EXPANDING OUR UNDERSTANDING OF THE KNOWLEDGE-ACTION PROCESS FOLLOWING ENVIRONMENTALLY-BASED STUDY ABROAD PROGRAMS

by

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(Under the Direction of J. Peter Brosius)

ABSTRACT

In this ethnographic case study, I focused on the research question: Why do some people holding pro-environmental beliefs take action, while other people holding pro-environmental beliefs, who were apparently exposed to the same or similar information, do not take action? I examined the knowledge-action process in participants that completed study abroad programs at UGA Costa Rica. I surveyed 76 participants in nine study abroad programs during a full calendar year and conducted 20 interviews. The study produced six findings. First, that a majority of participants held pro-environmental beliefs. Secondly, that a majority took limited action following study abroad by increasing their recycling, buying green products, and reducing their energy footprint. Half tried to influence friend and family to do the same. Thirdly, participants considered themselves environmentally responsible but American consumer-driven lifestyle limited their options. Fourthly, when knowledge-action gaps existed, participants mentioned limited time, resources, and power as causal factors. Fifthly, social group pressure and societal patterns strongly influenced whether participants took action. Sixthly, the examination of both internal and contextual factors increased our understanding of the knowledge-action process.

INDEX WORDS: cognitive theory of cultural meaning, rapid ethnographic assessment, environmental education, study abroad, knowledge-action gap, case study, VBN, NEP

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CHAPTER 1

INTRODUCTION

Why do some people take action on their environmental concern, while others do not? I was deeply impressed by the importance of taking action while attending the First International Watershed Research Symposium at the University of Georgia in Monteverde, Costa Rica on March 26-30, 2008. I was immersed in the beauty of Costa Rican cloud forests while simultaneously receiving information on rapidly changing orographic precipitation patterns that threatened to change cloud forests. Each morning, as I listened to the calls of the migratory endangered Three-Wattled Bellbird (Sustainability Report 2010), I wondered how non-migratory species would adapt to changes. I was told that it all depended on how rapidly changes occurred, and if Americans dramatically altered our lifestyles, it could make a difference (University of Georgia and University of Costa Rica 2008).

Upon my return to Athens, I researched the Monteverde region and found that Dr. Sharon Kinsman, an American professor, had been a catalyst for the preservation of Costa Rican cloud forests (Nadkarni and Wheelwright 2000). Dr. Kinsman explained:

> I looked at the deforested landscape and it's just still so emotional for me. I looked at that and I thought; this is happening to the whole globe! It's so overwhelming. How can anybody do anything? Everything's so big, complex, so connected, so global. I can't do anything. And then suddenly something in my brain or heart or soul, I don't know which, said, 'Shut up and get to work! (Vivanco 2006:51)

Something occurred in Dr. Kinsman that moved her to take action on environmental concern. Humanity's growing presence on our planet increases the urgency of understanding that process.

A. The Social Problem

Global climate change, deforestation, species extinctions, air pollution, soil salinity and hydrologic contamination demonstrate that humanity has become a primary force in planet-scale change (Campbell 1995; Groom et al. 2006; Kempton et al. 1995; Moran 2006; Pearce 2006; Silk and Ciruna 2004). On October 31, 2011, human population reached 7 billion (El Nasser 2011). UN population projections place world population at 9.3 billion in 2050 and 10.1 billion in 2100 (UN Department of Economics and Social Affairs 2011). If consumption levels increase proportionately with projected population growth, widespread environmental decline and famine will occur in the last half of this century (Campbell 1995; Millennium Ecosystem Assessment 2005; Short 2010). Humans are both a primary cause of environmental decline and a strategic resource in creating a sustainable future (Agrawal 2005). Moran (2006) believes "we probably have no more than another 50-60 years to turn our production and consumption behavior around" (176). Now is the best time for us to act on environmental concern. Understanding why people act and then using that information to encourage responsible action would constitute a strategic step forward.

Democratic societies delegate the responsibility of encouraging responsible action to educational institutions (US Department of Education 2012). "Universities have a special role in conservation education both in helping develop an *informed and motivated* (emphasis added) citizenry, and in developing specialists in many disciplines who might contribute to future solutions" (Groom et al. 2006: 680). American environmental educators have found informing learners an easier task than motivating them to take action (Evans 1999; Short 2010). In theory, the dissemination of compelling environmental information should lead to action, but Groom, Meffe, and Carroll (2006) have noted that "although, many citizens are concerned about the

environment and care about biodiversity in a broad sense, few seem motivated to make substantial lifestyle changes" (697).

B. The Research Problem

Twenty years ago, polls reported that half to three-quarters of Americans felt a personal obligation to preserve nature (Kempton et al. 1995). Current polls report that 78% express concerns about hydrologic pollution, 62% support the environmental movement, and 61% consider environmental conservation extremely important (Daniels et al. 2011). The dissemination of environmental information in American society has raised environmental concern without producing widespread responsible action (Kollmuss and Agyeman 2002; Short 2010; Stern 2000). When people know they should act, but do not act on their knowledge, they have a knowledge-action gap (Pfeffer and Sutton 2000). Temporary knowledge-action gaps are part of a knowledge-action process sometimes called knowledge-action translation (Straus et al. 2012). When temporary knowledge-action gaps occur, people determine whether action is merited and what specific action is most effective. Knowledge-action alignment occurs as people move beyond analysis and concern to take responsible action (Kollmuss and Agyeman 2002). Knowledge-action gaps become problematic as they produce action paralysis in informed people that express high levels of concern but miss time-sensitive opportunities to take action (Jensen 2002). The knowledge-action process has been studied in agriculture (Kristjanson et al. 2009), business (Pfeffer and Sutton 2000), health care (Foley 2012), and environmental education (Jensen 2002; Short 2010). Environmental educators are concerned that humanity will miss its opportunity to take pro-environmental actions that significantly alter consumption patterns and population growth before the course is set inalterably toward drastic reductions of bio-diversity (Kollmus and Agyeman 2002; Medin et al. 2006; Millennium Ecosystem Assessment 2005). A

more comprehensive understanding of the knowledge-action process is needed (Kempton et al. 1995; Short 2010; US Department of Education 2012).

Pro-environmental actions have been defined as actions to conserve materials or energy for the benefit of the environment and to maintain the structure and dynamics of the ecosystem (Stern 2000). It is difficult to predict all the results from any action taken in complex ecosystems. Pro-environmental actions taken with the intention of producing beneficial results can actually produce both beneficial and detrimental results. In this study, *pro-environmental behaviors include all actions undertaken with the intent of benefitting the environment,* irrespective of the actual results. Pro-environmental behaviors include private individual actions as well as public collaborative actions (Jensen 2002; Short 2010). The US Department of Education (2012) considers collaboration a vital skill for informed and responsible Americans:

> The return of the hundreds of billions of dollars invested in education each year must be measured not just in terms of individual success in educational attainment and in the job market or even national economic growth. It must also be gauged by how well the next generation of Americans is prepared to solve collective problems creatively and collaboratively. (2)

C. The Research Question and Researcher's Orientation

I write this study from the perspective that humanity's current situation requires informed responsible individual and collaborative pro-environmental action. To facilitate this, we need to increase our understanding of the environmental knowledge-action process to consider what can be done to motivate responsible action. The central research question of this study is: Why do some people holding pro-environmental beliefs take action, while other people holding pro-environmental beliefs, who were apparently exposed to the same or similar information, do not take action?

My orientation is anthropological. There is a long history of significant anthropological contributions in environmental research (Gragson and Blount 1999). Ethnographic research can provide vital information concerning the knowledge-action process because it seeks to understand people in their cultural context. Cultural beliefs and values guide people "when they accelerate environmental destruction and when they slow it down" (Kempton et al. 1995:1). Through this ethnographic case study of the environmental knowledge-action process, I seek to identify and understand key factors in knowledge-action alignment as well as knowledge-action paralysis to that point that the activity and inactivity of participants "makes sense" in their cultural context (Fife 2005).

D. Research Stages and Dissertation Outline

Based on the central research question, I developed six research stages to progress systematically in answering the research question. The first research stage was to complete a literature review on environmental mobilization theory and related theoretical fields. The literature review gave me conceptual building blocks for developing an expanded framework to guide the study. Chapter 2 contains the theoretical base and the expanded framework.

The second research stage was to gain access to a purposive sample of Americans in the process of knowledge-action alignment or knowledge-action gap formation. These people, according to the research question, needed to have received the same or similar information concerning the environment. In Chapter 3, I explain why I selected participants from study abroad programs at UGA Costa Rica and how interviewing participants during the weeks and months following their return provided a window into the knowledge-action process.

The third research stage was to design the study and systematically carry out data collection. In Chapter 4, I trace the development of the study, identify three progressive steps in

completing the research stage, and provide an overview of the environmental information accessible to program participants. In Chapter 5, I explain how I distributed, administered, and collected survey data. I also describe how survey data from participants in study abroad programs was entered into an SPSS database. In Chapter 6, I describe how interviews were conducted, recorded, transcribed, and analyzed following the return of participants from study abroad programs.

The fourth research stage was to statistically calculate the environmental orientation of study participants at the beginning and end of the study abroad program. Chapter 5 contains statistical tables of pre-program and post-program participant mean scores on seven variables used to measure environmental orientation. I discuss the implications of changes in mean scores and the implications of unchanged mean scores during study abroad programs.

The fifth research stage was to identify important contextual factors mentioned by participants in their descriptions of responsible action or in their explanations of inaction. In Chapter 6, I include stories from selected participants that illustrate trigger events, relationships, contextual dynamics and how these combine to facilitate or hinder action.

The sixth research stage was to increase our understanding of the process by which participants took pro-environmental action or chose not to take pro-environmental action. In Chapter 7, I provide a summary chart as part of an explanation of findings. I provide specific answers to the following questions:

1. Did participants consider themselves to be acting responsibly within their context?
2. How did participants justify inactivity after the reception of compelling information?
3. What variables hindered or facilitated private individual pro-environmental action?
4. What variables hindered or facilitated public collaborative pro-environmental action?

5. What questions raised in the literature review were addressed in this study?
6. What questions raised in the literature review were unanswered by this study?
7. What additional questions were raised by this study?

This study matters because responsible actions can move us toward "sustainability and cooperation with nature, rather than conquest and destruction of it" (Groom et al. 2006: 687).

CHAPTER 2

THEORETICAL BACKGROUND FOR AN EXPANDED FRAMEWORK

The dissemination of science-based environmental information has raised environmental concern among Americans without producing substantial modifications of behavior (Daniels et al. 2011). In my review of literature concerning the knowledge-action process in environmental education, I found that the majority of research on environmental knowledge-action gaps examined American beliefs and values (Dunlap et al. 2000), methodological delivery techniques (Jones 2010; Sandlin et al. 2009), and analyzed content coverage (Jensen 2002). These approaches, as well as others that will be mentioned in this chapter, operate from an assumption that knowledge-action gaps exist primarily because of factors within individuals. While beliefs, values, and knowledge are all important internal factors in the knowledge-action process (Stern and Dietz 1994), they are not the only factors.

Health care professionals, researching knowledge-action gaps in medical interventions such as antibiotic use, have expanded their focus beyond internal factors to include contextual factors and have tailored knowledge applications to overcome specific barriers in local contexts (Straus et al. 2012). In this study, I develop and apply an expanded framework to examine both internal and contextual factors in the knowledge-action process. I demonstrate that our understanding of that process is incomplete without a thorough consideration of contextual factors and that an analysis of the interplay between internal and contextual factors can expand our understanding of why Americans consistently express environmental concern while failing to significantly alter their consumer lifestyles.

In this chapter, I review theories in social psychology and cognitive anthropology to identify the core structures of a framework for examining the knowledge-action process. I then expand the framework with insights from cognitive anthropology, ethnographic studies on decision-making, educational anthropology, environmental education and adult education. At the close of the chapter, I present an expanded framework for understanding the knowledge-action process.

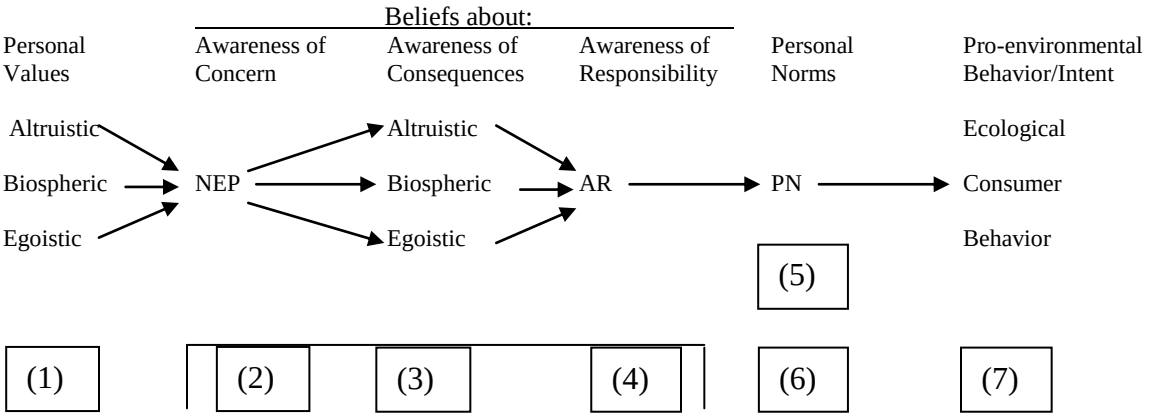
A. Building the Framework: Core Structure from Social Psychology

I begin in social psychology because it is the place where environmental educators have historically looked for information on the knowledge-action process (Clover 2002; Dietz et al. 1998; Gurung 2005; Kollmus and Agyeman 2002; Stern 2000). Social psychology offers two main streams of explanation for the knowledge-action process. One stream has focused on socio-demographic factors and concluded that younger, well-educated, liberal urbanites are more likely to act on environmental concern (Dunlap et al. 2000). A second stream of inquiry has focused on values, beliefs, and norms (Dietz et al. 1998). I was introduced to the second stream through Michael Tarrant's research (Tarrant 2010; Wynveen et al. 2011). He developed surveys that measure motivational variables outlined by Values-Beliefs-Norm (VBN) theory (Stern 2000; Stern et al. 1999). VBN theory has statistically verified causal relationships between pro-environmental values, beliefs and actions (Dietz et al. 1998; Stern et al. 1999). It has become a preferred scale in environmental studies (Short 2010; Tarrant 2010; Wynveen et al. 2011).

VBN theory is based on the hypothesis that if individuals (1) strongly value the environment, (2) hold beliefs consistent with the New Environmental Paradigm, (3) understand the consequences of environmental damage, and (4) perceive ways to reduce this damage; they will develop a sense of obligation to (5) purchase green products, recycle, reduce waste, protect

the environment, (6) support pro-environmental policies and (7) seriously consider altering their consumer lifestyle (Stern et al. 1999; Tarrant 2009a).

