among Variables (N=537)

Variables	1	2	3	4	5	6	7	8	9
1. Achievement/self-direction	1.00								
2. Power	.37*	1.00							
3. Conservation	.39*	.47*	1.00						
4. Universalism	.25*	-.07	.07	1.00					
5. Stimulation	.47*	.26*	.14*	.35*	1.00				
6. Benevolence	.44*	.15*	.41*	.24*	.29*	1.00			
7. Environmental Activism	-	-	-	-	-	-	1.00		
8. Nonactivist Behaviors in the Public Sphere	-	-	-	-	-	-	.14*	1.00	
9. Private-Sphere Environmentalism	-	-	-	-	-	-	.31*	.37*	1.00

*p<.05; - = not estimated.

Table 23 shows the structural equation model estimates of the theoretical model outlined in figure two.[45] It was hypothesized that values on self-enhancement – conservation (SEC) axis

[45] In our model, we utilize listwise deletion, where missing values are ignored in the calculation of covariance matrices, as recommended when sample size is fairly large and the number of cases dropped is manageable (Kline

would not be related to the gender identity (Hypothesis 1a), positively related to the consumer identity (Hypothesis 1b), and negatively related to the environment identity and ESIB (Hypothesis 1c, 1d). Moving through the Shared Meanings of Multiple Identities Model of ESIB and investigating the two dimensions of SEC, illuminates more complex relationships.

In congruence with hypothesis 1a, there is no relationship between any of the self-enhancement-conservation value dimensions (power and conservation) and gender identity. In congruence with hypothesis (1b, 1c), individuals who espouse power as a value (a component of self-enhancement) are more likely to identify themselves with a more consumer oriented consumer identity (β=.61, $p<.05$), and less likely to identify themselves with an ecocentric environmental identity (β=-.11, $p<.05$). While there is no direct relationship between power and ESIB, there is an indirect relationship through the consumer and environment identity (Hypothesis 1d). People who value power as a guiding principle are more likely to support a pro-consumer oriented consumer identity, and an individual with pro-consumer oriented consumer identity is less likely to support environmental activism (β=-.20, $p<.05$) and private-sphere environmentalism (β=-.21, $p<.05$) (Hypothesis 4b); therefore, people who value power are less likely to support ESIB through the consumer identity. The more ecocentric one's environment identity the more likely an individual will support environmental activism (β=.29, $p<.05$), nonactivist environmental behaviors (β=.11, $p<.28$), and private-sphere environmentalism (β=.11, $p<.30$) (Hypothesis 5). The power value factor negatively influences an ecocentric environment identity, and an ecocentric environment identity positively influences all dimensions of ESIB; therefore, an individual who values power is less likely to support environmentally significant individual behaviors.

1998). Unlike pairwise deletion methods which can result errors in calculations in correlations and covariance, listwise deletion is prone to fewer errors.

Table 23: Standardized Estimates of Equations in Shared Meanings of Multiple Identities Model of ESIB (N = 537)

	Dependent Variables					
Independent Variables	Gender Identity	Consumer Identity	Environmental Identity	Environmental Activism	Nonactivist Behaviors in the Public Sphere	Private-Sphere Environmentalism
Self-Enhancement/ Conservation						
Power	0	.61	-.11	0	0	0
Conservation	0	0	-.20	-.12	-.19	0
Self-Transcendence/ Openness to Change						
Universalism	.10	-.24	.65	.22	.31	.25
Stimulation	-.20	0	0	0	0	.11
Benevolence	.23	-.13	0	0	0	0
Achievement/self-direction	0	0	.08	0	.15	0
Gender Identity		.11	.09	0	.18	.11
Consumer Identity			0	-.20	0	-.21
Environmental Identity				.29	.28	.30
R^2	.06	.46	.50	.38	.43	.44

nonzero coefficients = $p < .05$; zero coefficients = n.s.

The second component of the self-enhancement – conservation value axis, conservation lends support to hypothesis 1c and 1d. People who identify conservation as a guiding value in their lives are less likely to identify themselves as having an ecocentric environmental identity (β=-.20, $p<.05$), and less likely to support environmental activism behaviors (β=-.12, $p<.05$) and nonactivist environmental behaviors in the public sphere (β=-.19, $p<.05$). The conservation value (like the power value) has an indirect effect on all ESIB through one's environmental identity. People who identify conservation as a guiding value in their lives are less likely to support any type of ESIB through the negative relationship with an ecocentric environment identity.

Our achievement/self-direction measure does not fit within the hypothesized value axis. It straddles the openness to change and conservation quadrants of Schwartz's value axis typology, the following results neither confirm nor disconfirm research hypotheses. No relationship was found between achievement/self-direction and gender identity or the consumer identity. A positive relationship was discovered between achievement/self-direction and environment identity and one dimension ESIB. The more an individual values achievement/self-direction the more likely the individual will have an ecocentric environment identity (β=.08, $p<.05$) and more likely to support nonactivist environmental behaviors in the public sphere (β=.15, $p<.05$). The other components of ESIB, environmental activism and private-sphere environmentalism, are also related to the achievement/self-direction value, although indirectly through the environment identity. People who identify achievement/self-direction as a guiding principle in their lives are more likely to support ESIB, because they ascribe to a more ecocentric environment identity.

We hypothesized that values on the self-transcendence-openness to change axis would be unrelated to gender identity (Hypothesis 1a), negatively related to the consumer identity

(Hypothesis 2b), and positively related to the environment identity and ESIB (Hypothesis 2c, 2d). Once again, the ESIB model illustrates more multifaceted relationships.

People who identify universalism values as a guiding principle in their lives are more likely to have a feminine gender identity (β=.10, $p<.05$), identify themselves as having a less consumer oriented consumer identity (β=-.24, $p<.05$), strongly identify themselves as having a ecocentric environment identity (β=.65, $p<.05$), and support all forms of environmentally significant behavior (environmental activism: β=.22, $p<.05$, nonactivist behaviors: β=.31, $p<.05$, and private-sphere environmentalism: β=.25, $p<.05$). The universalism value is also indirectly related to ESIB through one's gender, consumer, and environmental identity.

People who support a stimulation value orientation, the more masculine their gender identity will be (β=-.20, $p<.05$). While the stimulation value is related to private-sphere environmentalism (β=.11, $p<.05$) partially supporting hypothesis 2d, the stimulation value does not directly lead to environmental activism or support nonactivist environmental behaviors. Unlike the universalism value, stimulation is not indirectly related to ESIB through the consumer or environment identity. On the other hand, stimulation is indirectly related to nonactivist environmental behavior and private-sphere environmentalism through a masculine gender identity, which is contrary to hypothesis 2d. Since stimulation is related to a masculine gender identity, and a masculine gender is negatively related to an ecocentric environmental identity (β=.09, $p<.05$) and ESIB; therefore, having stimulation as a guiding value in one's life weakens the effect of a feminine gender identity on one's environment identity, nonactivist environmental behavior, and private-sphere environmentalism. Needless to say, the stimulation value has a complicated effect on all forms of ESIB.

Individuals who identify benevolence as a guiding principle in their lives are more likely to have a feminine gender identity (β=.23, p<.05), non-consumer oriented consumer identity (β=.13, p<.05).[46] There is no direct relationship between the benevolence value and any form of ESIB, but there are indirect relationships. Given that the benevolence value is related to a feminine gender identity, and a feminine gender identity is related to nonactivist environmental behavior and private-sphere behaviors, there is an indirect relationship between the benevolence value and components of ESIB (hypothesis 2d). There is also an indirect relationship between benevolence and environmental activism and private-sphere environmentalism through a non-consumer oriented consumer identity. While people who identify benevolence as a guiding principle in their lives are less likely to have a pro-consumer oriented consumer identity, and a pro-consumer consumer identity is negatively associated with environmental activism (β=-.20, p<.05) and private-sphere environmentalism (β=-.21, p<.05), then hypothesis 2c is indirectly supported.

Moving through the theoretical model, the more feminine one's gender identity the more consumer-oriented ones consumer identity (β=.11, p<.05) (hypothesis 3a) and more ecocentric ones environment identity (β=.09, p<.05), supporting hypothesis 3b. A feminine gender identity also has a positive effect on nonactivist environmental behavior (β=.18, p<.05) and private-sphere environmentalism (β=.11, p<.05), demonstrating support for hypothesis 3c.

The consumer identity has a negative effect on ESIB (hypothesis 4b). The more consumer oriented one's consumer identity is the less likely one would support environmental activism (β=-.20, p<.05) or private-sphere environmentalism (β=-.21, p<.05), but one's

[46] It is interesting to note, that while not significant at the .05 level, people who support benevolence tend to support an anthropocentric environment identity (β=-.06, p<.10). Since the value of benevolence tends towards an anthropocentric environment identity, and an ecocentric environment identity is related to all forms of ESIB, then indirectly benevolence is negatively related to ESIB, contrary to hypothesis 2d.

consumer identity has no effect on ones nonactivist environmental behavior. Contrary to hypothesis, one's consumer identity has no influence on one environmental identity (4a). However, ecocentric environment identity is strongly positive correlated to all forms of ESIB, supporting hypothesis 5.

Discussion

The present research investigates how shared meanings, measured by Schwartz's value scale, influences gender, consumer, and environment identities as well as one's environmentally significant individual behavior.