Figure 2.1 The Value – Belief – Norm Model (Tarrant 2010; Wynveen et al. 2011):



VBN theory hypothesizes a seven-step linear model of knowledge-action alignment. Personal values are the starting point of this alignment. Personal values can be altruistic, biospheric, egoistic or a unique blend of these three. Altruistic values prioritize the welfare of people. Biospheric values prioritize the welfare of non-human aspects of the environment. Egoistic values prioritize one's own personal welfare. These values influence how individuals respond to and interpret environmental information (Tarrant 2010).

Personal beliefs are the next part of VBN theory. Beliefs are measured by the second, third, and fourth variables. The second variable measures consistency with the New Environmental Paradigm (Dunlap 2008; Dunlap and Van Liere 1978; Stern et al. 1999). In 1978, Dunlap and Van Liere believed that a scientifically-based New Environmental Paradigm (NEP) was rapidly diffusing in American society. They anticipated a total ideological shift away from the Dominant Social Paradigm (DSP) with its emphasis on individualism, laissez-faire government, human progress, material abundance, the goodness of growth, faith in science and the subjugation of nature (Pirages and Ehrlich 1973). They envisioned a rejection of themes and

values rooted in biblical narratives and widespread acceptance of a postindustrial grand narrative rooted in a view of the environment as "a special being, needing protection by virtue of its intrinsic value" (Bozonnet 2009:2).

In 2000, Dunlap, Van Liere, Mertig and Jones (2000) affirmed that this ideological shift was occurring, but at a slower rate than anticipated. They updated the NEP scale to improve its measurement of five interrelated beliefs. The first belief was that nature's fragile balance needed to be protected. This led logically to a second belief that humanity needed to set definite limits to population growth and resource consumption. The third belief was that humans would suffer the same negative effects as other species in damaged ecosystems. The fourth belief was a rejection of humans as the central consideration in environmental decisions. The fifth belief asserted that the current ecological crisis would lead to a major ecological catastrophe if trends continued (Dunlap 2008; Dunlap et al. 2000). Surveys have indicated that a soft NEP consensus has developed in the U.S. and France but this consensus has not yet produced widespread environmental action (Bozonnet 2009).

The next VBN variable is awareness of consequences. As people receive environmental information that makes them aware of the consequence of specific actions, their values influence the attention they give to this information and the corresponding levels of concern it produces. Altruistic values create concern for consequences that affect people, biospheric values create concern for consequences that affect the ecosystem and egoistic values create concern for consequences that lower one's own life expectancy or quality of life.

Awareness of consequences leads to an awareness of personal responsibility (Schultz and Zelenzy 1998). VBN theory asserts that the first four variables have a cumulative effect that produces a willingness to alter personal norms, which is the fifth variable. Tarrant (2010) wrote:

> Overall, the framework… proposes that values and worldviews act as filters for new information in the development and formation of congruent beliefs and attitudes which, in turn, predispose behavioral intentions and ultimately pro-environmental behaviors (Tarrant and Cordell, 1997; 2002). The formation of such beliefs and values is critical to addressing the global environmental crisis in which a change in human behavior is recognized as a fundamental part of any strategic plan or policy to redress the threats posed by current activities (Oskamp, 2000; Zelenzy and Schultz, 2000). Consistent with norm-activation theory, the value – belief – norm – behavior chain of causality occurs because personal norms/obligations to act arise when the consequences that matter to people are perceived as adversary to their values system…. Generally, individuals who believe that objects they value are threatened, and that they ascribe some responsibility for reducing that threat, experience an obligation (personal norm) to act in a manner to reduce the threat. (p. 440)

The sixth variable is policy support. VBN theory suggests that when values and beliefs are strongly aligned in a pro-environmental orientation, individuals become willing to change personal norms and support pro-environmental policies. They are willing to pay higher taxes, cut their standard of living, and pay higher prices in order to protect the environment.

VBN theory identifies these seven variables as significant in human motivation and organizes them into a linear model. Pro-environmental alignment on the first six variables leads to pro-environmental action. Tarrant (2010) found that VBN theory accurately measured the beliefs and values of participants in environmentally-based courses in the Pacific islands; however, when pro-environmental actions were assessed, VBN variables failed to adequately explore casual factors behind participant choice. An individual holding pro-environmental beliefs and values can select from a variety of pro-environmental actions and these actions can be categorized as private or public, they can be individual or collaborative, and categories can combine to form private individual behaviors and public collaborative behaviors. Private individual behaviors include adjusting consumer purchases, acting responsibly in one's community, recycling, and voting in support of pro-environmental policies and candidates. Public collaborative behaviors include volunteering for group action to resolve a specific

environmental crisis, active membership in environmental organizations, and may extend to an environmental justice orientation that "challenges injustice, knows about social movements, and explores the root causes of problems" (Westheimer and Kahne 2004:3). Tarrant (2010) found the three citizen types used by Westheimer and Kahne (2004) helpful. According to Westhiemer and Kahne (2004), the personally responsible citizens assume that to facilitate social change "citizens must have good character; they must be honest, responsible, and law-abiding members of the community" (2). Participatory citizens assume that to facilitate social change "citizens much actively participate and take leadership positions within established systems and community structures" (2). Justice-oriented citizens assume that to facilitate social change "citizens must question and change established systems and structures when they reproduce patterns of injustice over time" (2).

In conclusion, VBN findings are reliable but partial. The VBN scale is the beginning point of this study and measures a part of what is happening in the knowledge-action process. Researchers using VBN have recognized the need to identify additional variables such as social demographics, social structure, spiritual beliefs, and global citizenship types (Dobson 2003; Hardin 1968; Slimak and Dietz 2006; Stern 2000; Tarrant 2010; Wynveen et al. 2011). In this study, I turn to cognitive anthropology for theoretical perspectives that provide complementary yet more comprehensive views of the knowledge-action process.

B. Building the Framework: Core Structure from Cognitive Anthropology

Cognitive anthropologists have studied how humans make sense of environmental issues (Dunlap et al. 2000; Kempton et al. 1995; Strauss and Quinn 1997). In this section, I trace the development of cognitive model theory, review a study conducted in the early 1990s and identify a cognitive theory for use in an expanded framework to guide this study.

The historical development of cognitive anthropology has been traced to Lounsbury's (1964) kinship classification studies (Lakoff 1987). Initial perspectives in cognitive anthropology were guided by semantic theory (Sweetser 1987). Classical semantic theory did not adequately account for gradation in categories until Rosch introduced the concept of prototypes. Prototype theory posits that "people construct any category around a quintessential example or typical member; other members pertain to the degree that they share attributes with that prototype" (MacLaury 1991:55). Prototype theory led to advances in studies of color categorization (Berlin and Kay 1969; Kay and McDaniel 1978), plant categorization (Berlin et al. 1974), and gender categorization (Holland and Skinner 1987). Advances in cognitive anthropology occurred in both semantic studies (D'Andrade 1995; Gragson and Blount 1999) and syntactic studies (Durant 1990). Eleanor Rosch tried to apply the prototype concept as a central organizational principle in categorization (MacLaury 1991). Prototype theory did not produce the desired result but her studies established categorization as a subfield in both anthropology and psychology (Lakoff 1978). Interest shifted from prototypes to cognitive models (Holland and Skinner 1987; Kempton 1981; Lakoff 1987). Cognitive model theory posits that humans organize knowledge by means of a *mental model*, a term that refers to "a simplified representation of the world that allows one to interpret observations… and solve problems" (Kempton et al. 1995: 10-11). Early in its development, cognitive model theory was critiqued as unverifiable (Caws 1974; Harris 1968), but its utility was repeatedly demonstrated in decision-making studies (Barlett 1977; Barlett 1980; Barlett 1982; Barlett 1993; Gladwin and Gladwin 1971; Nazarea-Sandoval 1995; Quinn 2010a) and cognitive researchers strongly asserted that cultural models provide reliable explanations for why some knowledge motivates action while other knowledge does not (Quinn and Holland 1987: Quinn 2005; Quinn 2010b).

Kempton, Boster and Hartley (1995) used cognitive model theory to identify shared environmental beliefs and values in the United States. Dunlap, Van Liere, Mertig, and Jones (2000) referenced this study as evidence of the validity of NEP because the study found "three nearly identical beliefs to those forming the major facets of the NEP Scale – balance of nature, limits to growth, and human domination over nature" (429).

The Kempton, Boster and Hartley study (1995) was part of the progressive development of knowledge in cognitive anthropology. Earlier studies had established that mental categories were formed through interaction with external environments (Berlin and Kay 1969, Berlin et al. 1974; Kay and McDaniel 1978). The Kempton et al. study found that continual exposure to urban settings dominated by materialistic consumer capitalism with little direct connection to natural environments produced mental models that devalued nature (Dunlap et al. 2000; Kempton et al. 1995). Additional research revealed that Americans linked nature to one of three metaphors: a robust cornucopia, an impending catastrophe, or a manageable system that could adjust to limited change (Kempton 2001). Strauss and Quinn (1997) had already pointed out that once shared cultural understandings were established in mental models, they were difficult to change and strongly influenced choice:

> Some understandings are widely shared among members of a social group, surprisingly resistant to change in the thinking of individuals, broadly applicable across different contexts of their lives, powerfully motivating sources of their action, and remarkably stable over succeeding generations… To leave this aspect out of consideration is also to ignore the fact that contestation and change never arise in a cultural vacuum but always originate from existing conceptual systems (Strauss and Quinn 1997:3-4).

Kempton, Boster and Hartley (1995) confirmed that Americans faced multiple barriers to pro-environmental action and they recommended increasing American contact natural environments and expanding pro-environmental appeals beyond utilitarian cost-benefit analyses as practical steps toward solving the American environmental knowledge-action gap. They

recommended that environmental advocates expand appeals to traditional religious values and biocentrism and noted that "this type of traditional Judeo-Christian basis has been criticized or ignored by the environmental intelligentsia" (115). Campbell (1995) provides a clear example of this type of criticism. He wrote, "The Judeo-Christian concept of the conquest of nature has had a devastating effect on our planet. Clearly, it is absolutely imperative that we replace it" (209).

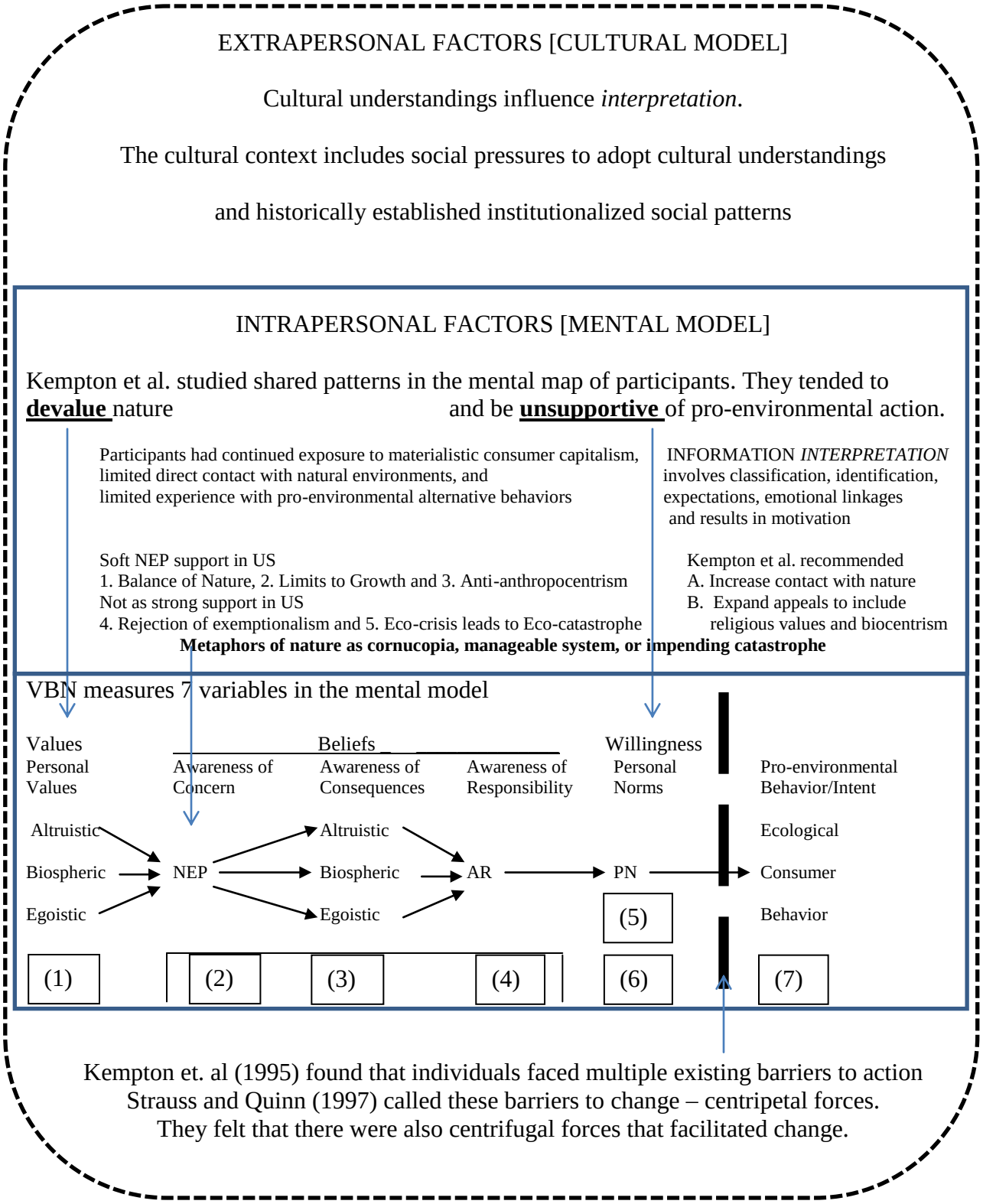
Environmental advocates have diversified appeals with biospheric appeals taking center stage (Dunlap 2008; Stern et al. 1999) and Buddhism being recommended as a religious system compatible with biocentric appeals (Moran 2006). Many environmental advocates continue to view Judeo-Christian beliefs as offering only limited support for biocentric appeals (Bozonnet 2009) even though Kempton, Boster, and Hartley (1995) found that Judeo-Christian beliefs corresponded to "strong environmental motivation held by the faithful" (115) and mentioned Al Gore as an example of Judeo-Christian biocentrism.

In 1997, Strauss and Quinn published the cognitive theory of cultural meaning. I chose this theory (Strauss and Quinn 1997) as the core structure for an expanded framework to guide the investigation of both internal and contextual factors in the knowledge-action process. I selected the work of Strauss and Quinn for several reasons. First, I found their differentiation between internal and contextual factors insightful. Secondly, selecting a theory rooted in both cognitive and psychological anthropology was a logical choice in trying to develop a framework compatible with VBN theory, rooted in social psychology. Thirdly, the cognitive theory of cultural meaning was mentioned by Naomi Quinn (2010a) as a culmination of her research in her acceptance of a lifetime achievement award presented by Psychological Anthropology. The only two barriers that I found in using their theory were the date of its development and the awkwardness of its terminology. In terms of the theory's date, I agree with Salzman (2001) when

he wrote, “The privileging of the current and demeaning of the slightly less current, not to mention the past, is a presentism that reflects naiveté and lack of perspective on the history of ideas” (141). In terms of the theory’s terminology, Strauss and Quinn (1997) use the term *intrapersonal* to describe internal factors within an individual and *extrapersonal* to describe contextual factors around an individual. In this study, I will use internal factors interchangeably with what Strauss and Quinn call *intrapersonal* factors to describe the variables measured by VBN theory. These terms reflect distinct disciplinary vocabularies in Social Psychology and Psychological Anthropology but they describe similar processes. For example, VBN theory proposes that worldviews filter new information while Strauss and Quinn (1997) use the term *interpretation* instead of filter. Whether one uses the term interpretation or filter, the activity being described is the interplay of internal factor in the knowledge-action process. VBN views these factors as the center of the environmental knowledge-action process in which knowledge is filtered through one’s values and beliefs. If there are strong pro-environmental values and beliefs, individuals act on the knowledge they receive. If values and beliefs are not pro-environmental, knowledge-action gaps occur.

In constructing an expanded framework, I wanted to acknowledge the important role that internal factors play in the knowledge-action process, but I also wanted to point out that the process is more than the alignment of internal factors in favor of or against pro-environmental action. This is evident by the fact that strong alignment of internal factors in favor of pro-environmental action does not guarantee that individuals will take pro-environmental action because that action must be negotiated within local contexts. I constructed a framework that views the knowledge-action process as an ongoing negotiation within and around an individual as he or she evaluates internal factors as well as contextual factors.

Figure 2.2 Structure of Expanded Framework (Kempton et al. 1995; Strauss and Quinn 1997)



Contextual factors, what Strauss and Quinn term *extraperson* factors, are not addressed by VBN theory. Contextual factors include a mixture of societal pressures and patterns that encourage and discourage pro-environmental action. A framework that addresses intrapersonal (internal) and extrapersonal (contextual) factors provides a more comprehensive perspective of the environmental knowledge-action process and explains why knowledge-action gaps occur in individuals with strong pro-environmental beliefs and values.

Kempton, Boster and Hartley (1995) mentioned multiple barriers to pro-environmental action. The expanded framework views individuals as receiving environmental information through pre-existing mental models that can be measured by VBN variables. As individuals filter information it is incorporated into their mental model and may raise their concern for the environment and their sense of personal responsibility to act. Acting responsibly is determined not only by intrapersonal factors, but also through negotiating between intrapersonal values and beliefs and extrapersonal factors such as social pressure to conform to a cultural model and institutionalized societal patterns that resist change. Strauss and Quinn (1997) observed that within culture there are centripetal forces that encourage cultural unity by reinforcing the status quo and centrifugal forces that encourage freedom and cultural change.

When Strauss and Quinn applied this theory to understand American cultural models of marriage, their research was conducted over multiple years and interviews were conducted by multiple researchers (Strauss and Quinn 1997; Quinn 2010a). Their work resulted in a well-structured theory. Its application in research produced a highly developed methodology. I selected elements from their theory as the core framework of this study. I also selected elements from their basic methodology but I did not incorporate their full methodology, because Strauss and Quinn (1997) were seeking to outline the contents of a cultural model for marriage. Their

methodology reflected their goal of identifying a shared cultural model that informed individual perspectives on marriage. I am not seeking to identify a shared cultural model that informs pro-environmental action, therefore, the methodology utilized by Strauss and Quinn far exceeds what is needed in this study, which seeks to expand our understanding of the knowledge-action process.

Quinn's methodology reflects her background in ethnoscience, decision-making studies, and more recently in cognitive model theory (Quinn 2010a). Her analysis of narrative begins with basic coding to identify central words and strategic concepts. I used basic coding in this study to first identify central words and concepts. I also coded the data repeatedly to classify concepts as intrapersonal and extrapersonal. I verified that intrapersonal data was consistent with VBN measurements but I focused primarily on extrapersonal data. I identified social pressure to conform to a cultural model, institutionalized societal patterns that resist change, and evaluated how individuals negotiated between intrapersonal and extrapersonal factors. I also identified avoidance of political activism as a centripetal force currently influencing informant negotiation.

Strauss and Quinn (1997) were seeking to outline both mental and cultural models and to demonstrate how cultural understandings flowed to and influenced mental models. They analyzed the use of words and concepts in extended narratives to discern the existence of knowledge hierarchies. This process required multiple extended interviews with participants. As a general rule, they found that individuals rank knowledge based on expert opinion, immediacy of utility and connections to historically dominant knowledge (Holland and Skinner 1987; Quinn and Strauss 1997). The identification of strategic concepts, hierarchy and linkages led them to the gradual discovery of larger cultural schemes. They ranked schemes by their motivational power following D'Andrade (1992) suggestions. He suggested that schemes can be divided into

three ranks based on their motivational power: master motives, middle level motives, and lower level motives. Master motives powerfully led individuals to instigate action, middle level motives required the presence of complementary goals to motivate action, and lower level motives in isolation from other motives did not produce any action.

C. Expanding the Framework: Older Insights from Cognitive Anthropology

The expanded framework was built around a cognitive theory that developed through years of research (Quinn 2010a). My goal was to create a VBN compatible framework to guide this study and to link its findings with previous insights, such as those mentioned by Strauss (1997):

> Someone has only lip-service motivation if they have internalized positive social discourses about action but not connected these values to a partly integrating self-image, or to other strong feelings, or to schemas for how to enact these social values. These values can be explicitly stated (otherwise you cannot pay them lip service)" (233-234).

Strauss (1997) identified two responses beyond lip-service. One response was to select a routine societal behavior that would accomplish the desired goal. A second response was to develop a non-routine behavior to accomplish the goal, but this required "conquering the anxiety that comes from doing something different, as well as taking the trouble to find out what to do" (233). Strauss found that people performed non-routine behaviors if strong emotional motivation existed or if these non-routine actions were integrated with a sense of personal identity.

Based on her study, Strauss (1997) made suggestions on how to encourage change in both extrapersonal and intrapersonal areas. Extrapersonal change was facilitated by (1) positive social discourse about desired change; (2) education that linked knowledge with strong emotions; (3) repeated presentations concerning the desired action; (4) and the development of people, practices and social institutions that demand the behavior. Intrapersonal change was facilitated by (1) repeated reflection on the action; (2) the association of positive emotions with the action

and negative emotions with opposing behavior; and (3) a connection between the action and personal identity (See Appendix H for an application of these insights in a limited review of the history of Costa Rican Environmentalism).

D. Expanding the Framework: Motivational Insights from Cognitive Anthropology

Atran, Medin, and Ross (2005) demonstrated that when experts endorsed specific routine and non-routine practices, their endorsement motivated others to adopt these practices. Atran also recognized the motivational power of personal linkage with land and religious affiliation (Atran 2006, September 14). These findings are consistent with previous suggestions that environmental advocates link biocentric appeals to religious values (Kempton et al. 1995).

Solidarity with social group is also a key motivational issue (Ginges and Atran 2009). Ginges and Atran found that "people identify themselves on collective levels in addition to individual ones, and there is a general tendency to act in ways that have collective benefits irrespective of individual-level benefits" (117).

E. Expanding the Framework: Insights on Extrapersonal Complexity

Former studies in cognitive and environmental anthropology emphasized the complexity of agricultural decisions (Quinn 2010a). Nazarea used models theory to study agricultural decisions and found that if actions were categorized as contextually impractical, they were dismissed without any attempt to implement (Nazarea-Sandoval 1995). Peggy Barlett studied agricultural decisions and found that understanding the complexity of local contexts was important (Barlett 1977; Barlett 1980; Barlett 1982; Barlett 1993). Studies on American farmers revealed the need to understand local and national scale (Bartlett 1993). These studies all demonstrated the importance of understanding extrapersonal complexity.

Current studies in environmental anthropology emphasize the political complexity of global conservation. Actions taken in favor of one species or community are not always clear and do not always produce intended results. Negotiation results in trade-offs based on incomplete information (Leader-Williams et al 2010). Framing conservation decisions in terms of trade-offs is an attempt to avoid the oversimplification and unachievable expectations often present in win-win solutions by acknowledging complexity and facilitating informed negotiation. The reality is that "in conservation and development, trade-offs are the norm" (McShane et al. 2011:969). Trade-off theory provides an opportunity to discuss multiple dimensions and to encourage "genuine reflection, honest communication and responsible action" (Hirsch et al. 2010:263). Understanding trade-offs takes time because it involves examining multiple political, social, economic, and ecological factors at multiple scales, respecting the coevolution of natural and human history, recognizing that there are a variety of legitimate perspectives and admitting that all models engage in some form of simplification (McShane et al. 2011). The complexity of environmental decisions require detailed analysis that can require extended time periods before a preferred course of action is determined. On a personal level, this analysis would be one additional reason why environmentally-informed Americans would express high levels of concern about the environment but take extended time to determine which course of action is their best option.

F. Expanding the Framework: Insights from Educational Anthropology

Anthropology has a long history of educational research (Boas 1938; The Royal Anthropological Institute of Great Britain and Ireland 1951) dating back to Barnes, Hewett, Montessori, and Malinowski (Ford 1997; Hewett 1904; Malinowski 1936; Malinowski 1961 [1922]; Montessori 1912). In the 1960s, anthropological interest in U.S. education increased

(Calhoun and Ianni 1976) and produced the Council on Anthropology and Education (CAE), which officially organized in 1968 (Council on Anthropology and Education 2009; Textor 1976). In 1976, the outgoing CAE president encouraged educational anthropologists to address global concerns and environmental issues (Textor 1976). CAE has continued to evolve, promoting social justice (Anderson-Levitt 2007: 320) through the use of critical educational theory (Finger and Asun 2001; Freire 1999; Gollnick and Chinn 1998; Richard-Amato and Snow 1992; Wolcott 1983).

Respect for cultural diversity has been a shared value in CAE (Spindler and Hammond 2006). Educational anthropologists have defined American culture as an ongoing intergenerational multiple group dialogue and public education has facilitated this dialogue (Spindler et al. 1990). Knowledge transfer is an essential part of education's role in American society. It is a vital part of stimulating pro-environmental consciousness, but knowledge transfer, dialogue and even pro-environmental consciousness fail to engage students in the resolution of actual problems (US Department of Education 2012).

G. Expanding the Framework: Both Ends of the Scale in Environmental Education

Environmental educators want to move from knowledge transfer through pro-environmental consciousness to responsible action. Their goal is to "develop independent, critical thinkers equipped with the knowledge, attitudes, and skills necessary for long-term responsible behaviors" (Short 2010:11). They rely on VBN surveys to accurately measure "pro-environmental consciousness" (Kollmuss and Agyemann 2002:257). However, pro-environmental consciousness does not automatically mean that students engage individually in responsible lifestyle change or collectively in societal change (Clover 2002). If action is the goal,

environmental educators need a better understanding of what happens after people develop pro-environmental consciousness (Short 2010).

Researching from *both ends of the scale* can provide a clearer picture of what happens. This technique has been applied in environmental conservation (Russell and Harshbarger 2003). It has clarified complex political landscapes (Brosius et al. 2005) and revealed politically motivated representation (Brosius 2006). Although the term *scale* was not used by researchers, the technique of researching *both ends of the scale* was definitely present in educational planning theory (Cervero and Wilson 2006). Chapter 3 presents one end of the scale: the macro political landscape of international and national study abroad environmental programs. Chapters 5 and 6 present the other end of the scale: data on individual participants. This data documents that when students seek to act on their pro-environmental consciousness, they face complex social, economic and political barriers that are part of their micro political landscape.

H. Expanding the Framework: Insights from Adult Education

Adult Education is not synonymous with mainstream American pedagogy; it is a distinct academic discipline (Knowles et al. 2005) that focuses on adult learning (Merriam 2004; Merriam 1999) and incorporates insights from anthropology (Bateson 1972; Tosey 2006). Adult educators recognize that unquestioned cultural assumptions delineate or "frame" what topics are considered worthy of study (Elgstrom and Riis 1992). Adult educators encourage the critique of cultural assumptions (Finger and Asun 2001) and have developed two adult learning theories that are particularly applicable to the expanded framework: transformative and critical learning theory.

Transformative learning theory has demonstrated its utility in educational research (Brookfield 2000; Kegan 2000; Kitchenham 2008; Mezirow 1991; Mezirow 2000; Taylor 2008).

The goal of transformative education is to help adults become liberated, responsible, autonomous learners (Mezirow 2000). Transformative learning theory describes the reorganization of internal beliefs and values. It posits that learning occurs at two levels: small shifts in values or beliefs, described as *meaning schemes*; and much larger transformative reorganizations, described as *new meaning perspectives*. Small shifts are integral to reflection and do not typically lead to major life changes. Major life changes involve a large-scale reorganization of beliefs and values and this reorganization is facilitated by healthy dialogue groups (Mezirow 1991). Typically, this dialogue follows some kind of disorienting dilemma that challenges the previous meaning perspective and introduces a widespread evaluation of accepted assumptions. Transformative learning theory suggests that environmental educators can encourage pro-environmental action by planning events that trigger disorienting dilemmas and creating discussion groups that encourage creative thought and action.

Critical theory is a second area that can provide useful insights. Critical theory has demonstrated its utility in education for social change (Freire 1993; Freire 1999; Shor 1987). It uses neo-Marxian social analysis that views power as the key for understanding dominant practices and resistance. Critical educators encourage learners to assess dominant values, belief and practices via a critical perspective. This assessment of context highlights social domination and produces what Friere (1993) called critical consciousness, a moment when learners realize that dominant societal groups have used political power to create their current situation. Critical educators encourage learners to organize collective political action to bring about social change. The utility of this educational process was demonstrated through the work of Myles Horton in the U.S. civil rights movement (Bell et al. 1991) and Paulo Friere (1993; 1999) in his work with UNESCO. Critical educational planners believe that cultural understandings have to be critically

assessed and learners have to be encouraged to act collectively and strategically to change cultural institutions.

These insights from anthropology, social psychology, and adult education reflect a shared interest in the advance of human learning. Adult educators apply insights from educational anthropology (Hansen 1979; Sikkema and Niyekawa 1987) and recognize their need to understand cultural complexity (Lassiter 2002; Zimmermann 1996). They use CAE research (Hoffman 1998) and carry out ethnographic studies (Chavez 2007; Walcott 1997). Their research depends on ethnographic methodology (Glesne 1999; Hill 2006; Silverman 2000; Taylor 2006).

I. An Expanded Framework for Encouraging Pro-environmental Action

I have taken the insights from this literature review and placed them in an expanded framework for examining the knowledge-action process with a value orientation toward encouraging pro-environmental action. The lower half of the framework explains what I expect to find among Americans completing VBN surveys, the upper half provides structure for an examination of contextual factors such as pressure to accept shared understandings and conform to societal patterns. I anticipate finding bridges and barriers to pro-environmental action.