Values, Environment identity and ESIB. The values that make up one's environment identity include valuing achievement/self-direction and universalism (STOC) but not valuing power and conservation (SEC) confirming previous attitude research conducted across 14 countries (Schultz and Zelezny 1999). It has been suggested that self-transcendence (including the universalism value) is a more inclusive value structure that connects the self to other human groups as well as the natural environment. The self-enhancement-conservation (including power and conservation values) value structure, on the other hand, favors self enrichment and does not include others or the natural environment (Schultz and Zelezny 1999).

According to identity theory, identity standards are the meanings that individuals see themselves in a role or group. Identities are hierarchically organized where more abstract identities serve as the standards for lower concrete identities. The value of universalism, and not valuing power and conservation, serves as the higher ordered person identity standard for an ecocentric environment identity. In this sample, people who value achievement and self-direction significantly predict an ecologically conscious environment identity, leading to

nonactivist behaviors in the public sphere. The values of achievement and self-direction are standard values of mainstream American culture, and polls show that majority of Americans support governmental action to protect environmental quality (Dunlap and Scarce 1991). Supporting an ecocentric environment identity through nonactivist behaviors in a public sphere, allows the individual to support an environment identity, but not at the consequence of other identities (spouse, parent, friend, etc.) that may not align in shared meanings.

Values, Gender identity, environment identity and ESIB. In chapter four, our research investigated how social and cognitive structures influence ESIB by analyzing how identity salience, commitment, and prominence affect the environment identity and ESIB. We investigated the relationship between gender identity and the environment identity. It was hypothesized that a feminine gender identity was linked to the environment identity through the shared meanings of care and other-directedness. While a feminine gender identity had an indirect influence on ESIB through one's social-altruistic awareness of consequences of environmental conditions, our first study was unable to directly link gender identity to the environment identity, its prominence, salience, and commitment, or ESIB. In the present study, gender identity is a predictor of one's environment identity and ESIB on the nonactivist behavior in the public sphere and private-sphere environmentalism dimensions.

While the previous study (chapter four) used seven indicators measuring a single dimension of ESIB, the present research uses Stern's (2000) typology of ESIB (environmental activism, nonactivist behaviors in the public sphere, and private-sphere environmentalism). The environment identity model in chapter four utilized an ESIB index including four indicators of environmental activism and two indicators of nonactivist behaviors in the public sphere, and one

indicator of private-sphere environmentalism. The ESIB index was analyzed on a single dimension where environmental activism indicators were predominant. The present research brings dimensionality to the measure of ESIB and better expresses how one's gender identity influences ESIB. This research confirms our previous findings that gender identity has no influence on environmental activism, but a feminine gender identity does influence nonactivist behaviors in the public sphere and private-sphere environmentalism, confirming research using similar environment behavior measures (Zelezny, Chua, and Aldrich 2000).

A feminine gender identity is positively influenced by the values of universalism (unity and protection of the environment) and benevolence (helpful, forgiving, humble), but negatively influenced by openness to change (varied life, daring, and curious). Research has shown that identities are activated together when shared meanings exist between these identities (Burke 2003b; Smith-Lovin 2003; Stets 1995). Gender and environment identities have a shared meaning on universalism value leading to an increase in ESIB. This research supports the theory that men and women are socialized differently into gender roles, where the feminine gender role is socialized into an 'ethic of care' as expressed through valuing being more helpful, humble, forgiving and care for the environment as 'other.'

The 'ethic of care' meanings are then acted out in private-sphere and non-activist environmental behaviors. These findings support findings of McStay and Dunlap (1983) who found that females were more likely to engage in environmental behaviors that were personal in nature. Gender socialization theory would argue that since women are socialized to be more nurturing and compassionate then males, the feminine gender role is directed towards the care and well-being of the family (Caron-Sheppard 2001). It can be argued that a feminine gender identity reflects a more environmentally friendly private-lifestyle, but this is not true for public-

sphere environmental behaviors (environmental activism). Environmental activism, as measured by overt actions in the public-sphere, is not seen as feminine or masculine.

While previous research has found that men are more likely to engage in public-sphere environmentalism (McStay and Dunlap 1983; Mohai 1992), the present research demonstrates those difference are not based on a masculine gender identity. Researchers have argued that since men are more likely to be socialized to play a predominate role in the public arena, men would more likely engage in environmental activism. The present research would suggest that the socialization of men and women today in public-sphere activism has diminished.

Since gender identity is based on the internalized meanings as being male or female, and not stereotypically male (instrumental) or female (expressiveness) values, this sample's gender identity does not separate masculinity and femininity in the public-sphere of environmentalism. While an "ethic of care" may lead to nonactivist behaviors and private-sphere environmentalism, the environment and gender identity only operate across the shared meaning of the universalism value. Environmental activism behaviors are not derived from self-meanings of one's sense of masculinity or femininity, but rather negatively associated with the conservation (national security, clean, respect for tradition, accepting my portion in life) value.

Values, Consumer Identity, Environment identity, and ESIB. Previous research on environmentally responsible consumer behavior found Schwartz's self-transcendence (universalism and benevolence) values had a positive influence on environmentally conscious consumer attitudes, while conservation (security and tradition) and self-enhancement (achievement and power) values had a positive influence utility conscious consumer attitudes (Follows and Jobber 2000). Follows and Jobber (2000) suggest that self-transcendence values are

central to the intentions of purchasing environmentally responsible products, while conservation values were centrally opposed to purchasing environmentally responsible products. The present research expands and deepens this line of research by introducing the consumer identity, as well as expanding environmentally significant individual behavior beyond the measurement of environmentally responsible products (similar our private-sphere environmentalism).

As demonstrated in previous research on materialism (Burroughs and Rindfleisch 2002), the present research found that the values of universalism and benevolence to be negatively related to, while the value of power is positively related to, the consumer identity. A consumer-oriented consumer identity has a negative influence on environmental activism and private-sphere environmentalism. Individuals who identified consumerism as an element to the self were less likely to support environmental behaviors that directly interfered in the verification of the consumer identity. Environmental activism and private-sphere environmentalism are behaviors that are personal in nature and require personal action, while nonactivist behaviors support changes to the larger social structures which would impact all citizen behaviors. Having a negative influence on environmental activism and private-sphere environmentalism and not having any effect on nonactivist behaviors gives insight into how the consumer identity is cognitively structured. People high in consumer identity don't mind protecting the natural environment so long as all consumers are affected. When all consumer behavior is affected, the competitive struggle to obtain more material possessions maintains equal disadvantages to all consumers.

The consumer and environment identities have opposing meanings on the value dimensions of power and universalism. People who identify power as a central value are more likely to identify themselves higher on consumer identity measure; people who do not categorize

power as a central value are more likely to identify with an ecocentric environment identity. This negative relationship also exists for the value of universalism. The more central universalism is to one's sense of self, the more likely one will support an ecocentric environment identity, and less likely to identify a strong consumer identity. These findings support Burroughs and Rindfleisch's (2002) reflection that materialism is a manifestation of mastery and control over the material world.

In our sample, the consumer identity does not directly influence one's environment identity. While this is contrary to hypothesis, these findings are supported by prior research. While a majority of Americans feel that materialism and over-consumption is unsustainable for the natural environment, and recognized the negative effects of their own materialist behaviors, they were unsure on how to resolve the conflict, leading to an apathetic approach to environmentally responsible individual behavior (Harwood Group 1995). Identity theory looks at the consumer and environment identities as hierarchically organized. Discrepancy between identities that share meanings higher in the cognitive hierarchy (power and universalism) would lead to a diminished sense of agency (Tsushima and Burke 1999), as illustrated in the Harwood Group study.

The consumer and environment identities are cognitively aligned. It is possible to enact and verify both identities through ESIB choices, due to their shared opposing values of power and universalism. Boycotting a company for environmental reasons or choosing to live in a home that does not exceed the needs of one's family, both verifies a pro-consumer identity as well as verifies an ecocentric environment identity. What becomes important to maintain alignment of the consumer and environment identity is the types of consumption that maintain an ecocentric environment identity.

The consumer identity is positively influenced by a feminine gender identity. A feminine gender identity is positively influenced by the universal and benevolence values, but the consumer identity is negatively influenced by the values of universalism and benevolence. This would suggest that while a feminine gender identity influences a consumer identity, these two identities are orthogonal in their cognitive structure on the share meanings of the values of universalism and benevolence, but are aligned on some other unmeasured dimension. This leads to incongruent environmental behaviors across all three environmentally significant behavior dimensions and opposing behavior on private-sphere environmentalism.

Behaviors that lead the actor in a position of verifying one identity, and creating discrepancy on another identity, will create a cognitive stress that will have to be resolved when both identities are activated simultaneously. One possible resolution includes the convergence of meanings of multiple identities (Burke 2003b). Overtime if one's incongruent gender and consumer identities are simultaneously activated, one of the identities will need to change in meaning in order to alleviate the stress on contradicting meanings between identities. Interestingly enough, for this cognitive change to occur the actor needs to be cognizant of the identity discrepancy. This is illustrated by one respondent of this study verbalizing a realization that her environment and consumer identity were at odds. Upon completion of the survey, the respondent mentioned that she did not like the survey, because she was confronted with facing herself as a consumer, and she did not like the person she come to see herself.

CHAPTER SIX

CONCLUSION

The purpose of this dissertation was to rejuvenate research on the individual intent oriented human-environment interaction by introducing sociological social psychological theory to the study of environmentally significant individual behavior. This paper utilized and expanded upon identity theory to explain ESIB.

In this concluding chapter, I will summarize and discuss the findings of the two studies, suggest some implications of these findings, and offer future avenues of research.

Summary of Dissertation

In chapter two, I provide an overview of the social psychological and psychological theories most widely used to explain environmentally significant individual behavior: Ajzen and Fishbein's (1980; Fishbein and Ajzen 1975) Theory of Reasoned Action/ Theory of Planned Behavior and Schwartz's (1970) moral norm-activation theory, but not at the expenses of a healthy discussion of the most widely used environmental concern measure Dunlap and Van Liere's New Environmental Paradigm (NEP) scale.

The NEP scale is not based in any social psychological tradition, but rather formulated on the conceptual construct of "worldview." A new worldview proposes a more sustainable outlook focusing on more sustainable ideologies: limits to growth, achieving a 'steady-state' economy, preserving the 'balance of nature,' and the need to reject the anthropocentric notion that nature exists solely for human use. While the NEP was not originally grounded in a social-psychological theory (Stern, Dietz, and Guagnano 1995), the founding researchers attempted to theoretically ground their environmental concern scale post hoc. They have argued that the NEP

can be conceived as an operationalization of Rokeach's (1968) conceptualization of "primitive beliefs" concerning human-environment relations (Dunlap et al. 1992; Dunlap, Van Liere, Mertig, and Jones 2000).

Kaiser and colleagues (1999) research predicting ESIB is the latest and most complete environmental psychological research utilizing the Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB). The TRA and TPB are the most alluded to theories of environmental behavior and the most accepted model in attitude research on recycling behavior (Davies, Foxall, and Pallister 2002; Oom Do Valle, Rebelo, Reis, and Menezes 2005). At the core of the TRA/TPB, one's *intention* to engage in behavior leads to behavior (Ajzen 1991; Ajzen and Madden 1986; Ajzen and Fishbein 1980; Fishbein and Ajzen 1975).

Schwartz's (1970) moral norm-activation theory, was one of the first social psychological theory utilized to explain environmental behavior in attempt to capture a normative social orientation towards Leopold's (1948) "Land Ethic" (Heberlein 1972). According to Schwartz, moral decisions guided by personal norms are guided by three elements: awareness of consequences, "knowingly and willingly" select a behavior from multiple behavior options, and ascription of responsibility. Modeled from Schwartz's norm-activation model of altruism, Stern and colleagues developed a value-belief-norm theory of environmentalism presented three dimensions of environmental concern: social-altruistic orientation, biospheric orientation, and egoism. From a constructivist approach, they "presume that people construct their attitudes on the basis of their expectations about how the attitude object affects the particular set of people or things they value" (Stern and Dietz 1994: 67).

Although the majority of Americans hold positive attitudes toward the environment, research regarding the relationship between attitudes and ESIB has yielded modest results (Buttel

1987; Dunlap and Van Liere 1978; Scott and Willits 1994; Van Liere and Dunlap 1981). As I outlined earlier, attitude theories such as TRA/TPB and Schwartz's norm-activation model of altruism have been criticized on many fronts. From a symbolic interactionist perspective, the use of attitude theories to predict behavior has been criticized for not referencing the self or one's identity (Biddle, Bank, and Slavings 1987; Burke 1991b; Chang, Piliavin, and Callero 1988; Sparks and Shepherd 1992). An important assumption underlying research on the self is that the self is a primary motivator of behavior (Stets and Burke 2002). In order to predict environmentally significant individual behavior, one needs to examine self-proclaimed identities and the corresponding sets of meanings attributed to these identities.

In order to investigate ESIB from a symbolic interactionist perspective, I needed to expand the general foundations of symbolic interactionism to include transverse interactions: actions between symbolic individuals and the physical environment. In order to accomplish this task, I provided a discussion of ontological foundations in environmental sociology to set the stage for chapter three, where I outline the ontological foundations of Symbolic Interactionism.

In chapter three, I begin with Thomas's Dictum that "If men define situations as real, they are real in their consequences" (Thomas and Thomas 1928), and the three basic tenets of symbolic interactionism. As outlined in Thomas's Dictum and these tenets, SI research is focused on the socially constructed meanings of objects that yield social behavior. This analytical separation approach to social research directs environmental sociologists of the SI tradition to focus their research on the social construction of environmental problems as outlined by the research of Greider and Garkovich (1994) and Skogen (1996).

Building from Mead's social behaviorism, the foundation of the self emerges from social relationships that one develops with the physical environment, I utilize the work of Andrew

Weigert (1997) to develop an ecologically-informed symbolic interactionism from a mutual contingency approach to human-environment interaction. In an ecologically-informed symbolic interactionism, transverse interactions are the foundation of developing an environment identity. Through transverse interactions, individuals develop symbolic meaning of a physical reality, developing a sense of self in relationship to the natural environment. Through transverse interactions, people attempt to align social meaning to a physical reality, some times successfully, sometimes not. Just as the generalized other serves to organize the meanings of our personal behaviors to the behaviors of others, the generalized environmental other serves as the object of reference to which individuals reflect on their past, present, and future behaviors with the natural environment.

Having provided the foundation for an ecologically-informed symbolic interactionist perspective, I provide an outline of identity theory and set the stage for two studies on environmentally significant individual behavior. I outline identity control theory, the three types of identities (social, role, and person), ecology of identities (salience, prominence, and commitment), and the hierarchy of cognitive perceptual control systems. Utilizing a perceptual control model, identity theory outlines how individuals take in information from the physical and social environment, compare this information to standards of one's own construction of reality (organized through an ecology of identities), and behave in a manner to alleviate any discrepancy between the standard and the incoming information. Depending on the importance, centrality, and probability of enacting a specific ecology of identities, different standards are utilized to frame incoming environmental and social information dependent on the social situation.

Identities are also organized hierarchically through levels of one's perceptual control system. Higher ordered identities serves as the standards for lower ordered identities. Higher

abstract principle oriented person identities serve as standard for lower concrete program oriented role and social identities. At the core of this hierarchical organization is one's structure of values. In chapter four and five, two studies investigate environmentally significant individual behavior utilizing identity theory.

In chapter five, Stets and I introduce identity theory to the study of environmentally significant behavior by developing an environment identity model of environmental behavior. By looking at the meanings of one's environment identity, the prominence, salience, and commitment to the environment identity, one's gender identity and environment value measures (NEP and AC), we examined the predictive ability of identity process in comparison to the standard environment attitude measures. Our results revealed that the environment identity, its prominence, commitment, and salience significantly influence ESIB. Controlling for one's environment identity, the NEP attitude measure had no effect and Stern's AC measure has a weak affect on ESIB. In chapter five, we also investigated the predictability of one's gender identity on one's environment identity and ESIB as measured by environmental activism. While females are more likely to hold an ecological worldview (NEP) than males, pro-environment attitudes or an ecological environmental identity were not related to environmental activism ESIB.

In chapter five, I built up the learned lessons from chapter four, and investigated the shared values of multiple identities (environment, gender, and consumer) on ESIB. I also expanded the measure of ESIB to include the dimensions of environmental activism, private-sphere environmentalism, and non-activist behaviors in the public sphere. The values that made up one's environment identity include valuing achievement/self-direction and universalism and not valuing power and conservation. The value of achievement/self-direction and universalism

and not valuing power and conservation serves as higher ordered person identity standard for an ecocentric environment identity influencing all dimensions of ESIB.

I also investigated how higher ordered values influenced the gender and consumer identities, as well as the shared meanings of values on ESIB. A feminine gender identity is positively influenced by the values of universalism and benevolence, but negatively influenced by openness to change. The shared value meaning of universalism across the environment and gender identity leads to increased performance on ESIB (private sphere and non-activist environmental behaviors). These findings support the theory that men and women are socialized differently into gender roles. The "ethic of care" meanings of the feminine gender identity lead to private-sphere and non-activist behaviors.

The values of universalism and benevolence were negatively related to, and the value of power was positively related to a consumer-oriented consumer identity, leading to a negative relationship with environmental activism and private-sphere environmentalism. The consumer and environment identities have opposing meanings on the value of power and universalism. People who identify power, but do not identify universalism, as a central value are more likely to identify themselves higher on the consumer identity measure; people who do not categorize power, but do identify universalism, as a central value are more likely to identify with an ecocentric environment identity, leading to ESIB.

Implication of Findings

Theoretical Implications: An important assumption underlying research on the self is that the self is a primary motivator of behavior (Stets and Burke 2002). In order to predict

environmentally significant individual behavior, one needs to examine self-proclaimed identities and the corresponding sets of meanings attributed to these identities. We demonstrated in Chapter Four that our environment identity measure was a better predictor of ESIB than the most widely used environmental attitudes scales (NEP and AC scales). Following Burke (1991a), studying one's attitudes and behavior toward an object must include one's attitude toward the self. By knowing how one sees oneself in relationship to an object, we are able to better predict behavior, compared to know only one's attitudes towards the object.