Figure 2.3 Expanded Framework for Encouraging Pro-environmental Action

CHAPTER 3

SAMPLE SELECTION

Chapter 2 outlined an expanded framework to guide this study. The next step is to identify a purposive sample. "Purposive sampling allows us to choose a case because it illustrates some feature or process" (Silverman 2000:104). In this chapter, I explain five factors involved in the selection of a purposive sample for this study of the knowledge-action process.

A. Factor One in Sample Selection: American Participants

I began the last chapter by explaining that the general American population has expressed moderate to high levels of environmental concern during the past 20 years, but that concern has not produced major changes in American lifestyle (Kollmuss and Agyeman 2002; Short 2010; Stern 2000). Understanding the environmental knowledge-action process among American people is the focal point of this study. Therefore, the first factor in selecting a purposive sample for this study is that participants be part of the American population.

B. Factor Two in Sample Selection: Study Abroad Participants

A growing number of American university students are completing study abroad programs. The significance of this group has been highlighted by the Commission on the Abraham Lincoln Study Abroad Fellowship Program (2005). The Commission established the goal of increasing the number of American students in study abroad programs annually to one million by 2016-2017. The report stated, "Making study abroad the norm and not the exception can position this and future generations of Americans for success in the world in much the same way that establishment of the land-grant university system and enactment of the GI Bill helped

create the American century" (Commission on the Abraham Lincoln Study Abroad Fellowship Program 2005:v). Congress has not yet provided additional funding for study abroad (The Senator Paul Simon Study Abroad Act 2012) but international educators are seizing this opportunity to make international study abroad the norm for American students (Johnson 2012).

According to the final report of the Commission on the Abraham Lincoln Study Abroad Fellowship Program (2005), participation in study abroad prepares students to collaborate in the resolution of global issues. Study abroad programs have inherently high transformative potential because they remove students from their cultural contexts and provide opportunities to explore and discuss other ways of viewing the world (IES Abroad 2012).

C. Factor Three in Sample Selection: Study Abroad in Costa Rica

Environmentally-based study abroad programs in Costa Rica provide opportunities to view the world with a focus on biodiversity and environmental conservation. The biogeography of Costa Rica provides rapid access to multiple life zones (Nadkarni and Wheelwright 2000; Welch 2008). Research on Costa Rican species and ecosystems provides a wealth of environmental information (Graham 2007; Joyce 2006). Costa Rican people express widespread support for conservation (Foster 2000; Frankie et al. 2004; Furlong 2008; Fürst and Hein 2002; Salguero 2007). The stability of the Costa Rican government (Rottenberg 1993) has provided long-term support for conservation efforts. As in other democracies, support fluctuates (Mas 2007) and includes public debate (Evans 2006) but governmental support has been consistent.

Costa Rican people are proud of their land, history and way of life (Fürst and Hein 2002; Vivanco 2001, Spring). Costa Rican national identity is linked to the agricultural richness of Costa Rican soil (Solórzano 2006), the presence of active volcanoes (Sheets 1994; Sheets 1991) and the country's unique fauna and flora (Nadkarni and Wheelwright 2000). Regional

characteristics made the area ideal for small settlements in pre-colonial times. Trade was facilitated through political networks from Panama to the Yucatán (Graham 1993; Timm 2000; Zamora 1993). Villages were located below 1500 m around reliable water sources. In the colonial period, Costa Rica was the last area of Central American to be conquered. Colonists settled the central valley and indigenous groups retreated to mountainous and coastal areas (Solórzano 2006). Costa Rican colonists were not from elite classes and worked their own lands (Evans 2006). This set into motion a series of six historical conditions that produced an exceptional state (Rottenberg 1993). First, a homogenous population controlled the central valley (Carmack et al. 2007). Conflicts with indigenous communities were uncommon and resources were invested in education and infrastructure (Molina 2006). Secondly, the country developed democratic institutions through public dialogue and policy compromise. Third, leaders of the country expressed a concern for equity. Fourth, this concern led leaders to resist the centralization of power. Fifth, the country's population remained small. Finally, throughout its history, large land areas have remained unexploited (Rottenberg 1993).

These historical conditions led Costa Rica to develop a participatory government that provided long-term stability. In 1948, the centralization of governmental power produced civil unrest that led to a new constitution and democratic government. This has produced years of relative peace, growth, and prosperity with Costa Rica passing all other Central American countries in the quality of life indexes of health, education, and economic well-being (Carmack et al. 2007). Costa Rican democratic tradition has had a stabilizing affect in the region (Brignoli 1997) positioning Costa Rica to provide regional leadership in conservation (Evans 2006). Environmentalism became a national value through the establishment of national parks (Schelhas

and Pfeffer 2005) and reserves using scientifically-based conservation (Dunlap 2008; Nadkarni and Wheelwright 2000).

Costa Rica is an excellent location for environmentally-based study abroad programs because of its unique biogeography, biodiversity, facilitation of scientific investigation, political stability, public support for conservation, participatory democratic government, and the fact that Costa Rica people welcome visitors. Environmental Performance Index Rankings listed the nation of Costa Rica as the fifth strongest EPI performer in the world. Switzerland was first. the United States was 49th, and Iraq was last at 132nd (Yale 2012).

American students that have completed environmentally-based study abroad programs in Costa Rica constitute an excellent purposive sample for this study of the environmental knowledge-action process. The reception of environmental information from recognized experts during study abroad experiences such as conservation tours, combined with the opportunity for dialogue within study abroad cohorts (Gannaway 1994), should increase NEP scores (Rideout 2005) and trigger transformative assessment (Daloz 2000).

D. Factor Four in Sample Selection: The Monteverde Region

There are multiple study abroad destinations in Costa Rica. I selected Monteverde, as a study abroad destination because it is an ecotourism success story (Aylward 1996; Weinberg 2006) and a center of biodiversity. Monteverde is a region in the Tilarán mountain range that contains the Monteverde Cloud Forest Reserve and the Children's Eternal Rainforest. Regional biodiversity provides a unique setting for multiple study abroad programs. The economic benefits of these programs have been calculated and used to defend ecotourism (Echeverría et al. 1995). Proponents of ecotourism have argued that Monteverde has continued to be a center of biodiversity (Nadkarni and Wheelwright 2000). The uniqueness of the region has been

documented in research on a wide variety of topics, such as tour guide perspectives (Vivanco 2001, Spring), historic Quaker influence (Gunderson 2005; Salguero 2007), environmental education (Fregeau 2000), plant regeneration (Bush 1999), chemical compounds in regional plants (Cole 2007; Takaku 2007), microclimate biodiversity (O'Donnell 2006), and community collaboration in conservation (Harwood 2006).

Research conducted in the Monteverde region has documented environmental concerns such as frog population decline (Di Rosa 2007, May 31), regional amphibian loss (Alford 2007, May 31), grey water treatment issues (Dallasa 2004), changes in cloud forests and biodiversity (Dudgeon 2006), the impact of pastoralism on forest decline (Zoomers 2000), global warming and orographic precipitation (Guswa 2007; Nair 2008; Pound 2007), and the long-term sustainability of ecotourism (Glass 1996).

The accessibility of significant environmental scholarship, ongoing international conservation efforts and a deepening commitment in local communities to increase environmental sustainability make the Monteverde region an excellent location for symposiums and study abroad programs. International collaboration in conservation has been encouraged through International Symposiums hosted by the University of Georgia at its Costa Rican campus, located in the Monteverde region (Sustainability Report 2010; University of Georgia and Universidad de Costa Rica 2008).

E. Factor Five in Sample Selection: Study Abroad Programs at UGA Costa Rica

The University of Georgia offers over one hundred study abroad programs worldwide with approximately 2,000 students enrolled annually. UGA ranked fifteenth in study abroad participation among U.S. colleges in 2009-2010. UGA offers study abroad programs year round

at three residential sites in San Luis, Costa Rica; Oxford, England; and Cortona, Italy (University of Georgia Office of International Education 2012).

The University of Georgia's residential site in Costa Rica is located in Los Altos de San Luis de Monteverde in the Arenal-Tilarán region of the Puntarenas province. The 155 acre campus previously functioned as a private dairy farm, but in 1995 biologists Milton and Diana Libermans purchased the land and began using it as a biological observation station. During its initial seven years, a strong biological and ecological emphasis developed at Ecolodge San Luis, as the Libermans hosted multiple field-based courses in biology and ecology. Leaders at Ecolodge aligned the program closely with Costa Rican Conservation, an emphasis consistent with it geographic location adjacent to the Monteverde Cloud Forest Reserve. In 2002, Ecolodge San Luis was purchased by the University of Georgia Foundation and the property began its transformation to a residential site for multiple study abroad programs. Ecolodge buildings were renovated and dorms, classrooms and laboratories were added. By the 2010-2011 academic year, there were 23 study abroad programs offering courses in 28 disciplines (Sustainability Report 2010).

UGA Costa Rica has maintained its ecological emphasis. This can be seen in the fact that "all UGA Costa Rica programs immerse students in the natural surroundings via myriad activities" (Sustainability Report 2010:32). UGA Costa Rica has expanded its environmental emphasis to move toward sustainability (Bell 2009). "The UGA Costa Rica Campus operations aspire to attain the strictest standards of social, economic and environmental sustainability as well as disseminate these ideals to all who visit and work on the campus" (Sustainability Report 2010:2). These ideals include cooperating with national sustainability movements such as the Certification Program for Sustainable Tourism.

Sustainable practices are modeled by employees and guests at UGA Costa Rica. This includes a carbon offset program to counterbalance increases produced by the travel of study abroad participants. The offset program assists in reforestation efforts in the Pájaro Campana Biological Corridor. On campus, there is "a culture of reuse and waste minimization both among staff and visitors" (Sustainability Report 2010:24). The campus has an integrated farm (Bell 2009) and intentionally recycles nutrients back into the ecosystem. Visitors are introduced to the benefits of composting and environmentally responsible waste management. "Disposable products (plates, cups, utensils) are not used" (Sustainability Report 2010:26). Soft drinks are only available in recyclable bottles. All coffee and up to 40% of the food is purchased from local farms. Even new construction projects are done in ways that maximize recycled or sustainably produced materials.

Sustainability is a campus-wide educational priority. Campus employees receive training concerning sustainability principles and initiatives. This is "a critical piece of UGA Costa Rica's overall sustainability effort" (Sustainability Report 2010:30). These principles flow into the community as employees apply sustainability practices at home. This study examines the knowledge-action process in the lives of study abroad participants as they return to their homes in the United States and determine the applicability of sustainable practices in their home culture.

UGA Costa Rica hosted 23 study abroad programs during 2010-2011. My interest focused on programs that utilized the UGA Costa Rica campus as a vital part of the study abroad experience. Participants in these programs stayed for half of their study abroad time at UGA Costa Rica. I was not interested in study abroad programs that visited UGA Costa Rica for one or two days during a three-week program. Study abroad participants that spent the duration of their study time at UGA Costa Rica had access to on-campus hikes, tours of a local organic coffee

farm called Finca La Bella, tours at the Monteverde Cloud Forest Reserve and hikes to an 80m waterfall. According to the 2010 Sustainability Report: "Thus, no matter what subject they come to Costa Rica to study, participants in UGA Costa Rica's education abroad programs come away with a deeper appreciation of the importance of efforts to restore, protect, and preserve Costa Rica's natural resources" (32). Participants returning from study abroad programs offered at UGA Costa Rica represent a well-prepared purposive sample for this study.

This chapter identified American students completing study abroad programs at the campus of UGA in the Monteverde region of Costa Rica as a purposive sample for the study. The next chapter describes the step-by-step development of the study.

CHAPTER 4

STUDY HISTORY, DESIGN, METHODS, AND STEP ONE INFORMATION

In this chapter, I explain the step-by-step development of the study. First, I trace the narrowing of the research topic and the formation of a research question; next, I design the study to follow three progressive steps of data collection; finally I present data and analysis concerning step one and proceed to explain how step two will be addressed in Chapter 5 and step three in Chapter 6.

A. A Winnowing Process Led to the Research Topic

Before determining what data to collect and how to collect it, I worked through a winnowing process that clarified the research topic. The first three chapters of the dissertation presented the results of that process. The process began in spring 2008, when I enrolled in ECOL 8710 Environmental Law Practicum with Dr. Laurie Fowler. As a student in the course, I was given the opportunity to attend a symposium at UGA Costa Rica. That visit was a significant event in the development of this study. In fall 2008 and spring 2009, I completed a literature review that revealed Costa Rica's success in conservation, the knowledge-action gap in American environmental education and increasing American enrollment in study abroad programs (Commission on the Abraham Lincoln Study Abroad Fellowship Program 2005).

Before fall semester 2009, I discussed my interest in studying the transformational potential of environmentally-based study abroad programs with Dr. Peter Brosius. Dr. Brosius felt that while the topic had possibilities, it needed further refinement. He suggested I meet with Dr. Quint Newcomer, the Director of UGA Costa Rica. Dr. Newcomer assisted me with the

identification of study abroad programs that centered out of the UGA Costa Rica campus. I was introduced to GLOSSARI -- the Georgia Learning Outcomes of Students Studying Abroad Research Initiative. It demonstrated that study abroad consistently increased the insights of participants regarding a topic's importance (Redden 2010). This confirmed that study abroad provided a natural experiment to examine the knowledge-action process.

In fall 2009, I enrolled in ANTH 8630 Anthropological Research Design and Proposal Development with Dr. Ted Gragson. He reviewed an initial draft of my prospectus and stated that I needed to clarify my theoretical base within anthropology and find an instrument to measure environmental orientation. After this meeting, I attended Dr. Michael Tarrant's presentation on his Pacific research. He had developed a reliable instrument specifically designed to measure environmental values, beliefs and norms. He granted me permission to use his VBN survey.

On February 11, 2010, I proposed using the VBN instrument in a one-group pretest-posttest design (Bernard 2002) combined with interviews to examine the transformative learning process in students enrolled in environmentally-based study abroad programs. I listed 10 programs for possible inclusion in a year-long study. Each program was selected based on the following criteria: (1) that program participants stayed for half of their study abroad time at UGA Costa Rica; (2) that programs represented a full calendar year. The number 10 was arbitrarily selected as a general benchmark figure. Residence at UGA Costa Rica was vital because it provided participants access to pro-environmental information (Sustainability Report 2010). The prospectus was approved. On March 22, 2010, I received approval from the University of Georgia Institutional Review Board to proceed with this research project. I anticipated being ready to begin data collection in June 2010. I was not ready until July 2010.