The research on ESIB from an identity perspective brings social structure into the study of behavior by taking into account the multiple identities an individual holds in our complex society. Since individuals have different status positions in one's community based on one's identification to these roles and statuses, the multiple identities an individual holds are often in conflict. For this reason, one's ecology of identities is hierarchy organized in terms of salience and prominence hierarchies. Identities that are organized higher in the hierarchies are more likely to be enacted than identities organized lower in the hierarchies. This implies that even though an individual may hold an ecocentric environment identity, if this identity is placed low on the salience and prominence hierarchy, the less likely to identity will be enacted and the less likely pro-environment behaviors will be displayed. When we investigate individual's identity, as well as identity prominence, salience, and commitment, we keep an individual attached to the social structure which they are embedded and from which behaviors emerge. We find that no only is one's environment identity important to elicit ESIB, but the prominence and the level of commitment to one's environment identity is a significant predictor of ESIB. From a psychological perspective, such as Schwart's moral norm-activation theory and Ajzen's TPB/TRA, individuals are conceptualized as isolated entities, impervious to societal influences,

by introducing identity theory to the study of ESIB, we include one's placement in the larger social structure as a significant component in understanding the contributing factors to ESIB.

In chapter five, the research on ESIB from an identity perspective brings shared meanings into the study of behavior by taking into account how multiple identities are linked to one another through shared meanings. Not only is it important to look at the prominence, salience and commitment to one's environment, but it is important to understand how shared meaning across varying identities influence the construction of the environment identity as well as the effects on ESIB. This is an important insight because it identifies how multiple identities can exist in an ecology of identities leading to behaviors that verifies hierarchically organized identities that share meanings. These shared meanings force restrictions on the different relationship that exist between these identities (Burke 2003b). When a lower ordered identity is enacted, an entire chain of cognitively orthogonally organized identities standards are enacted based on the shared meanings across these identities. This leads to the notion that multiple identities to be enacted in a given situation, it would be very difficult to maintain identities that have contrasting meanings. Identities that are orthogonally organized must share meaning in order to maintain this orthogonal organization; otherwise, these identities cannot be simultaneously enacted.

Given identities are activated in a social structural context; shared meanings across identities are influenced by the salience, prominence, and commitment of these identities. Furthermore, share meanings between identities influence the degree each identity competes for salience, prominence, and commitment (Burke 2003b). Identities that share meanings can coincide in one's salience and prominence hierarchy, as behavior that verifies one identity can also verify another identity standard. An identity such as one's environment identity, that resides

fairly low on one's salience and prominence hierarchy in comparison to more contextually specific identities such as a spouse, parent, employee identity, having shared meanings across these identities increases the likelihood of an environment identity to be enacted in a situation where a more salient or prominent identity is also enacted.

Investigating the shared meanings across the environment, gender and consumer identity we see one's gender and environment identities are orthogonally organized through the shared meanings of universalism; on the other hand, the consumer and environment are orthogonally organized on opposing meanings of power and universalism. In order to maintain a consumer oriented consumer identity one can not maintain an ecological environment identity. This presents the idea that one agree with a pro-environment attitude, such as the NEP or AC attitude scales, but because in order to maintain a consumer-oriented consumer identity, one cannot act on this attitude, creating a breach between the attitude-behavior link. Providing identity as a foundation for studying ESIB, we begin to understand the deeper conflicts an individual deals with when attempting to verify multiple identities that have the potential to conflicts in the general attitudes towards an object and the self attitudes in relationship to the object in question.

Measurement Implications: In research on ESIB, Stern (2000) distinguishes between several types of environmentally significant individual behaviors and argues that there are different causal factors that influence each type of behavior. Environmental activism measures an individual's commitment and participation in the environmental movement. Environmental activism concentrates on the symbolic interactions between individuals supporting a larger structural change of society and the transverse interactions of an entire group and the environment. Private-sphere environmentalism, on the other hand, specifically focuses on the transverse interactions of the individual. By eating less meat, living closer to work, purchasing

environmentally sensitive products, speaks directly to the symbolic interpretation of the individual on the physical laws that one's behavior is influencing. Nonactivist behaviors in the public sphere differ from environmental activism and private-sphere environmentalism by indirectly having an affect on the environment by supporting public policies aimed at protecting the environment. Nonactivist behaviors do not require any specific behavior from the individual, but rather only intent to support policies that would influence societal behaviors, not just the behavior of the individual.

These important distinctions between the dimensions of ESIB as outline by Stern (2000), has a profound implications on how one's ecology of identities influences each type of ESIB. Chapter five outlines these differences. The value of conservation has a negative relationship with an ecocentric environment identity, but is only directly related (negatively) to environmental activism and non-activist behaviors in the public sphere. The value of conservation has no direct effect on private-sphere environmentalism in this sample. While the value of stimulation has no direct relationship on one's environmental identity, it does have a direct positive relationship on private-sphere environmentalism; while the value of achievement/self-direction has a direct effect on non-activist behaviors in the public sphere, but not on environmental activism or private-sphere environmentalism.

How an individual defines one's gender and consumer identity, leads to different types of ESIB. While in chapter four, we found very little evidence that gender identity has an influence on ESIB, our measure of ESIB was heavily weighted on indicators of environmental activism. In chapter five, we begin to understand the complexities on the relationship between gender and ESIB. In our second study, while there was no evidence that a feminine gender identity supported environmental activism, there was significant evidence supporting a relationship

between a feminine gender identity and non-activist behavior in the public sphere and private-sphere environmentalism. Equally, the complexities of the relationship between one's consumer identity and ESIB are outlined in chapter five. Having a consumer-oriented consumer identity has a negative effect on environmental activism and private-sphere environmentalism, but not non-activist behaviors in the public sphere. These findings provide insight into the complex nature of predicting ESIB. How a research team defines ESIB, has important implications on the predictability of the measurement tool.

Research Implications: The purpose of this paper was to rejuvenate the research on the individual intent-oriented human-environment interaction by introducing identity theory to investigate environmentally significant individual behavior. In chapter two, I reviewed the most widely used measurement tools of 'environmental concern.' Dunlap's Ecological Worldview attempts to identify attitudes of an emerging worldview of environmental sustainability, suggesting that primitive beliefs concerning the environment direct ESIB. Unfortunately, empirical studies have found only a weak relationship between pro-environmental attitudes and intent-oriented environmentally significant individual behavior (Dunlap and Van Liere 1978; Scott and Willits 1994; Van Liere and Dunlap 1981); even though, individuals hold positive environmental attitudes nationally and internationally (Dunlap 1991; Dunlap, Gallup, and Gallup 1993).

By introducing a social psychological theory to the study of 'environmental concern', not only do we increase the predictability of our environmental identity measure over the NEP and AC measure in our convenient sample of college students in chapter four, but we introduce a mechanism to investigate the diluted relationship between 'environmental concern' and ESIB. In chapter four, we demonstrate that the salience, prominence and commitment to the environment

identity are important components explaining ESIB. In chapter five, by investigating the shared meanings multiple identities have on ESIB, we introduce the complex relationships between multiple identities and human behavior. Having provided the mechanism (identity theory) for a more in-depth analysis of intent-oriented environmental significant individual behavior, a stage has been set to further investigate the complexities of individual's relationship with the natural environment that is theoretically grounded and structured around the dynamic relationship between the individual and the structures of society.

Future Research

> *If we want to influence people's attitudes towards the environment, we must understand how such attitudes are part of systems of interpretation and meaning – that is, how they are embedded in cultural patterns* (Skogen 1999: 223).

Further research is needed to better understand how other social psychological properties, such as self-esteem and self-efficacy, has on one's ecology of identities that includes one's environment identity. Previous research have found a positive relationship between self-esteem and self-efficacy on measures of 'environmental concern' and pro-environmental behaviors (Allen and Ferrand 1999; Geller 1995; Meinhold and Malkus 2005). Investigating people's perceived knowledge on global warming, Heath and Gifford (2006) found that a "self-efficacy of cooperation" was a significant predictor of intended behaviors combating global climate change.

In the identity theory literature, Cast and Burke (2002) propose that self-esteem (worth-based and efficacy-based) is a resources utilized in the self-verification process to resist identity discrepancies and the stress/negative emotions that accompany these discrepancies. Future research on the relationship between environmental identities and ESIB should include the affects of worth-based and efficacy-based self-esteem. Interestingly in American and European

cultures, one's sense of self-esteem is often tied to material abundance and consumerism (Schulz 1985). Our present research begins an investigation on the shared meanings between the environment and consumer identities, future research needs to investigate the effects on global self-esteem on these shared meanings and their effects on ESIB.

Derksen and Gartrell (1993) have argued that social psychological research on environmental behaviors have lead to "methodological individualism" because this research often ignores the effects that the social structure has on environmental behavior. We whole heartedly agree with this assertion. Future research is also needed to better explain the structural constraints on one's environment identity and engaging in ESIB. The social psychological characteristics of the self are dependent on a people's location in the social structure. Individuals participate in a larger social structure that substantial influences one's relationship to the natural environment. Specifically, social structure influences one's development of an environment identity, through the socialization process and the development of the generalized other. How one comes to see oneself in relationship to the natural environment is directly influenced by how one come to see oneself in the larger social structure of society. Future research is needed into investigate the structural influences one's environment identity. Social structures provide or restrict an individual's opportunity to be exposed to different forms of knowledge on the environment. Researchers have attempted to study the influence of social structure, such as level of education, socio-economic status, and religious ideology.

Level of education has been found to be strongly related to environmental attitudes (Buttel and Flinn 1978; Roper Organization 1990; Wall 1995). The highly educated are more environmentally concerned, knowledgeable, and active in environmental issues relative to their

poorly educated counterparts. There is also evidence that environmental activists tend to come from the upper middle class, but not the upper class (Mohai 1985; Morrison and Dunlap 1986).

Religious ideology has been found to have an effect on environmental attitudes. Hand and Van Liere (1984) found non-Judeo-Christians (agnostic, atheist, belief in God, and no religion) are more concerned about the environment and less committed to domination-over the environment than Judeo-Christians (Protestant, Catholic, Jew). Amongst Judeo-Christians, conservative religions (Baptist, Mormon, and Catholic) are more committed to domination of the environment than liberal Judeo-Christian religions (Episcopal, Methodist, and Lutheran).

An ecologically-informed identity theory needs to investigate the influence of each of these three structural components of society (level of education, socio-economic status, and religious ideology) on the types of meanings an individual considers about one's self, others, and the environment. Future research is needed to investigate how different meanings of the natural environment are influenced by one's educational level, socio-economic status, and religious ideologies.

Social structure also presents opportunities and restrictions that influence environmental behavior (Stern, Dietz, and Guagnano 1995). McCarty and Shrum (1994) found that environmental concern (measured by importance of recycling) did not have an effect on environmental behavior (measured by acts of recycling), but rather environmental behavior was more linked to the convenience of the behavior. When a community provided a convenient means to recycle (in-home recycling bins vs. recycling centers), regardless of one's level of environmental concern, people where more likely to recycle when convenient means were available. Schultz and Oskamp (1996) found that pro-environmental attitudes (measured using the NEP) was positively related to environmental behavior (recycling) only when the "effort" of

the behavior was high, but the relationship disappeared when "effort" was low or incentives were introduced. Continuing this line of research, an ecological-informed identity theory should investigate the relationship between structural opportunities and restrictions on the types of meanings held about the natural environment and one's environment identity.

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APPENDIX A:

COVER LETTER FOR CHAPTER FOUR STUDY

WASHINGTON STATE UNIVERSITY

Department of Sociology, P.O. Box 644020, Pullman, WA 99164

Dear Participant:

My name is Chris Biga and I am a Ph.D. student in the Department of Sociology at Washington State University. I am writing to ask your help with a study I am conducting. The study is designed to examine peoples' attitudes towards the natural environment, consumption and personal attributes. By participating in this study you will be providing a great service to myself, the field of sociology, and society in general.

The information you provide will remain anonymous. You must be 18 years of age to complete this survey. Also, your participation is completely voluntary. You can refrain from answering any questions that you find objectionable, and you may withdraw from the study at any time without penalty. This research has been reviewed and approved by the Institutional Review Board at Washington State University. If you have any questions or concerns about this research project, you can contact me at: (509) 335-4595, or by email at: cbiga@wsu.edu. You may also contact the WSU Institutional Review Board at (509) 335-9661.

In order to participate in this study you will need access to a computer and the internet. The study is an internet based survey, and will take approximately 20 to 25 minutes to complete. You will need access to Microsoft's Internet Explorer (Version 4.0 or higher). If you are unsure of your software's version, go to the Help menu, and select "About Internet Explorer." This will state what version you are running. Once you are ready to start, go to the following internet address:

http://cooley.libarts.wsu.edu/bigaenviron

You will be greeted with an introductory page. The second page will ask for your access code. Each individual is given a unique four digit access code to participate in the survey. *Your personal access code is* **«Number»**. By entering this code and clicking on the Enter button, you are giving your consent to participate in this study. The access code is used for data management purposes and will not be used to identify you or your answers. Please remember, your participation is completely voluntary and you may stop at any time. After you have submitted your access code the study will begin. Directions will be provided throughout the study.

Do not use the library computer terminals. They are not configured to send information via the internet. If you do not have access to a computer lab, you are welcome to use any computers in the sociology computer lab in Wilson 231. If you use one of these computers, use the username "study," and the password "environment." The sociology computer lab is open from 9:00am –6:00pm, Monday thru Thursday, except when classes are being held in the lab.

Thank you very much for helping with this important study. It is only with the generous help of people such as yourself that my research will be successful.

Sincerely,

Chris Biga, Ph.D. Student ***PLEASE KEEP*** Name_____

APPENDIX B:

INTERNET QUESTIONAIRRE ON ENVIRONMENTAL ATTITUDES

The following is a transcript of the internet questionnaire utilized in Chapter Four. Since the questionnaire was internet based, exact font, HTML coding, or graphics are not provided. All italic print is additional information provided for the reader, and did not appear in the original questionnaire. Change in webpage is denoted by a bold line scrolling across the page. The questionnaire asked respondents about their environmentally significant individual behavior, consumer attitudes, environmental attitudes (NEP, AC), identity salience, commitment and prominence, environmental identity, gender identity, and demographics. Since this questionnaire includes questions not addressed in the research study, those questions will be noted but not included.

Welcome! *(banner)*

Welcome to an Internet Survey on Environmental and Consumer Attiudes!

Dear Participants,

Thank for agreeing to participate in this study on environmental and consumer attitudes. You must be 18 years of age to participate (If you are not 18 years of age, please exit (hyperlink) this site now). The information you provide will remain anonymous. Also, your participation is completely voluntary. You are free to not answer any questions you may find objectionable, and may withdrawal from the study at any time without penalty. This research has been reviewed and approved by the Institutional Review Board at Washington State University. If you have any questions or concerns about this research project, you can contact me at: (509) 335-4595, or by email at: cbiga@wsu.edu (hyperlink). You may also contact the WSU Institutional Review Board at (509) 335-9661.

In order to participate in this study you will need access to a computer and the internet. The study is an internet based survey, and will take approximately 20 to 25 minutes to complete. It is important that you use Microsoft Internet Explorer. This survey is not formatted for Netscape. When Using Internet Explorer you will need to use Version 4.0 or higher. If you are unsure of your software's version, go to the Help menu, and select "About Internet Explorer." This will state what version you are running.

Finally, I would like to thank you for your participation. Your help is greatly appreciated and will be extremely valuable in our search to further understand human behavior.

Sincerely,

Chris Biga
Ph.D. Student

Department of Sociology
Washington State University
Wilson #213
Pullman, WA 99164-4020
(509) 335-4595

Begin the Survey *(hyperlink)*

Participant Access Code *(banner)*

In the cover letter you received in class, each participant was given a unique for digit access code to participate in this survey. By entering this code and clicking on the Submit button below, you are giving your consent to participate in this study. The access code is used for data management purposes and will not be used to identify you or your answers. Please remember, your participation is completely voluntary and you may stop at any time. After you have submitted your access code, the study will begin. Directions will be provided throughout the study.

1. Type your id number here

ID: ☐ *(text box)*

2. Hit the ENTER key to activate the number

3. Click the CONTINUE button

BEFORE YOU CLICK ON "CONTINUE," MAKE SURE YOU HIT THE "ENTER" KEY
AFTER HITTING THE "ENTER" KEY, THE ID BOX SHOULD READ "id=your access code"

CONTINUE *(hyperlink)*

You in the environment *(banner)*
(ESIB)

The following items ask about environmental behaviors. Please select "Yes" or "No" as the response that best reflects your past and/or future behaviors.

1. Increased efforts by business and industry to improve environmental quality could lead to higher consumer prices. Would you be willing to pay higher consumer prices so that industry could better preserve and protect the environment, or not?

   Yes ○ No ○ Not sure ○ (*radial buttons)*

2. In the past year, have you donated to or been active in a group or organization working to protect the environment?
3. Over the past several years have you made any changes in your day-to-day behavior because of your concerns about the environment?

Please answer "Yes" or "No" as to which of the following things, if any, you have done in recent years to try to improve the quality of the environment.

4. Contributed money to an environmental, conservation, or wildlife preservation group?

   Yes ○ No ○ Not sure ○ (*radial buttons)*

5. Boycotted a company's products because of its record on the environment?
6. Did volunteer work for an environmental, conservation or wildlife protection group?
7. Voluntarily recycled newspapers, glass, aluminum, motor oil, or other items?
8. Written a letter to your local, state, for federal government representative concerning environmental issues?

The following items ask you about your willingness to behave in different ways. For each statement, you are asked whether you "Strongly Agree," "Agree," "Disagree," or "Strongly Disagree." Please select the response that best reflects how you feel about each statement and then go to the next statement.

9. I would be willing to give up convenience products and services I now enjoy if it meant helping preserve our natural environment.

   --Click Here-- *(drop-box)*

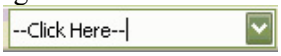
   Strongly Agree
   Agree
   Disagree
   Strongly Disagree

10. I would be willing to spend a few hours a week of my own time helping to reduce the pollution problem.

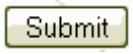
Submit **When you are finished, select the "submit" button.**
(hyperlink) **This will take you to the next page**

Views of the natural environment *(banner)*
(AC scale)

The following items ask you about your attitudes toward the environment. For each statement, you are asked whether you "Strongly Agree," "Agree," "Disagree," or "Strongly Disagree." Please select the response that best reflects how you feel about each statement and then go to the next statement.