Table 4.1 Programs Listed for Possible Inclusion and Actual Programs in Sample

Proposed Programs	Dates	Programs in Study	Dates
Insect and Bird Nat. Hist.	6/13-6/29/2010	*Researcher not ready*	
Conserv. Bio. and Med.	6/18-7/19/2010	*Researcher not ready*	
Nature and Environmental Design	7/09-7/30/2010	Nature and Environmental Design	7/09–7/30/2010
Biodiversity and Land Conservation Policy	7/23-8/06/2010	*Program not offered*	
Tropical Ecology	8/23-11/20/2010	Tropical Ecology	8/23–11/20/2010
College of Environmental Design	8/30-11/19/2010	College of Environmental Design	8/30–11/19/2010
FRC Spring Break	3/12-3/20/2011	FRC Spring Break	3/12–3/20/2011
Tropical Ecology	May – June 2011	*Survey packets lost*	
GORP Adventure and Astronomy	5/17-6/08/2011	GORP Adventure and Astronomy	5/17–6/08/2011
Project FOCUS	May – June 2011	*Prof didn't participate*	
		Art and Culture in Latin America	5/17–6/08/2011
		Warnell Core in Costa Rica	6/08–7/05/2011
		Nature and Environmental Design	7/16–8/01/2011
		Language and Culture Service Learning	7/06–8/01/2011

As I progressed in my preparations for research, the precision of my articulation of the research topic increased. My interest always centered on the knowledge-action process that begins with the reception of pro-environmental information. In some people, information triggers transformative learning and produces lifestyle change; while in others, information does not result in lifestyle change. As I reviewed the cognitive theory of cultural meaning, I realized that VBN theory measured select internal factors, what Strauss and Quinn (1997) called *intrapersonal* variables. I also realized that VBN did not address contextual factors, called *extrapersonal* variables by Strauss and Quinn (1997). As my research focus became more refined, I formulated the central research question: Why do some people holding pro-

environmental beliefs take action, while other people holding pro-environmental beliefs, who were apparently exposed to the same or similar information, do not take action?

B. The Research Question Investigated in Three Progressive Interrogative Steps

To answer the research question, I needed to move progressively through three interrogative steps of data collection. In step one, I needed to gather and analyze data to determine if pro-environmental information was available to study abroad participants at UGA Costa Rica. In step two, I needed to gather and analyze data to measure the impact of pro-environmental information on participants. In step three, I needed participants to tell me what contextual factors encouraged and hindered responsible pro-environmental action.

(1) Was Pro-environmental Information Available to Participants?

I reviewed data from three different sources to answer this question. Official UGA documents that described the programs and campus of UGA Costa Rica were the first data source. Descriptions of the courses offered in the nine programs of this study, along with course syllabi were the second data source. A third source was data collected through participant observation and informal interviewing during the first study abroad program of this study.

(a) Review UGA Costa Rica Documents

The UGA Costa Rica Sustainability Report (2010) contains an introductory letter from Kevin Kirsche, Director of the Office of Sustainability. He writes: "the UGA Costa Rica campus is planned, designed, constructed, operated and maintained in pursuit of ecological, social and economic sustainability" (6). The report proceeds to describe the culture of sustainability that guides both staff and visitor behavior while on campus (Sustainability Report 2010). The campus is staffed by individuals with a deep personal respect for regional forests that recognize the importance of finding viable solutions to ecological issues that work in the social and economic

realities of Monteverde. The Sustainability Report includes the following quote: "Since sustainability is a cultural process, it depends on the everyday actions of ordinary people…. Bringing sustainability home is about growing a culture of sustainability that is suited to the particularities of place" (VanderRyn and Cowen 1996:63).

At UGA Costa Rica, study abroad participants are introduced to a culture of sustainability that seeks to apply pro-environmental information through behaviors that make ecological, social and economic sense. Participants are enrolled in formal educational courses that typically meet in official classrooms and may require the communication of pro-environmental information in order to complete learning objectives. During their free time, participants are encouraged to enjoy the environmental and social particularities of San Luis through nonformal learning experiences. *Nonformal learning experiences* are optional planned educational experiences offered outside of formal course requirements (Merriam and Brockett 1997). The likelihood that participants will actually access pro-environmental information through nonformal learning experiences during their free time increases proportionately to the amount of time they reside at the UGA Costa Rica campus.

The five nonformal learning experiences mentioned repeatedly in UGA study abroad promotional materials are (1) life itself on the UGA Costa Rica campus, (2) tours of nearby organic coffee farms, (3) tours at Monteverde Cloud Forest Reserve, (4) hikes to a nearby 80m waterfall and (5) Costa Rican homestays (UGA Costa Rica 2012). The combined impact of campus culture and nonformal learning experiences is stated in the 2010 Sustainability Report: "Thus, no matter what subject they come to Costa Rica to study, participants in UGA Costa Rica's education abroad programs come away with a deeper appreciation of the importance of efforts to restore, protect, and preserve Costa Rica's natural resources" (32).

(b) Analyze Course Objectives

I collected data from nine programs during this study. During each program, participants completed one or more courses. I requested and received copies of all course syllabi in order to assess formal learning objectives. I reviewed all syllabi, finding that some syllabi provided a clear list of objectives while others provided course descriptions that contained information concerning objectives.

Table 4.2 Programs in Sample with Courses Offered

#	Program Name and Date	Courses Offered
1	Nature and Environmental Design 7/09-7/30/2010	LAND 4910/6910 Landscape Architecture HIPR 4680/6680 Community Design Charrettes
2	Tropical Ecology 8/23-10/20/2010	ECOL 3100 Tropical Field Ecology ECOL 3500 General Ecology ECOL 4960 Ecology Research
3	College of Environmental Design 8/30-11/19/2010	LAND 4050/6030 Region, Site, Place Sustainability LAND 4250/6240 Portfolio Development LAND 4360 Applied Landscape Ecology LAND 4910 Independent Study of Region, Site… LAND 6330 Landscape Construction LAND 6912 Independent Project
4	FRC Spring Break 3/12-3/20/2011	LACS 4900 Cultural and Ecology of Costa Rica
5	GORP Outdoor Adv. and Astronomy 5/17-6/08/2011	ASTR 1020 Stellar and Galactic Astronomy PEDB 1090 Outdoor Adventure Activities
6	Art and Culture in Latin America 5/17-6/08/2011	ARST 3120 Paint and Watercolor ARST 4180 Directed Study ARST 4900 Digital Photography
7	Warnell Core in Costa Rica	FANR 4201/6201 Spatial Analysis for Integrative… FANR 4202/6202 People, Economics and Nature…
8	Nature and Environmental Design 7/16-8/1/2011	LAND 4910/6910 Landscape Architecture HIPR 4680/6680 Community Design Charrettes
9	Language and Culture Service Learning 7/06-8/01/2011	LING 2100 Introduction to Linguistics LLED 4620 ESOL Service Learning LLED 5040 Language and Culture

To facilitate comparison of course objectives, I prepared a multi-page table that listed each program, the courses offered in the program, and highlighted in blue the objectives that required the communication of environmental information (Appendix A). I reviewed each program to determine which programs contained courses with objectives that required the communication of environmental information and which programs could meet course objectives without the communication of environmental information. This did not indicate that professors in these courses did not communicate pro-environmental information, only that the course objectives themselves could be accomplished without participants receiving environmental information. I also examined syllabi for terms like *ecologically sound*, *conservation* and *sustainability* as indications that the information was pro-environmental.

I concluded that six of the nine programs (1. Nature and Environmental Design 2010; 2. Tropical Ecology 2010; 3. The College of Environmental Design 2010; 4. FRC Spring Break 2011; 7. Warnell Core in Costa Rica 2011; 8. Nature and Environmental Design 2011) required the communication of pro-environmental information via formal learning experiences in order to accomplish course objectives. I concluded that three of the nine programs (5. GORP Outdoor Adventure and Astronomy; 6. Art and Culture in Latin America; 9. Language and Culture Service Learning) did not specifically require the communication of pro-environmental information via formal learning experiences to accomplish course objectives (Appendix A).

(c) Observe Five Nonformal Learning Experiences

Study abroad participants completed a variety of courses. Some courses did not require the communication of pro-environmental information. By staying at UGA Costa Rica, participants had access to additional pro-environmental information via nonformal learning experiences. These experiences were part of study abroad, but not part of the official course.

In July 2010, I traveled to UGA Costa Rica. Dr. Kasee Clifton Laster, Director of Study Abroad and Dr. Quint Newcomer, Director of UGA Costa Rica were supportive of this study. I received permission from professors Danny Bivins, Leigh Askew, and Brian LaHaie to administer surveys and participate as a graduate student in the Nature and Environmental Design 2010 study abroad program. I was convinced that the best way to understand formal and nonformal learning experiences was to fit in with study abroad participants fully immersed in all aspects of the study abroad experience. As participants in the Nature and Environmental Design 2010 group arrived at UGA Costa Rica, I introduced myself to them and asked them for permission to be part of their study abroad program, functioning as both researcher and study abroad participant. All program participants expressed openness to my participation and interest in my research.

By staying in the dorm with students and being a full participant in the study abroad experience, I became part of the study abroad student group. I was included in impromptu trips to town, watching the World Cup and was present during emotional meltdowns. During the Nature and Environmental Design 2010 program, two clearly discernible student subgroups formed. One was composed of students from a state university in the Pacific Northwest. A second subgroup was composed of UGA students plus a student from a northeastern university. I was welcomed to participate in both groups and gained the trust of the Pacific Northwest group in part because one of the students was from the Dominican Republic, where I had I lived for more than 10 years. I was welcomed into the predominantly UGA group as a fellow UGA graduate student. Acceptance by both groups allowed me to informally discuss and observe reactions among program participants during the nonformal learning experiences mentioned in the UGA Costa Rica documents.

Initiating the study as an observing participant allowed me to examine the knowledge-action process first-hand, while simultaneously observing the reactions of other participants. The accessibility and availability of participants in the Nature and Environmental Design program provided a convenience sample for assessing the effect of nonformal learning experiences of study abroad participants (Russell and Harshbarger 2003).

I carefully conducted all research following specific protocols (Adcock and Collier 2001). I recorded responses to nonformal learning experiences and analyzed the messages received by participants. The Nature and Environmental Design cohort allowed me to observe participant responses in each nonformal learning experience and to determine the accuracy of my observations through informal interviewing (Glesne 1999). I recorded notes in a field journal after each learning experience, which provided a running record of observations (Silverman 2000). I set aside time regularly to work on field notes (Bernard 1995) and began initial analysis of how learning experiences affected group discussion (Emerson, Fretz and Shaw 1995). I reviewed field notes and adjusted my understanding of events as I gained insight (Wolf 1992).

In July 2010, I met Lindsay Stallcup, the Academic Programs Manager at UGA Costa Rica. With her help, I collected survey data from nine study abroad programs.

Table 4.3 Programs Included in Study with Enrollment

#	Programs	Dates	Enrolled
1	Nature and Environmental Design	7/09–7/30/2010	9
2	Tropical Ecology	8/23–11/20/2010	6
3	College of Environmental Design	8/30–11/19/2010	15
4	FRC Spring Break	3/12–3/20/2011	19
5	GORP Outdoor Adv. and Astron.	5/17–6/8/2011	8
6	Art and Culture in Latin America	5/17–6/8/2011	14
7	Warnell Core in Costa Rica	6/8–7/5/2011	9
8	Nature and Environmental Design	7/16–8/1/2011	9
9	Language and Culture Service Learning	7/6–8/1/2011	8
			97

During the Nature and Environmental Design 2010 program, I followed a rapid ethnographic assessment procedure (REAP). REAP is "an approach for developing a preliminary qualitative understanding of a situation" (Beder 1995:42) such as nonformal learning opportunities. The UGA Costa Rica context provided a variety of pro-environmental nonformal learning experiences that supplemented formal educational courses. My assessment of nonformal educational experiences was rapid because the program itself only lasted three weeks. The procedures used to collect data were consistent with the four core principles of REAP (Beder 1995; Cernea 1990). Data collection was systemically-guided, methodologically triangulated, an iterative process and involved a team approach. This study was systematically-guided by the expanded framework. Data collection was triangulated through participant observation, informal interviews, reflexive journaling and ongoing archival research. Data collection and analysis was iterative in the repeated assessment of shared learning experiences. I was assisted in data collection by professors and Lindsay Stallcup.

(d) Step One Information

The first research step in the collection of study data focused on determining if study abroad participants were receiving pro-environmental information. Official UGA Costa Rica documents asserted that participants developed a deeper appreciation of efforts to restore, protect, and preserve natural resources; therefore, they must have received pro-environmental information. A review of course objectives produced less clarity with only some courses containing pro-environment content. A third source of data in step one was gathered through participant observation. If I presented my observations of learning experiences without collaboration, they would represent nothing more than anecdotal evidence. However, the following five descriptions are based not solely on my observations but also on UGA Costa Rica

documents, online program descriptions and informal interviews. Informal interviewing is remembering and jotting down conversations that have occurred throughout the day (Bernard 1995). Almost every day during the Nature and Environmental Design 2010 program, I concluded the day by journaling my observations and the comments I had heard during the day. The summary descriptions of the following five nonformal learning experiences were produced through triangulation (Glesne 1999). Following these summaries, I provide a table that lists these experiences and their corresponding pro-environmental messages.

(i) Hiking, birding and living at UGA Costa Rica

Upon arrival, study abroad students typically meet at the centrally located Student Union facility. It houses the cafeteria, library, and computer room. Gardens surround the facility. Birds and flowers are abundantly visible during daylight hours. The Student Union facility became a central meeting place for our group. Sustainability was emphasized in the initial orientation. Meals were made from locally produced food products. Guests were shown how to divide waste materials from compost materials. The pro-environmental message was: This campus seeks to model a sustainable lifestyle. Your life here will be simpler but equally fulfilling.

One of our first experiences on campus was a group hike on the Camino Real Natural History Trail. This activity is mentioned in official UGA Costa Rica documents (Sustainability Report 2010). Our guide encouraged us to focus on the beauty of our natural surroundings, learn about the interesting qualities of native species and understand the interrelations of species within the ecosystem. We were led by a UGA intern that had recently graduated from the Odum School of Ecology. His tour was excellent, informative and professional. The pro-environmental message was: Biodiversity has both intrinsic and instrumental value; enjoy the beauty of this place but realize that multiple species are at risk because of global climate change.

Residents at UGA Costa Rica were also encouraged to go birding. Birds were everywhere on campus and conversations often included comments about which birds we had seen. UGA interns informed us about the Pájaro Campana Biological Corridor. They explained that the removal of forest cover hindered the migration of various species and if left uncorrected could lead to species extirpation. The pro-environmental message was: We need to care about resource use because it affects ecosystems.

(ii) Touring Coffee Farms: Finca La Bella and Ramirez Family Farm

Nonformal experiences were scheduled for each study program cohort according to the availability and interest of students. Most programs cohorts tour of nearby coffee farms (UGA Costa Rica 2012). Our group toured two coffee farms. The first was Finca La Bella, an environmentally friendly organic coffee farm cooperative that was jointly owned and operated by several San Luis families. The farm provided local residents employment, showcased their knowledge of coffee production and communicated their commitment to pro-environmental organic farming. The same guide who led our hike on the Camino Real trail translated for the coffee cooperative member that was giving a tour of his portion of the cooperative. There was a clear connection between this local Costa Rican family and the land where they lived and they expressed a strong desire to live sustainably. Their grandparents had lived here and they hoped that their children and grandchildren would be able to live here. At the close of the tour, the land owner and tour guide explained that the land had previously been a large scale commercial coffee plantation until an international development organization assisted local citizens to purchase of the land and develop a sustainable economy through small-scale coffee production, environmental tours, and organic farming. Both the land owner and our guide were excellent communicators. After the tour, our group discussed how good it was to see members of the local

community involved in pro-environmental behaviors, adjusting their coffee traditions to make them more sustainable and actively participating in environmental education. The pro-environmental message was: Sustainable small-scale agriculture provides a high quality of life.