1. Protecting the environment will threaten jobs for people like me.
   

   (drop-box)
   Strongly Agree
   Agree
   Disagree
   Strongly Disagree
2. Laws protecting the environment limit my choices and personal freedom.
3. A clean environment provides me with better opportunities for recreation.
4. We don't need to worry much about the environment because future generations will be better able to deal with these problems than we are.
5. The effects of pollution on public heath are worse than we realize.
6. Pollution generated here harms people all over the earth.
7. Claims suggesting that current levels of pollution are changing the earth's climate are exaggerated.
8. Over the next several decades, thousands of species will become extinct.
9. The balance of nature is delicate and easily upset.



When you are finished, select the "submit" button.
(hyperlink) **This will take you to the next page**

Views about yourself *(banner)*

The items below ask about what kind of a person you think you are. Each item consists of a pair of characteristics, with the letters A-E in between.

For example:

Not at all Artistic A ○ B ○ C ○ D ○ E ○ Very Artistic

Each pair describes contradictory characteristics -- that is, you cannot be both at the same time, such as very artistic and not at all artistic.

The letters form a scale between the two extremes. You are to choose a letter which describes where you fall on the scale. For example, if you think you have no artistic ability, you would choose A. If you think you are pretty good, you might choose D. If you are only medium, you choose C, and so forth.

(If the question formatting is in disarray, attempt to maximize the Explorer window, and/or go to the "View" menu, select "Text Size," then click on "Medium." This should alleviate any wrap-around formatting problems.)

1. Not at all aggressive	A ○	B ○	C ○	D ○	E ○	Very aggressive
2. Not at all independent	←→	Very independent				
3. Not at all emotional	←→	Very emotional				
4. Very submissive	←→	Very Dominant				
5. Not at all excitable in a major crisis	←→	Very excitable in a major crisis				
6. Very passive	←→	Very active				
7. Not at all able to devote self completely to others	←→	Able to devote self completely to others				
8. Very rough	←→	Very gentle				
9. Not at all helpful	←→	Very helpful to others to others				
10. Not at all competitive	←→	Very competitive				
11. Very home oriented	←→	Very worldly				
12. Not at all kind	←→	Very kind				
13. Indifferent to others approval	←→	Highly needful of others approval				
14. Feeling not easily hurt	←→	Feelings easily hurt				
15. Not at all aware of feelings of others	←→	Very aware of feelings of others				
16. Can make decisions easily	←→	Has difficulty making decisions				
17. Gives up very easily	←→	Never gives up easily				
18. Never cries	←→	Cries very easily				
19. Not at all self-confident	←→	Very self-confident				
20. Feels very inferior	←→	Feels very superior				
21. Not at all understanding of others	←→	Very understanding of others				
22. Very cold in relations with others	←→	Very warm in relations with others				
23. Very little need for security	←→	Very strong need for security				
24. Goes to pieces under pressure	←→	Stands up well under pressure				

Submit **When you are finished, select the "submit" button.**

(hyperlink) **This will take you to the next page**

View about consumption *(banner)*

(36 questions asked respondents about their attitudes towards consumerism.)

Attitudes toward the environment *(banner)*
(NEP scale)

The following items ask you about your attitudes toward the environment. For each statement, you are asked whether you "Strongly Agree," "Agree," "Disagree," or "Strongly Disagree." Please select the response that best reflects how you feel about each statement and then go to the next statement.

1. We are approaching the limit of the number of people the earth can support.
   --Click Here-- *(drop-box)*
   Strongly Agree
   Agree
   Disagree
   Strongly Disagree
2. Humans have the right to modify the natural environment to suit their needs.
3. When humans interfere with nature it often produces disastrous consequences.
4. Human ingenuity will insure that we do NOT make the earth unlivable.
5. Humans are severely abusing the environment.
6. The earth has plenty of natural resources if we just learn how to develop them.
7. Plants and animals have as much right as humans to exist.
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations.
9. Despite our special abilities, humans are still subject to the laws of nature.
10. The so-called "ecological crisis" facing humankind has been greatly exaggerated.
11. The earth is like a spaceship with very limited room and resources.
12. Humans were meant to rule over the rest of nature.
13. The balance of nature is very delicate and easily upset.
14. Humans will eventually learn enough about how nature works to be able to control it.
15. If things continue on their present course, we will soon experience a major ecological catastrophe.

Submit **When you are finished, select the "submit" button.**
(hyperlink) **This will take you to the next page**

Role Definitions *(banner)*

On the next page, you will be asked to identify yourself in various roles. I have provided definitions of each of the roles below. Please use these definitions when answering the questions.

Environmental Role – This role involves how you relate to, interact with, and use the natural environment.

Consumer Role – This role concerns you as a user of material goods and services, your spending habits, and your reasoning for purchasing goods and services.

Worker Role – This role addresses you a wage earner; you when you are 'on the job.'

Student Role – This role has to do with you attending school, taking classes, writing papers, studying for exams, passing courses, and so forth.

Friend Role – This role deals with your attachment to others, those people you like and trust.

When asked to identify yourself in these roles on the next page, try to imagine how you see yourself in each role in terms of definitions provided.

Continue *(hyperlink)*

Social Roles *(banner)*

If you don't remember the definitions of the social roles, CLICK HERE FOR HELP *(hyperlink)*

Below are a number of social roles that you may now occupy. Think about the kind of person you are in each of these social roles. How important is each to you? Response categories include "Very important," "Important," "Somewhat important," and "Not at all important." Please select the response that best reflects how important each role is to you, then go to the next statement.

Worker Role

(drop-box)

Very important
Important
Somewhat important
Not at all important

Environmental Role
Friend Role
Consumer Role
Student Role

Think about meeting your roommate for the first time. Below are a set of responses from 1 to 5 for each role. Think about yourself in each of these roles. Which role would you tell your roommate about first? For example, if it is the friend role, you would give that role a "1." Which role would you tell your roommate about second? That role would be given a "2." Please select the response for each role in the order in which you would tell your roommate. Continue until you have ordered all roles.

Worker Role
Environmental Role
Friend Role
Consumer Role
Student Role

Think about meeting someone at a party for the first time. Think about yourself in each of these roles. Which role would you tell them about first? Which role would you tell them about second? Continue until you have ordered all roles.

Worker Role
Environmental Role
Friend Role
Consumer Role
Student Role

Think about going on a date for the first time. Think about yourself in each of these roles. Which role would you tell your date about first? Which role would you tell them about second? Continue until you have ordered all roles.

?| Worker Role
Environmental Role
Friend Role
Consumer Role
Student Role

How important is it to you that your friends view you in each of the roles below? Response categories include "Very important,""Important," "Somewhat important," and "Not at all important."

Worker Role --Click Here--| *(drop-box)*
Very important
Important
Somewhat important
Not at all important

Environmental Role
Friend Role
Consumer Role
Student Role

How important is it to you that your parents view you in each of the roles below? Response categories include "Very important," "Important," "Somewhat important," and "Not at all important."

Worker Role --Click Here--| *(drop-box)*
Very important
Important
Somewhat important
Not at all important

Environmental Role
Friend Role
Consumer Role
Student Role

Have you joined any organization related to any of the following roles?

Worker Role	Yes ○	No ○	If yes, how many	*(text box)*
Environmental Role	Yes ○	No ○	If yes, how many	
Friend Role	Yes ○	No ○	If yes, how many	
Consumer Role	Yes ○	No ○	If yes, how many	
Student Role	Yes ○	No ○	If yes, how many	

Have you met any friends through activities related to any of the following roles?

Worker Role	Yes ○	No ○	If yes, how many	*(text box)*
Environmental Role	Yes ○	No ○	If yes, how many	
Friend Role	Yes ○	No ○	If yes, how many	
Consumer Role	Yes ○	No ○	If yes, how many	
Student Role	Yes ○	No ○	If yes, how many	

Submit **When you are finished, select the "submit" button.**
(hyperlink) **This will take you to the next page**

Beliefs about the environment *(banner)*

The items below ask about how you view yourself in relationship to the environment. Each item consists of a pair of characteristics, with the letters A-E in between.
For example:

When thinking about the natural environment, I view myself as . . .

being dominant over the natural environment	A ○	B ○	C ○	D ○	E ○	being submissive to the natural environment

Each pair describes contradictory characteristics -- that is, you cannot see yourself as both dominant and submissive.

The letters form a scale between the two extremes. You are to choose a letter which describes where you fall on the scale. For example, if you think you are dominant over the natural environment, you would choose A. If you think you are moderately submissive to the natural environment, you might choose D. If you see yourself as somewhere in the middle, you would choose C, and so forth.

(If the question formatting is in disarray, attempt to maximize the Explorer window, and/or go to the "View" menu, select "Text Size," then click on "Medium." This should alleviate any wrap-around formatting problems.)

When thinking about the natural environment, I view myself as . . .

1. in competition with the natural environment	A ○	B ○	C ○	D ○	E ○	in cooperation with the natural environment
2. detached from the natural environment	←→					connected to the natural environment
3. very concerned about the natural environment	←→					indifferent about the natural environment
4. very protective of the natural environment	←→					not at all protective of the natural environment
5. superior to the natural environment	←→					inferior to the natural environment
6. very passionate towards the natural environment	←→					not at all passionate towards the natural environment

When thinking about the natural environment, I view myself as . . .