Later in the first week, we visited the Ramirez Organic Family Farm. Victor Ramirez, the family patriarch, was our guide. He began the tour by introducing us to his wife and three daughters. He introduced himself as a coffee expert with more than 25 years of experience in both the cultivation and processing of coffee. The Ramirez family farm has been an ongoing family project since June 1988. This sustainable organic farm produces coffee, fruits, vegetables, orchids and tilapia. The tour was well organized, guiding participants through the life cycle of the coffee plant. After meeting the family, the tour moved to a coffee nursery, where Victor explained that the Ramirez organic farm produces *Arabica* coffee, a high quality coffee species approved for production in Costa Rica by the Costa Rican Coffee Institute. There were eight varieties of *Arabica* on the farm. Caturra, Red Catuí, Yellow Catuí and Catimor are younger short varieties that were introduced approximately 40 years ago. These varieties allowed workers to harvest beans without bending the branches or climbing the trees. Four other varieties, Villa Sarchí, Criollo, Barbón and Galla, were older varieties grown at the Ramirez farm. These varieties were taller; requiring workers to bend the tree toward the ground or climb the tree in order to harvest beans. Victor explained that he maintains accurate records of the yield and health of each variety. The tour moved through rows of coffee plants. They were planted in rows one meter apart, with two meters between the rows. Victor explained that this arrangement provided adequate wind flow and room for harvesting coffee. The tour moved to a building where Victor explained the cycle for harvesting coffee beans. He explained that each year coffee beans are harvested from October to February. The *granea* or first grains harvest marks the

beginning of coffee harvest. The first ripe beans are removed in October and November and classified as second quality. They are stored for personal, local use. The *centro de producción* or heart of the harvest occurs in December and January. The best quality beans are selected for sale and export. The *repella* or final harvest occurs in February when all remaining beans are harvested. These beans are considered second quality and are used exclusively in national coffee consumption. In March, pruning and planting occur and the coffee plants rest.

As the group moved through the farm, Victor pointed out sections of the farm where the soil was too rocky for coffee production. A variety of flowers and fruit trees were cultivated in these areas, including orchids and mangoes. These plants attracted bees and other natural pollinators to the property and increased the number of insects available to assist in the pollination of coffee blooms. Victor explained that while wind accounts for 90 to 95% of coffee pollination, increasing the number of natural pollinators increases coffee production.

The group was amazed by the quality and quantity of Victor's knowledge and his direct identification with the land he farmed. The tour entered an older building and Victor explained that it was the childhood home of Mrs. Ramirez. This part of the tour demonstrated how coffee was traditionally cured, beaten, roasted and ground. Victor demonstrated how beans were dried in the sun and beaten in a mortar approximately 50 years ago. He built a fire and began roasting beans as he explained that this traditional process was hot, uncomfortable, and with lower roasting consistency. He then placed roasted beans in a hand grinder and gave us small samples to taste. He explained that ground coffee went first to meet the family's needs but coffee was also an important cash crop that was transported and sold in regional towns. Fifty years ago, ox carts descended from San Luis to sell coffee in Las Juntas and Miramar. The tour included information on coffee disease, organic farming, and understanding the natural cycles of the

ecosystem. Participants were impressed that this one acre farm was sustainable, meeting the needs of the Ramirez family. There were papaya, orange, sweet lemon, grapefruit, and avocado trees. There were indigenous trees that fix nitrogen as well as provide shade. The farm included a picturesque strangler fig tree as well as a tilapia pond. The tour weaved through an area containing pineapples, passion fruit, yucca, tubers, vegetables, sugar cane, citronella grass, and medicinal lemon grass. The tour provided examples of energy efficient methods of producing sun-dried coffee and emphasized the importance of composting. The tour concluded at the coffee processing building, where Victor explained a *cajuela* box that was used to measure harvested beans. He explained that a *cajuela* contains a cubic foot of coffee beans which weighs between 12 and 13 kilos. Harvesters are currently paid 1,000 colones for each *cajuela.* A fast harvester can pick 12 to 15 *cajuelas* in a day. Coffee producers are paid 3,500 colones for each *cajuela.* The dried beans from a *cajuela* weigh 2 kilos and after processing can make 190 cups of coffee.

Victor Ramirez had worked in coffee production and processing for 25 years. He constructed his own coffee roaster to his own specifications. Beans were loaded into the roaster and roasted for 12 to 15 minutes. Roasting time determined the coffee type. Medium roast coffee required 11 minutes at 235° C. Dark roast coffee required an additional 30 seconds at 240° C. For maximum flavor, roasted coffee beans must be cooled in less than five minutes. Cooled beans were ground, coffee was poured into containers and weighed, and bags of coffee were sealed and packaged.

At tour's end, each participant was given a freshly prepared cup of great *Arabica* coffee that had been grown and processed at the Ramirez Organic Family Farm. The pro-environmental message was: Sustainable organic agricultural production based on detailed knowledge of the ecosystem provides a high quality of life and a deep personal and familial connection to land.

There was a general consensus among participants that what we had experienced was very compelling and that we as 21st century urban dwellers have lost our connection to the land.

(iii) Completing a Guided Tour at Monteverde Cloud Forest Reserve

UGA Costa Rica is located on land adjacent to the Monteverde Cloud Forest Reserve. The Tropical Science Center maintains the reserve and during my visit in 2010 protected 25,000 acres of cloud forest. Visitors were led on tours in which guides shared detailed knowledge concerning biodiversity and endangered species within the reserve. Touring visitors were led along paths in the park. By using telescopes and binoculars, tour guides showed visitors multiple species and explained ecological niches that would have gone unnoticed by most visitors. The Monteverde Cloud Forest Reserve (2002) website stated:

> The Monteverde Cloud Forest Reserve will astound visitors with its beauty, bounty and great amount of biodiversity. Wind-sculpted elfin woodlands give way to rainforests where tall trees—festooned with orchids, bromeliads, ferns, vines, and mosses—rise high into the sky.
>
> Areas with poor drainages support swamp forests, while other parts – dissected by deep, expansive gorges – have numerous streams tumbling through, creating rapids, waterfalls and standstill pools. It is, however, not merely the forest and landscape that are so diversified.
>
> The variable climate and large altitudinal gradient have helped to produce an amazingly heterogeneous set of creatures that live here. Some of these include the jaguar, ocelot, Baird's tapir, three-wattled bellbird, bare-necked umbrellabird, and the famously elusive resplendent quetzal. (Monteverde Cloud Forest Reserve 2002:¶1-3)

Our tour guide was very knowledgeable, answering a wide variety of questions and sharing his own experiences of helping graduate researchers with their research throughout Costa Rica. We left the park impressed by the biodiversity we had seen, but several program participants questioned the long-term impact of bringing thousands of tour groups through the park. The pro-environmental message was: Biodiversity is a global resource that must be protected from rapid climate change. Our group talked about our sense of powerlessness to do anything to change the global system producing the greenhouse gases that were contributing to global climate change.

We discussed how ecotourism was supported by travelers flying into Costa Rica, travelling within Costa Rica, and buying products imported to Costa Rica, which were part of the global capitalistic consumer-driven economy that produced greenhouse emissions, contributing to climate change. The global size of the problem made it seem beyond the reach of local solutions.

(iv) Hiking to the Waterfall

A 260 foot (80m) waterfall is near the UGA Costa Rica campus. Hiking to the falls is listed as one of the nonformal learning experiences in study abroad programs at UGA Costa Rica (UGA Costa Rica 2012). Our guide explained that some of the property that we were crossing was for sale and that at one point it appeared that a large development firm was going to purchase the property for the construction of a private resort. There was strong opposition in the region because construction could affect the Monteverde Cloud Forest Reserve and other national forests in the watershed. Our guide explained that development projects that border national parks and forests had to receive government approval. The government did not give approval to this development plan because non-sustainable land use in one part of the watershed would have affected the entire ecosystem. When our group arrived at the waterfall, everyone stopped and looked at the cascades for at least 15 minutes. At first, all we saw was the spray from the cascades. Then gradually we began to see that the waterfall was covered with ferns and beautiful plants and flowers. Pro-environmental messages were: Regulation of private development is necessary. Planners should study long-term environmental impacts without being swayed by short-term economic benefits.

(v) Experiencing a Costa Rican Homestay

A part of the study abroad experience was a Costa Rican homestay (UGA Costa Rica 2012). All members of our program were placed in Costa Rican family homes. The families were

carefully selected and most students returned from their homestay with very positive stories. There was consensus among our study abroad group that Costa Ricans identify closely with nature and family. Our host families had incorporated sustainable practices into their daily lives. I noted that my host family had used metal roof joists in the construction of their home. Because I had lived in Costa Rica in 1987 and 1988, I was aware that previously most roof joists were made from wood. I asked the father of my host family if he had replaced the wood with metal because metal would resist the high winds in Monteverde. He looked perplexed that I did not know why he had replaced the wood. He said, "No amigo, usamos metal para no tener que cortar mas arboles." "No friend, we use metal joists so we don't have to cut more trees." I am aware that sustainable timber production could provide wood for roof joists. However, the point of this story is that my host had personally identified with the forests around Monteverde and his desire to ensure their health for future generations had led him to take action. I left the conversation, thoroughly convinced that my host fully supported pro-environmental action. The message was: Alter your practices to ensure that future generations enjoy the natural resources we have.

Table 4.4 Pro-environmental Messages in Nonformal Experiences at UGACR

Nonformal Experiences	**Pro-environmental Messages**
1. UGA Campus - Sustainable Living - Camino Real Trail	• Sustainable living is fulfilling. • Biodiversity has value. Climate change threatens it. • Use resources carefully – it affects ecosystems.
2. Coffee Tours - Finca La Bella Tour - Ramirez Organic Farm	• Sustainable organic agricultural production based on detailed knowledge of the ecosystem provides a high quality of life and deep familial connection to land.
3. Monteverde Cloud Forest	• Biodiversity must be protected from rapid climate change.
4. The Waterfall	• Regulation of private development is necessary. • Planners should study long-term environmental impacts without being swayed by short-term economic benefits.
5. A Costa Rican Homestay	• Alter practices so future generations enjoy these beautiful natural resources.

(e) Summary

UGA Costa Rica documents strongly suggested that pro-environmental information was available to *all* study abroad participants (Sustainability Report 2010:32) and most but not all of the programs I studied required the communication of pro-environmental information in order to reach course objectives (Appendix A). Through participating in the 2010 Nature and Design program, I observed and confirmed through informal interviews that pro-environmental information had been received by participants during five nonformal learning experiences mentioned repeatedly in UGA Costa Rica promotional materials. Official UGA Costa Rica documents, course syllabi, and study abroad experience all indicated that pro-environmental information was available to study abroad participants at UGA Costa Rica.

(2) What Impact Did This Information Have on Participants?

Dr. Michael Tarrant developed a survey instrument to measure knowledge-action alignment that leads to pro-environmental action. He granted me permission to use his survey.

(a) Understand Survey Construction

Dr. Michael Tarrant provided his 2009 IRB application as a summary of survey construction (Tarrant 2009b). The following excerpts from the 2009 IRB proposal provided me with basic information on each of the seven VBN variables used in this study (Figure 2.1):

> Personal values will be assessed using three value orientations consisting of biospheric (items 1-4), altruistic values (items 5-7), and egoistic values (items 8-11) on a 7-point response scale from 7 ("Extremely important as a guiding principle for you) to 1 ("Not at all important as a guiding principle for you") (Stern, 2000; Stern et al., 1999; Stern et al., 1995).
>
> The revised New Ecological Paradigm (NEP) Scale (Dunlap et al., 2000) will be used as an indicator of general environmental concern. Agreement with the eight odd-numbered items and disagreement with the seven even-numbered items indicate pro-NEP responses. The NEP will be examined as both a single dimensional scale and also as a multi-dimensional scale in which three items are hypothesized to tap into each of five hypothesized facets of an ecological worldview: The reality of limits to growth (1, 6, 11), anti-anthropocentricism (2, 7, 12), the fragility of nature's balance (3, 8, 13), rejection of

exemptionalism – the notion that humans are exempt from the constraints of nature (4, 9, 14), and the possibility of an eco-crisis (5, 10, 15) (Dunlap et al., 2000). A 7-point response scale from 7 (“Strong Agree”) to 1 “Strongly Disagree”) with a mid-point of 4 (“Neither Agree or Disagree”) will be used.

Awareness of Consequences (AC) of Environmental Conditions will be measured using the Scale of Beliefs about Consequences of Environmental Conditions (Stern et al., 1995) comprised of two items each in AC biosphere (items 1 and 2), AC altruism (items 3 and 4), and AC egoism (items 5 and 6). A 7-point response scale from 7 (“Strong Agree”) to 1 “Strongly Disagree”) with a mid-point of 4 (“Neither Agree or Disagree”) will be used.

Awareness of Responsibility (AR) will be measured using two-items: “How responsible are you for environmental problems” (from Schultz and Zelenzy, 1998) and “How would you rate your overall personal responsibility to improve the environment (from Zelenzy et al., 2000). A 7-point response scale from 7 (“Extremely Responsible”) to 1 (“Not at all Responsible”) will be used.

Personal norms/obligation will be measured using an eight-item Personal Environmental Norm scale from Minton and Rose (1999) adapted from Schwartz (1977) with a reported alpha coefficient of .95. The response format is a 7-point scale from 7 (“Very Strong Personal Obligation”) to 1 (“No Obligation”) with higher scores indicating a stronger personal norm.

Self-reported pro-environmental behaviors (Version A only) will be measured using three scales: (a) eight items/questions reflecting environmental citizenship (seven of these are from Stern et al., 1999 with a response scale of “Yes” or “No,” and one item reflects size of vehicle driven, and a single open ended question asking about environmental group/organization membership), (b) three items of support for public environmental policies measured on a 7-point scale from 7 (“Strong Agree”) to 1 (“Strongly Disagree”) with a mid-point of 4 (“Neither Agree or Disagree; Stern et al., 1999); and (c) 10 items selected from the 29-item, six-factor, Ecologically Conscious Consumer Behavior (ECCB) scale (Roberts and Bacon, 1997). The first two scales have reported internal reliabilities (alpha) of .78 (policy support) and .77 (for the 7-item environmental citizenship) (see Stern et al., 1999). The 10 items selected from the ECCB represent four of the six factors: two items from the oil/driving factor, three items reflecting general recycling behavior, three items of general environmental consumption, and two items from the electricity-saving factor. All selected items had reported loadings on the respective factor of between .65 and .95 (Roberts and Bacon, 1997). A 7-point response scale from 7 (“Always True”) to 1 (“Never True”), with higher scores indicating greater levels of ECCB, will be used.