7. not respectful of the natural environment	A ○	B ○	C ○	D ○	E ○	very respectful of the natural environment
8. independent from the natural environment	←→					dependent on the natural environment
9. an advocate of the natural environment	←→					disinterested in the natural environment
10. one who should manage the natural environment natural	←→					one who should leave the environment alone
11. wanting to preserve the natural environment	←→					wanting to utilize the natural environment
12. can control the natural environment	←→					has no control over the natural environment
13. nostalgic when thinking about the natural environment	←→					emotionless when thinking about the natural environment

Submit **When you are finished, select the "submit" button.**
(hyperlink) **This will take you to the next page**

Attitudes toward material possessions *(banner)*

(18 questions asked respondents about their attitudes towards materialism.)

Background Information *(banner)*

The following questions concern information about yourself. Please select one response and then go to the next question.

1. What is your marital status?

--Click Here--

Married
Widowed
Divorced
Separated
Never Been Married

2. What is your sex?

--Click Here--

Male
Female

3. Which of the following best matches your political ideology?

--Click Here--

Extremely Conservative
Conservative
Moderate Conservative
Down the Middle
Moderately Liberal
Liberal
Extremely Liberal
Don't know

4. What is you political preference?

--Click Here--

Republican
Democrat
Independent
Libertarian
Green
Other
Don't know
None

5. What is your religion?

--Click Here--

Catholic
Protestant
Jewish
Muslim
Mormon
Other
Atheist
None

6. What is you race?

--Click Here--

Black
Asian
Hispanic
White
American Indian
Other

If "Other" please identify *(text box)*

7. What was your parents' total family income last year? If you identify yourself as independent, still use your parents' total family income last year?

--Click Here--

Under $5,000
Between $5,001-10,000
Between $10,001-15,000
Between $25,001-35,000
Between $35,001-50,000
Between $50,001-75,000
$75,001 and over

8. Type in your age below?

(text box)

Submit **When you are finished, select the "submit" button.**
(hyperlink) **This will take you to the next page**

Thank You! *(banner)*
You have reached the end of the survey. Thank you for your participation.
Finished *(hyperlink)*

APPENDIX C:

COVER LETTER -

CHAPTHER FIVE STUDY

WASHINGTON STATE UNIVERSITY

Department of Sociology, P.O. Box 644020, Pullman, WA 99164

<<date>>

Dear Participant:

My name is Chris Biga and I am a Ph.D. candidate in the Department of Sociology at Washington State University. I am writing to ask your help with a study I am conducting. The study is designed to examine peoples' attitudes towards the natural environment, consumption and personal attributes. By participating in this study you will be providing a great service to myself, the field of sociology, and society in general.

The information you provide will remain anonymous. You must be 18 years of age to complete this survey. Also, your participation is completely voluntary. You can refrain from answering any questions that you find objectionable, and you may withdraw from the study at any time without penalty. This research has been reviewed and approved by the Institutional Review Board at Washington State University. If you have any questions or concerns about this research project, you can contact me at: (509) 335-4595, or by email at: cbiga@wsu.edu. You may also contact the WSU Institutional Review Board at (509) 335-9661.

In order to participate in this study you will need access to a computer and the Internet. The study is an Internet based survey, and will take approximately 25 to 30 minutes to complete. Once you are ready to start, go to the following Internet address:

http://cooley.libarts.wsu.edu/environment

You will be greeted with an introductory page. The second page will ask for your access code. Each individual is given a unique five-digit access code to participate in the survey.

*Your personal access code is***<<Number>>**.

By entering this code and clicking on the Submit button, you are giving your consent to participate in this study. The access code is used for data management purposes and will not be used to identify you or your answers. Please remember, your participation is completely voluntary and you may stop at any time. After you have submitted your access code the study will begin. Directions will be provided throughout the study.

Thank you very much for helping with this important study. It is only with the generous help of people such as yourself that my research will be successful.

Sincerely,

Chris Biga
Ph.D. Candidate
Department of Sociology
Washington State University

APPENDIX D:

INTERNET QUESTIONNAIRE ON ENVIRONMENTAL, CONSUMER, AND PARENTAL ATTITUDES

The following is a transcript of the internet questionnaire utilized in Chapter Five. Since the questionnaire was internet based, exact font, HTML coding, or all graphics are not provided. All italic print is additional information provided for the reader, and did not appear in the original questionnaire. An improvement over the web questionnaire in the previous study, this questionnaire has the benefit of asking each question, or a set of questions on separate web pages. Underlines, once again, will designate a change in webpage. The questionnaire asked respondents about their environmentally significant individual behavior, identity commitment, environmental identity, consumer identity, gender identity, values and demographics. Since this questionnaire includes questions not addressed in the research study, those questions will be noted but not included.

Welcome! *(banner)*

Welcome to an Internet Survey on Environmental, Consumer, and Parental Attitudes!

Dear Participants,

Thank you for agreeing to participate in this study on environmental, consumer, and parental attitudes. You must be 18 years of age to participate and you can only take this survey once (If you are not 18 years of age, please exit *(hyperlink)* this site now). The information you provide will remain anonymous. Also, your participation is completely voluntary. You are free to not answer any questions you may find objectionable, and may withdraw from the study at anytime without penalty. This research has been reviewed and approved by the Institutional Review Board at Washington State University. If you have any questions or concerns about this research project, you can contact me at: (509) 335-4595, or by email at: cbiga@wsu.edu *(hyperlink)*. You may also contact the WSU Institutional Review Board at (509) 335-9661. This study is an internet based survey, and will take approximately 25-30 minutes to complete. I would like to thank you for your participation. Your help is greatly appreciated and will be extremely valuable in our search to further understand environmental behavior. (If you are using a Macintosh, please read this disclaimer.) *(hyperlink)*

Sincerely,

BEGIN THE SURVEY *(Hyperlink)*

Chris Biga
Ph.D. Candidate
Department of Sociology
Washington State University
Pullman, WA 99164-4020

In the cover letter/email, each participant was given a unique five digit access code to participate in this survey. By entering this code and clicking on the "Continue" button below, you are giving your consent to participate in this study. The access code is used for data management purposes and will not be used to identify you or your answers. Please remember, your participation is completely voluntary and you may stop at any time. After you have submitted your access code, the study will begin. Directions will be provided throughout the study.

Type your ID number here:

Continue

(*Environmental Activism)*

The following items ask about environmental behaviors. Please select the response that best reflects your past and/or future behaviors.

1) How often do you participate in events organized by ecological/environmental groups?
   - ○ always
   - ○ often
   - ○ sometimes
   - ○ rarely
   - ○ never

   Submit

(each of the following questions was presented on a separate webpage)

2) How often do you provide financial support for or gave money to an environmental group?
3) How often do you circulate a petition demanding an improved movement of government policies regarding the environment?
4) How often do you participate in protests against current or past environmental conditions?
5) How often do you vote for a candidate proposing environmentally conscious policies?
6) How often do you write letters to firms that manufacture products that are harmful to the environment?
7) How often do you write letters or called your member of Congress or another government official to support strong environmental protection?
8) How often do you boycott or avoid buying products of a company because you felt that company was harming the environment?
9) How often do you read newsletters, magazines, or other publications written by environmental groups?
10) How often do you volunteer your time to an environmental cause?

(*Nonactivist Behaviors in the Public Sphere and Private-Sphere Environmentalism)*

The following questions ask about behaviors regarding changes you have made or are willing to make to your everyday life. Please select the response that best reflects your past and/or future behaviors.

1) I would be willing to pay much higher taxes in order to protect the environment.
   - ○ Strongly Agree
   - ○ Somewhat Agree
   - ○ Somewhat Disagree
   - ○ Strongly Disagree

   Submit

(each of the following questions was presented on a separate webpage)

2) I would be willing to accept cuts in my standard of living to protect the environment.
3) I would be willing to pay much higher prices on consumer products in order to protect the environment.
4) I support product certifications (ex. Energy Star certification for household appliances, Forest Steward Council's certification of forestry products) so consumers know what products have meet strict environmental standards.
5) I support the use of renewable energy (wind and solar energy) over nonrenewable energy (coal and oil).
6) I support laws that require companies to make their products more energy efficient.
7) I support charging a deposit on recyclable materials (cans, tins, and glass) to encourage people to recycle.
8) I support imposing taxes on companies who pollute the natural environment.
9) I support higher taxes on gasoline to help combat air pollution.
10) When looking for a place to live, I choose a place that reduced my need to drive.
11) When I purchased my last car, I tried to find the most fuel efficient and least polluting car that fits my everyday needs.
12) Whenever practical, I walk, ride a bike, or take public transportation instead of driving my car.
13) I have reduced my consumption of meat (beef, chicken, pork, and fish) for environmental reasons.
14) I make a special effort to buy foods grown without pesticides or chemicals; also know as organic food.
15) I have chosen the size of my house that does not exceed the needs of my family.
16) I have taken steps to reduce the environmental costs of heating the house by turning down the thermostat to 68° or less.
17) When purchasing appliances (like refrigerators, stove, dish/clothes washers) I make an effort to buy the most efficient appliances I can afford.
18) I have installed compact fluorescents or other energy efficient light bulbs in my home.
19) I make a special effort to buy detergents and cleaning solutions that are environmentally friendly.

(*Environmental Identity)*

The items on the following pages ask about how you view yourself in relationship to the environment. Each item consists of a pair of characteristics, with the letters A-E in between.

For example:

When thinking about the natural environment, I view myself as. . .

Dominant over the natural environment	A ○ B ○ C ○ D ○ E ○	Submissive to the natural environment

Each pair describes contradictory characteristics – that is, you cannot see yourself as both dominant and submissive.

The letters form a scale between two extremes. You are to choose a letter, which describes where you fall on the scale. For example, if you think you are dominant over the natural environment, you choose A. If you think you are moderately submissive to the natural environment, you might choose D. If you see yourself as somewhere in the middle, you would choose C, and so forth.

Continue *(hyperlink)*

When thinking about the natural environment, I view myself as . . .

1) In competition with the natural environment A ○ B ○ C ○ D ○ E ○ in cooperation with the natural environment
2) Detached from the natural environment ← → connected to the natural environment,
3) Very concerned about the natural environment ← → indifferent about the natural environment,
4) Very protective of the natural environment ← → not at all protective of the natural environment,
5) Superior to the natural environment ← → inferior to the natural environment,

Submit

When thinking about the natural environment, I view myself as . . .

6) Very passionate towards the natural environment A ○ B ○ C ○ D ○ E ○ not at all passionate towards the natural environment,
7) Not respectful of the natural environment ← → very respectful of the natural environment,
8) Independent from the natural environment ← → dependent on the natural environment,
9) An advocate of the natural environment ← → disinterested in the natural environment,
10) Wanting to preserve the natural environment ← → wanting to utilize the natural environment.
11) Nostalgic thinking about the natural environment ← → emotionless thinking about the natural environment.

Submit

(*Gender Identity)*

The items on the following pages ask about what kind of person you think you are. Each item consists of a pair of characteristics, with the letters A-E in between.

For example:

When thinking about what kind of person I am, I view myself as. . .

Not at all artistic A ○ B ○ C ○ D ○ E ○ Very artistic

Each pair describes contradictory characteristics – that is, you cannot see yourself as both at the same time, such as very artistic and not at all artistic.

The letters form a scale between two extremes. You are to choose a letter, which describes where you fall on the scale. For example, if you think you have no artistic ability, you choose A. If you think you are pretty good, you might choose D. If you see yourself as somewhere in the middle, you would choose C, and so forth.

Continue *(hyperlink)*

When thinking about what kind of person I am, I view myself as…

1) Not at all aggressive A ○ B ○ C ○ D ○ E ○ Very aggressive
2) Not at all independent ← → Very independent
3) Not at all emotional ← → Very emotional
4) Very submissive ← → Very dominant
5) Not at all excitable in a major crisis ← → Very excitable in a major crisis
6) Very passive ← → Very active

Submit

When thinking about what kind of person I am, I view myself as…

7) Not at all able to devote self completely to others A ○ B ○ C ○ D ○ E ○ Able to devote completely to others
8) Very rough ← → Very gentle
9) Not at all helpful to others ← → Very helpful to others
10) Not at all competitive ← → Very competitive
11) Very home oriented ← → Very worldly
12) Not at all kind ← → Very kind

Submit

When thinking about what kind of person I am, I view myself as…

13) Indifferent to others A ○ B ○ C ○ D ○ E ○ Highly needful of others approval
14) Feeling not easily hurt ← → Feelings easily hurt
15) Not at all aware of feelings of others ← → Very aware of feelings of others
16) Can make decisions easily ← → Has difficulty making decisions
17) Gives up very easily ← → Never gives up easily
18) Never cries ← → Cries very easily

Submit

When thinking about what kind of person I am, I view myself as…

19) Not at all self-confident A ○ B ○ C ○ D ○ E ○ Very self-confident
20) Feels very inferior ← → Feels very superior
21) Not at all understanding ← → Very understanding of others of others
22) Very cold in relations with others ← → Very warm in relations with others
23) Very little need for security ← → Very strong need for security
24) Goes to pieces under pressure ← → Stands up well under pressure

Submit

(*Consumer Identity)*

The items on the following pages ask about what kind of person you think you are. Each item consists of a pair of characteristics, with the letters A-E in between.

For example:

When thinking about what kind of person I am, I view myself as someone who. . .

Likes to buy new clothes	A ○ B ○ C ○ D ○ E ○	Don't like to buy new clothes

Each pair describes contradictory characteristics – that is, you cannot be both at the same time.

The letters form a scale between two extremes. You are to choose a letter, which describes where you fall on the scale. For example, if you really like to buy clothes, you choose A. If you not that fond of buying new clothes, you might choose D. If you see yourself as somewhere in the middle, you would choose C, and so forth.

Continue *(hyperlink)*

When thinking about what kind of person I am, I view myself as someone who…

1) Admires people who own A ○ B ○ C ○ D ○ E ○ loathe people who own expensive things expensive things.
2) Aspires to acquiring material possessions ← → shun the acquisition of material possessions.
3) Thinks material possessions do not equal success ← → thinks material possessions equal success.
4) Likes to impress people with the things I own ← → is unconcerned with what people think about what I own.
5) Buys only the things I 'need' ← → buys things that I 'want'
6) Thinks the things I own are of little value to me ← → thinks the things I own are very valuable to me

Submit

When thinking about what kind of person I am, I view myself as someone who…

7) Thinks shopping is pleasurable A ○ B ○ C ○ D ○ E ○ thinks shopping is monotonous
8) Strives for luxury ← → is uncomfortable with luxury
9) Is happy with what I have ← → would be happier if I had more.
10) Does not need what I can not afford ← → is frustrated that I can not afford the things I want
11) Has a lot of personal possessions ← → has very little personal possessions
12) Keeps up with the latest fashions ← → is not in tune with the latest fashion
13) Enjoying one's job is more important than being well paid. ← → a career that is well paid is more important that enjoying ones job

Submit

(*Parental Identity)*

Are you a parent?

- ○ Yes
- ○ No

Submit

(If respondent was a parent, 22 questions asked respondents about their attitudes towards parenting.)

(*Identity Prominence)*

(Respondents were asked four questions on the prominence of their gender, consumer, parental and environmental identities.)

(*Values)*

The following questions will ask you about things that you value. When answering these questions, think of which values are guiding principles in your life.

Continue *(Hyperlink)*

Ask yourself, "On this scale, how important is this concept as a guiding principle in my life."

1) **SOCIAL POWER (control over others, dominance)**

not at all important 0 1 2 3 4 5 6 7 8 of supreme importance

Submit

(Each of the following questions appeared on separate web pages, similar to the above.)

Ask yourself, "On this scale, how important is this concept as a guiding principle in my life."

2) **FREEDOM (freedom of action and thought)**
3) **SOCIAL ORDER (stability of society)**
4) **AN EXCITING LIFE (stimulating experiences)**
5) **WEALTH (material possessions, money)**
6) **NATIONAL SECURITY (protection of my nation from enemies)**
7) **RESPECT FOR TRADITION (preservation of time-honored customs)**
8) **UNITY WITH NATURE (fitting into nature)**
9) **A VARIED LIFE (filled with challenge, novelty, and change)**
10) **SOCIAL JUSTICE (correcting injustice, care for the weak)**
11) **AMBITIOUS (hardworking, aspiring)**
12) **HUMBLE (modest, self-effacing)**
13) **DARING (seeking adventure, risk)**
14) **PROTECTING THE ENVIRONMENT (preserving nature)**
15) **CHOOSING OWN GOALS (selecting own purposes)**
16) **CAPABLE (competent, effective, efficient)**
17) **ACCEPTING MY PORTION IN LIFE (submitting to life's circumstances)**
18) **HONEST (genuine, sincere)**
19) **PRESERVING MY PUBLIC IMAGE (protecting my 'face')**
20) **HELPFUL (working for the welfare of others)**
21) **CURIOUS (interested in everything, exploring)**
22) **FORGIVING (willing to pardon others)**
23) **SUCCESSFUL (achieving goals)**
24) **CLEAN (neat, tidy)**

Submit

(Demographics)

The following questions concern information about yourself. Please select one response and then go to the next question.

What is your marital status?

- Now Married
- Widowed
- Divorced
- Separated
- Never married

Submit

What is your sex?

- Male
- Female

Submit

Which of the following best matches your political ideology?

- Extremely Conservative
- Conservative
- Moderate Conservative
- Down the Middle
- Moderately Liberal
- Liberal
- Extremely Liberal
- Don't know

Submit

What is you political preference?

- ○ Republican
- ○ Democrat
- ○ Independent
- ○ Libertarian
- ○ Green
- ○ Other
- ○ Don't know
- ○ None

Submit

What is your religion?

- ○ Catholic
- ○ Protestant
- ○ Jewish
- ○ Muslim
- ○ Mormon
- ○ Other
- ○ Atheist
- ○ None

Submit

What is you race?

- ○ Black
- ○ Asian
- ○ Hispanic
- ○ White
- ○ American Indian
- ○ Other

If "Other" please identify [ ]

Submit

What was your total family income last year?

- ○ Under $10,000
- ○ Between $10,001-15,000
- ○ Between $15,001-25,000
- ○ Between $25,001-35,000
- ○ Between $35,001-45,000
- ○ Between $45,001-60,000
- ○ Between $60,001-75,000
- ○ Between $75,001-90,000
- ○ Between $90,001-110,000
- ○ $110,001 and over

Submit

AGE. What is your age?

- ○ 18-29
- ○ 30-39
- ○ 40-49
- ○ 50-59
- ○ 60-69
- ○ 70-79
- ○ 80 and above

Submit

You have completed the survey. Thank you for your participation.

If you have any questions concerning this survey please contact, Chris Biga at cbiga@wsu.edu or (509) 335-4595.

Thank You!

EXIT *(hyperlink)*