Behavioral intention for each of the three pro-environmental behavior variables (Version B only) will be measured by asking respondents to indicate how likely is it they will perform the respective behaviors in the next 12 months on a 7-point Likert-type scale from 7 (“Extremely Likely”) to 1 (“Not at all Likely”). Statements will be edited to reflect a future intention to act; for example, instead of “To save energy, I drive my car as little as possible” (ECCB item), the revised item will read “To save energy, I will drive my car as little as possible.” (Tarrant 2009b)

My first action after receiving these surveys was to become completely familiar with VBN theory and the construction of the surveys. The surveys measured values, beliefs, and norms on a 7-point response scale from 7 ("Extremely likely or important") with a mid-point of 4 ("Neither Agree or Disagree") to 1 ("Not at all likely or important"). This scale had been used by Stern in multiple studies (Stern, 2000; Stern et al., 1999; Stern et al., 1995). I reviewed the surveys and read all related articles. I then produced my own explanation of the survey incorporating the explanations that Dr. Tarrant had provided (Appendix C). For this study, I focused on 7 variables (Figure 2.1) that provided an overview of intrapersonal factors. I edited the surveys, replacing any reference to the Pacific islands with UGA Costa Rica. I followed Tarrant's pattern of administering the pre-program section during the first week at UGA Costa Rica and the post-program section during the last week at UGA Costa Rica.

(b) Coordinate Survey Administration

I personally administered surveys in the first program in July 2010 and in the FRC Spring Break program in spring semester 2011. The FRC program was time intensive and could not make time for two surveys during their stay in Costa Rica. Therefore, I administered the survey before the group left for Costa Rica and two weeks after they returned from Costa Rica.

I was not present when surveys were administered in the other seven programs. I prepared a 10 minute DVD that was shown to participants at the time of their first survey. The DVD provided step-by-step instructions on how to complete the pre-program and post-program sections. Survey A was to be administered in the first week of the program. Survey B was to the administered in the last week of the program. I decided to prepare survey packets that included 2 copies of the IRB consent form, Survey A and Survey B for each program participant (Appendixes B and C). These diverse elements were placed in order, numbered consecutively,

and stapled as one large packet. One copy of the IRB consent form was not stapled to the packet. It was connected to the packet by a paper clip. Students were informed to sign both copies of the IRB consent form if they wanted to participate in the survey. They would keep a copy of the IRB form that was attached to the packet by a paper clip and I would keep the packet. The first page of the packet was the other copy of the IRB form. When they clearly printed their name on the IRB form, it provided a way of making sure that the same participant filled out both sections of the survey. I placed a page after Survey A telling participants to stop and turn in their packet to the survey administrator. This same packet would be handed out at the end of their study abroad program. The participant would request and receive his or her packet, as indicated by the signed IRB consent form on the top of the packet. The participant would open the pack to the beginning of Survey B. I made the two surveys into one packet to streamline distribution and collection of surveys.

I delivered survey packets for each person enrolled in programs to faculty members before they left for Costa Rica. Faculty members or someone they selected to administer the survey distributed the packets, played the DVD, and collected the packets. I provided a written text of what faculty members should say if the DVD did not work. After participants had filled out surveys, the individual administering the survey collected all survey packets and placed them in the large waterproof mailer that I provided. These surveys were kept safe until the close of the study abroad program, when the professor would once again distribute survey packets to participants and participants would complete the second half of the survey packet (Appendixes B and C). At the close of the program, completed surveys were placed in the mailer and the faculty member delivered the packet along with other program materials to the Office of Study Abroad in Athens, Georgia.

Table 4.5 Participants Surveyed in Nine Study Abroad Programs

#	Programs	Dates	Enrolled	Surveyed
1	Nature and Environmental Design	7/09–7/30/2010	9	8
2	Tropical Ecology	8/23–11/20/2010	6	4
3	College of Environmental Design	8/30–11/19/2010	15	11
4	FRC Spring Break	3/12–3/20/2011	19	18
5	GORP Outdoor Adv. and Astron.	5/17–6/8/2011	8	6
6	Art and Culture in Latin America	5/17–6/8/2011	14	11
7	Warnell Core in Costa Rica	6/8–7/5/2011	9	3
8	Nature and Environmental Design	7/16–8/1/2011	9	8
9	Language and Culture Service Learning	7/6–8/1/2011	8	7
			97	76

Lindsay Stallcup, the Academic Programs Manager at UGA Costa Rica, made sure that professors administered the surveys and turned in packets to the Study Abroad Office in Athens.

(c) Analyze Survey Data

In Dr. Tarrant's 2009 IRB application, he mentioned the use of SPSS during data analysis (Tarrant 2009b). I used SPSS Statistics GradPack 17.0 and installed it on my personal computer. I had run basic calculations using SPSS in ERSH 6300 Applied Statistical Methods in Education and ERSH 9800 Qualitative/Quantitative Research. Michael Tarrant provided me with a copy of his codebook and this facilitated setting up a database in SPSS for the nine programs. I used data from Nature and Environmental Design 2010 to enter the first program into the database. I entered all data into the database and ran a preliminary program mean for each variable and a paired *t* test for comparing pre-program scores on the seven variables with post-program scores.

By November 2010, I faced two difficulties in the completion of statistical calculations. Time pressure was the first difficulty because when I received data from study abroad programs, I simultaneously needed to contact and interview participants from these programs. Secondly, I faced the possibility of transcription errors in copying data rapidly from surveys and entering it in SPSS. Time pressure and a desire to verify all data entry led me to contact the Director of

Institutional Research and Planning of Toccoa Falls College, Dr. David McCarthy. In 2011, I hired him to verify data entry accuracy and run my SPSS calculations. He assisted me with these two tasks. I entered all data into the SPSS database and he verified that all data entry was accurate. I requested that he run paired *t* tests for each of the seven variables to calculate the mean, standard deviation, and increases or decreases in individual score for the entire sample, for each program in the sample, and for each interview participant on each of the seven variables. I reviewed all test results and constructed statistical tables. I present quantitative data results in Chapter 5, which answers the question raised in this second step.

(3) How Did Participants Respond When They Returned to the US?

As program participants returned to the US, they entered a familiar context that provided an opportunity to examine how the new information from their study abroad program was processed. Interviewing participants during this time of transition provided a window into the knowledge-action process.

(a) Contact Interview Participants

Survey participants were introduced to the idea of a follow-up interview after their study abroad program in the IRB consent form. I also explained interviews on the introductory DVD. At the close of the second survey, I asked participants to provide me with an e-mail address if they were willing to be interviewed following their return from Costa Rica. As soon as I received surveys, I contacted every participant that indicated willingness to be interviewed. Time pressure was the biggest obstacle to overcome in motivating survey participants to meet for an interview. I adjusted my schedule to meet whenever participants were willing to be interviewed. Twenty participants in study abroad programs at UGA Costa Rica were interviewed after their

return to the United States. Every participant that expressed a willingness to be interviewed was contacted and every effort was made to interview willing participants.

(b) Interview Participants

I completed 13 face-to-face interviews at the Miller Learning Center during fall and winter 2010 and spring 2011. No participant from the Art and Culture in Latin American program was willing to be interviewed. I attribute this to the inconvenience of being interviewed immediately after Maymester, when students were leaving for their summer break. No participant from the Warnell Core program was interviewed either, although I contacted two participants to express my interest in their written comments on surveys and asked if they would be willing to participate in a short interview. They declined.

Table 4.6 Participants Interviewed from Nine Study Abroad Programs

#	Programs	Dates	Enrolled	Surveyed	Interviewed
1	Nature and Environmental Design	7/09–7/30/2010	9	8	4
2	Tropical Ecology	8/23–11/20/2010	6	4	1
3	College of Environmental Design	8/30–11/19/2010	15	11	2
4	FRC Spring Break	3/12–3/20/2011	19	18	5
5	GORP Outdoor Adv. and Astron.	5/17–6/8/2011	8	6	3
6	Art and Culture in Latin America	5/17–6/8/2011	14	11	0
7	Warnell Core in Costa Rica	6/8–7/5/2011	9	3	0
8	Nature and Environmental Design	7/16–8/1/2011	9	8	2
9	Language and Culture Service Learning	7/6–8/1/2011	8	7	3
			97	76	20

From May through August 2011, I completed seven phone interviews as an optional interview format for those individuals that were hesitant to provide time for a face-to-face interview or were not in the Athens area. Phone interviews were well-received by students returning from study abroad during the summer. My familiarity with the interviewing process was sufficient, by this time in the study, to maintain high data quality via phone interviews.

Table 4.7 Interview Participants by Program, Gender, Educational Level, Age

#	Programs	Gender	Undergrad	Grad	Year of Birth
1	Nature and Environmental Design	M		G	1979
2	Nature and Environmental Design	F		G	1985
3	Nature and Environmental Design	F		G	1984
4	Nature and Environmental Design	F		G	1986
5	College of Environ. Design	M		G	1981
6	College of Environ. Design	F		G	1983
7	Tropical Ecology	M	JR		1989
8	FRC Spring Break	M	JR		1989
9	FRC Spring Break	F	SR		1988
10	FRC Spring Break	M	SR		1989
11	FRC Spring Break	F	SR		1989
12	FRC Spring Break	F	SO		1990
13	GORP Outdoor Adv. and Astron.	F	FR		1992
14	GORP Outdoor Adv. and Astron.	F	FR		1992
15	GORP Outdoor Adv. and Astron.	F	SO		1991
16	Nature and Environmental Design	F		G	1973
17	Nature and Environmental Design	F		G	1978
18	Language and Culture Service Learning	F		G	1979
19	Language and Culture Service Learning	F		G	1979
20	Language and Culture Service Learning	F	SR		1990
20% 05% 10% 25% 15% 10% 15%	NandE Design S 2010 4 Tropical Ecol F 1 Col of Env Design F 2 FRC Sprg Brk Sp 2011 5 GORP M 2011 3 NandE Design S 2011 2 LandC Learning S 2011 3	5m 25% 15f 75%	2 FR 10% 2 SO 10% 2 JR 10% 4 SR 20% 50%	10 Grad 50%	5 TH 12TW 3TE –1991 Teens 15% 1981–90 Twenties 60% 1971–80 Thirties 25%

I interviewed five males and fifteen females from seven of the nine programs; half were graduate students and half were undergraduates. Three participants were in their teens, twelve were in their twenties and five were in their thirties. Interviews lasted between 45 and 120 minutes. All interviews were tape recorded and transcribed. I sent interview transcripts to each participant for review, correction, addition and approval. All participants affirmed the accuracy

of interview transcripts. Each interview was printed and placed in an interview file as well as stored electronically on a portable hard-drive.

Interviews were semi-structured (Bernard 1995) and I used an interview guide to make sure I covered key topics (Appendix E). I wanted participants to provide me with their own definition of environmental responsibility and a self-assessment of their own level of environmental responsibility. I constructed the guide to cover the core areas outlined in the expanded framework (Figure 2.3). If a particular area of questioning resulted in strong responses, I probed the area and allowed the participant to say what was important. I used probing statements like: "That seems to be important to you. Please, tell me more about it." I took notes during the interview concerning any area that needed additional probing. I would return to this area at the close of the interview.

The interview guide began with questions about environmental responsibility. I wanted to center our interview on this topic and then allow the participant to tell me what he or she wanted to say about the topic. I asked interview participants to describe an environmentally responsible person. I then asked if he or she considered himself of herself to be that kind of person. I then asked a series of question to determine the attitudes expressed by members of their social network concerning pro-environmental action.

Next, I asked participants to rate their current agreement or disagreement with 10 statements using the 7 ("Strong Agree") to 1 "Strongly Disagree") that had been a part of the VBN surveys. Each participant identified which number between 1 and 7 accurately described his or her perspective and then explained why he or she had chosen the number. The 10 statements were based on the NEP and provided a way to assess if the post-program measurement of NEP remained the same or had changed. The 10 statements are:

1. Human population growth increasingly threatens global environmental health.
2. Human population growth combined with current consumption patterns will at some point exceed the earth's maximum carrying capacity.
3. Human actions produce unanticipated impacts leading to environmental disasters.
4. Nature's balance can be upset if humans continue to abuse the environment
5. Humans should carefully study and monitor the modifications/changes they make in their environment and stop destructive environmental practices.
6. Environmental changes caused by the collective actions of 7 billion humans threaten local habitats of animal and plant species and may cause the extinction of some species.
7. Animal and plant species that are not overtly beneficial to humans have a right to exist.
8. Limited resources logically require humans to live in harmony with nature (sustainability).
9. Humans must seek the health of the environment, not only the meeting of human need.
10. Humans are abusing the environment. We will abuse it unless we plan "environmentally healthy economies" that control industrial growth and limit resource consumption. (Appendix E)

Next, I asked questions about the study abroad experience, UGA Costa Rica, the Monteverde Cloud Forest Reserve, and other places in Costa Rica. These questions provided opportunities for the participant to share whatever he or she felt concerning key events and concepts that affected his or her understandings of environmental responsibility. This led to a series of questions concerning pro-environmental actions. These questions covered a number of pro-environmental actions and I probed for additional actions related to environmental concern.

I then moved to a series of questions concerning the relationship between humanity and the environment. These questions were based on the Dominant Social Paradigm, with its emphasis on individualism, laissez-faire government, human progress, material abundance, the goodness of growth, faith in science and the subjugation of nature (Pirages and Ehrlich 1973). These questions provided opportunities for participants to speak about conflicting beliefs in the intrapersonal realm.

In this way, I first investigated intrapersonal variables. Then I investigated extrapersonal variables such as important relationships, pressures from social networks, societal behavioral patterns and institutions. I returned to the DSP questions to see if there was unresolved resistance from conflicting intrapersonal variables. Finally, I concluded each interview with five summary questions:

1. In what ways will study abroad at UGACR change the way you live at UGA Athens or elsewhere in the United States?
2. What environmentally responsible behaviors will you adopt at UGA Athens or wherever else you live right now in the United States?
3. What beliefs and values have been strengthened through study abroad that motivate you to become more responsible in your behavior?
4. How do peers, social networks, family, or other social groups hinder or encourage you to take environmentally responsible actions?
5. How does life at UGA or wherever else you live right now hinder or encourage you to take environmentally responsible actions?

(c) Analyze Interview Data

These semi-structured interviews were taped and transcribed, producing a written document of discourse that according to Quinn (2005a) provided the "best available window into cultural understandings and the way that these are negotiated by individuals" (3). D'Andrade (2005a) and Strauss (2005) recommended semi-structured interviewing for investigating the beliefs of participants and Quinn (2010) stated that diligent interviewers "are committed to systematic -- not anecdotal or impressionistic -- data collection and analysis" (237-238).

I gathered interview data in a systematic manner, using an interview guide that focused attention on the knowledge-action process. I compared interview data from each participant with his or her scores on pre-program and post-program surveys (Appendix F) to provide a more comprehensive picture of the knowledge-action process (Glesne 1999; LeCompte and Schensul 1999). I sent interview transcripts to participants to verify the accuracy of each transcription. I maintained a research journal that provided me with an ongoing record of research decisions.

The dissertation process itself provided an external evaluation of research with committee members evaluating study findings. I have systematically completed this research in order to insure the validity of the study. I present qualitative data results in Chapter 6 of this study.

Coding qualitative data involved becoming completely familiar with interview data (D'Andrande 2005a). I personally transcribed each interview as a way to gain an overall knowledge of the data. During my second read of each interview, I noted and coded reoccurring words, key issues and strong emotions. I noted that participants associated the term "environmentalist" with political activism. This evoked strong emotional responses and participants did not want to be identified as an "environmentalist." They were much more comfortable with being identified as an "environmentally responsible person." I noted when participants provided clear definitions or examples. These were used as examples in Chapter 6. Additional coding involved connecting raw data with the expanded framework (Coffey and Atkinson 1996). The expanded framework suggested that the knowledge-action process was an ongoing negotiation within the participant's own mental model. Study abroad had provided new information that had to be reconciled with previously held beliefs and values. Interviews revealed that these resulting beliefs were evaluated in light of social pressures and opinions from a network of friends and pragmatic considerations based on the reality of contextual restraints. Addressing these theoretically informed areas provided core content and structure for Chapter 6.

I read and coded interview transcripts multiple times. The data was coded to identify unquestioned assumptions, key words, and environmental issues. During data analysis, one of the unquestioned assumptions that appeared was that participants felt they were in a temporary life stage during their academic study time in Athens and that they would enter a different life stage after graduation. They used their student status to justify not taking certain pro-environmental

actions due to financial and time constraints. In a subsequent review, I coded for values and beliefs that participants held that were inconsistent with the NEP and perhaps reflected a previously Dominant Social Paradigm or might be an opinion unique to a particular participant. I included the results in Chapter 6. The next step, according to the expanded framework was to see if a hierarchical ranking of values and beliefs could be discerned. Participants repeatedly mentioned that their actions were motivated by economic rather than environmental reasons. They also stressed that time efficiency and completing assignments took priority over all other considerations. The literature review suggested that coding and analysis should include an examination of reasoning. I reviewed the transcripts with this in mind and found that this assisted in clarifying interview data, particularly the comments of participants that self-identified as being environmentally responsible. I coded each transcript and analyzed it various times and present the results of this analysis in Chapter 6.

The coding and analysis of data during this year-long, ethnographic case study gave me a more comprehensive understanding of the knowledge-action process. This research was grounded primarily in the cognitive theory of cultural meaning. My qualitative data analysis reflected anthropology's emphasis on taking seriously the participant's perspective. As a final step in the analysis of qualitative data, I considered the implications of the study's findings for those planning environmentally-based study abroad programs. These implications are provided in Chapter 7.

C. Assumptions and Limitations of the Study

This chapter would not be complete without an examination of researcher bias. Kuznar (1997) stated that "our job as professionals is to be aware of these biases and to work toward minimizing their influence upon our work" (219). As a qualitative researcher, I value

quantitative research and I incorporated the VBN survey as a tool for measuring key variables. I believe that combining the methodology and theory of this study with VBN survey data provided a more comprehensive understanding of what was actually occurring as participants negotiated what they considered to be the best possible trade-offs in the knowledge-action process. While utilizing a mixed methods approach, I have intentionally emphasized the study's qualitative orientation. This can be seen in the selection of anthropological theory for the study, in the citation of sources for the methodological foundation of the study and in the simplicity of the quantitative design for the study.

This study has limitations. The sample was composed of college undergraduate and graduate students that represented a particular educational tradition within study abroad. Direct extrapolation of study results concerning the knowledge-action process may not be applicable to other age groups or other national populations. The study relied intentionally on participant self-reporting in both quantitative and qualitative data collection.

CHAPTER 5

SURVEY DATA

A. Introduction

From July 2010 through July 2011, students in nine study abroad programs were asked to voluntarily complete surveys at the beginning and end of their study abroad programs at UGA Costa Rica in order to measure changes in key variables associated with the pro-environmental knowledge-action process. I selected these programs in consultation with Dr. Quint Newcomer, Director of UGA Costa Rica. As previously stated, the main selection criteria were that programs centered out of the UGA Costa Rica campus and that the sample included programs representing a full calendar year. The nine programs had a combined enrollment of 97 students. All students were encouraged to participate in this study. Seventy-six students actually completed surveys, representing 78 % of the students enrolled in the programs.

Table 5.1 Survey Data Collection

#	Programs	Dates	Enrolled	Surveyed
1	Nature and Environmental Design	7/09–7/30/2010	9	8
2	Tropical Ecology	8/23–11/20/2010	6	4
3	College of Environmental Design	8/30–11/19/2010	15	11
4	FRC Spring Break	3/12–3/20/2011	19	18
5	GORP Outdoor Adv. and Astron.	5/17–6/8/2011	8	6
6	Art and Culture in Latin America	5/17–6/8/2011	14	11
7	Warnell Core in Costa Rica	6/8–7/5/2011	9	3
8	Nature and Environmental Design	7/16–8/1/2011	9	8
9	Language and Culture Service Learning	7/6–8/1/2011	8	7
			97	76

Analysis of survey data provided descriptive, comparative and inferential statistics. The primary focus of the study is on the knowledge-action process in participants, therefore, I present

descriptive statistics concerning the purposive sample, followed by comparative statistics on VBN variables, and inferential statistics concerning mean sample scores on the seven VBN variables. I also present comparative statistics on participant mean scores divided by study abroad programs and conclude with a summary of findings.

B. Descriptive Statistics concerning Participants

There were 50 females (66%) and 26 males (34%) that completed the survey. The survey sample included 24 graduate students (31.5%), 28 undergraduate seniors (37%), 13 juniors (17%), 5 sophomores (6.5%), and 6 freshmen (8%). At the time of survey completion, 11 were under 20 years old (14.5%), 53 were in their twenties (70%), 10 were in their thirties (13%) and 2 (2.5%) chose not to provide information concerning age.

Table 5.2 Descriptive Statistics concerning Survey Participants

#	Programs	Enr	Surv	Gender	Under-Graduate	Graduate student	Age
1	Nat and Env Des 2010	9	8	1M / 7F	0	8	6Tw / 2Th
2	Tropical Ecology	6	4	2M / 2F	1So / 2J	1	4Tw
3	Coll. of Env Design	15	11	7M / 4F	9Se	2	9Tw / 2?
4	FRC Spring Break	19	18	8M / 10F	3F / 2So / 4J / 8Se	1	4Te / 13Tw / 1Th
5	GORP Adv. and Astron.	8	6	1M / 5F	3F / 2So	1	5Te / 1Th
6	Art and Culture in LA	14	11	2M / 9F	3J / 8Se	0	1Te / 10Tw
7	Warnell Core in CR	9	3	1M / 2F	3J		1Te / 2Tw
8	Nat and Env Des 2011	9	8	4M / 4F	1J	7	4Tw / 4Th
9	Lang. and Cult Serv L	8	7	0M / 7F	3Se	4	5Tw / 2Th
		97	76	26M 34% 50F 66%	6F 8 % 5S 6.5 13J 17 28Sr 37	24G 31.5%	11Teens 53Twenties 10Thirties 2?

C. Comparative Statistics concerning VBN Variables

Seven variables related to the environmental knowledge-action process were measured by VBN surveys. Pre-program surveys were administered in the first week of each study abroad program and post-program surveys in the last week of each program. Survey data was entered

into an SPSS database. Descriptive statistical means were calculated and compared for pre-program and post-program scores on each of the seven variables. The post-program mean scores on each of the seven variables increased. Not all of the increases were statistically significant.

Table 5.3 Comparative Statistics concerning VBN Variables

VBN Variables	Valid	Null	Pre-P. Mean	Pre-P. Std. Dev.	Pre-P. Ave.	Post-P. Mean	Post-P. Std. Dev.	Post-P. Ave	+ / -
1. Personal Values PV1-11	76	0	55.2105	6.76721	5.019	55.4184	8.30737	5.038	+.019
2. NEP Complete NEP 1to4 w 6to15	76	0	68.7750	10.22135	4.913	69.6553	10.9690	4.975	+.062
3. A of Consequences AC 1 to 6	76	0	34.5039	5.14456	5.751	34.6592	5.64386	5.777	+.026
4. A of Responsibility AR 1 w 2	76	0	9.9211	1.98503	4.961	10.5526	2.11278	5.276	+.315
5. Personal Norms PEN 1-8	76	0	39.6579	9.71398	4.957	41.9605	8.73223	5.245	+.288
6. Policy Support PS 1 to 3	76	0	13.9605	4.16474	4.654	14.4000	3.71304	4.800	+.147
7. Eco-conscious Consumer Behavior ECCB 1-10ECCBI 1-10	76	0	43.2513	11.31018	4.325	51.5211	9.40111	5.152	+.827

In Table 5.3, each composite variable mean has been divided by the number of questions that measured the variable to provide a variable average (highlighted) that corresponds to the 7-point scale used in the survey. There was strong correlation between pre-program and post-program scores.

Table 5.4 Paired Samples Correlations

#	VBN Variables	N	Correlation	Sig.
1	Personal Values	76	.723	.000
2	Awareness of Concern (measured by NEP)	76	.815	.000
3	Awareness of Consequences	76	.680	.000
4	Awareness of Responsibility	76	.675	.000
5	Personal Norms	76	.631	.000
6	Policy Support	76	.703	.000
7	Ecological Consumer Behavior	76	.753	.000

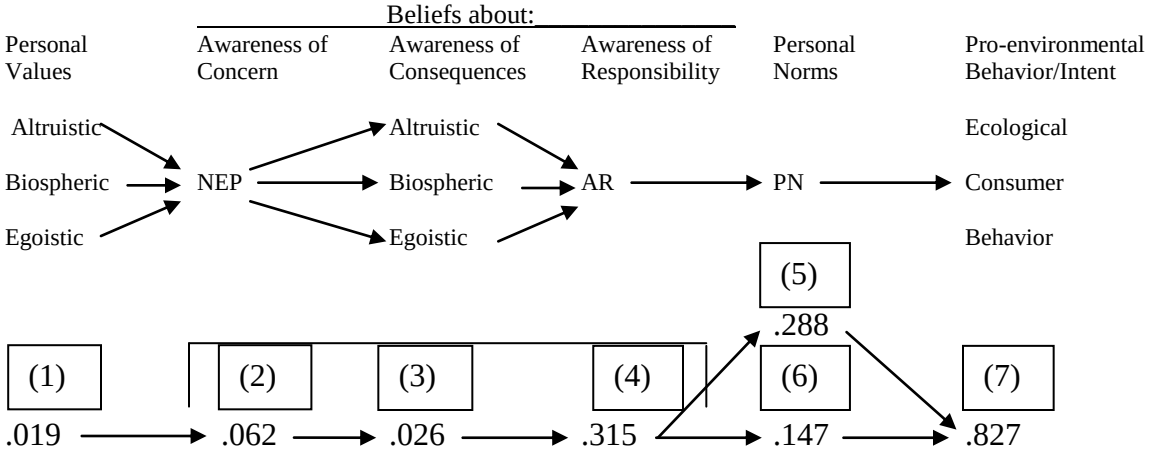
A more detailed breakdown of the first three variables reveals high pre-program scores in altruistic and biospheric personal values and altruistic and egoistic awareness of consequences.

Table 5.5 Detailed Comparative Statistics on Three VBN Variables

VBN Survey Variables	VALID	NULL	Survey A Mean	Sur. A Std. Dev.	Sur. A Ave.	Survey B Mean	Sur. B Std. Dev.	Sur. B Ave	+ / -
1. Personal Values PVaSUM1to11 PVbSUM1to11	76	0	55.2105	6.76721	5.019	55.4184	8.30737	5.038	+.019
A. Altruistic PVaSUM5to7 / PVb/ UM5to7	76	0	17.0263	3.25361	5.675	16.9711	3.54396	5.657	(-.018)
B. Biospheric PVaSUM1to4 / PVbSUM1to4	76	0	22.8026	4.07274	5.701	23.4474	4.08377	5.862	+.161
C. Egoistic PVaSUM8to11/PVbSUM8to11	76	0	15.3816	3.75932	3.845	15.0000	4.67047	3.750	(-.095)
2. Environmental Concern (NEP) PVaSUM1to4w6to15 PVbSUM1to4w6to15	76	0	68.7750	10.22135	4.913	69.6553	10.96903	4.975	+.062
A. Limits NEPa1w6w11/NEPb1w6w11	76	0	13.3026	3.39419	4.434	13.8526	3.65402	4.618	+.184
B. Anti-anthropoc NEPa2w7w12 / NEPb2w7w12	76	0	15.3947	3.25813	5.116	15.4566	3.31632	5.152	+.036
C. Nature NEPa3w8w13 / NEPb3w8w13	76	0	14.8250	2.84277	4.942	15.1197	2.89809	5.04	+.098
D. Reject Human Exemptionalism NEPa4w9w14 / NEPb4w9w14	76	0	14.7355	2.60588	4.912	14.7868	2.72418	4.929	+.017
E. Eco-Crisis NEPa10w15 / NEPb10w15	76	0	10.5171	2.55073	5.259	10.4395	2.30501	5.220	(-.039)
3. A of Consequences ACa1to6 / ACb1to6	76	0	34.5039	5.14456	5.751	34.6592	5.64386	5.777	+.026
A. Altruistic ACa3w4 / ACb3w4	76	0	11.7895	2.15602	5.895	11.6711	2.47865	5.836	(-.059)
B. Biospheric ACa1w2 / ACb1w2	76	0	10.3066	2.33223	5.153	10.6184	2.30921	5.309	+.156
C. Egoistic ACa5w6 / ACb5w6	76	0	12.4079	1.73726	6.204	12.3697	2.04490	6.185	(-.019)
4. A of Responsibility ARa1w2 / ARb1w2	76	0	9.9211	1.98503	4.961	10.5526	2.11278	5.276	+.315
5. Personal Norms PENa1-8 / PENb1-8	76	0	39.6579	9.71398	4.957	41.9605	8.73223	5.245	+.288
6. Policy Support PSa1to3 / PSb1to3	76	0	13.9605	4.16474	4.654	14.4000	3.71304	4.800	+.147
7. Eco-conscious Consumer Behavior ECCBa1to10 ECCBIb1to10	76	0	43.2513	11.31018	4.325	51.5211	9.40111	5.152	+.827

Pre-program scores of 5.67 in altruistic environmental values, 5.7 in biospheric environmental values, 5.89 in altruistic awareness of consequences, and 6.2 in egoistic awareness of consequences indicate that participants arrived with strong pro-environmental beliefs. Participation in study abroad programs did not diminish those beliefs. The overall scores of participants in three of the last four variables showed change with a tendency for increases to be higher as we move through the seven variables, which is consistent with VBN assumptions.

Figure 5.1 Measuring the VBN Model (Tarrant 2010; Wynveen et al. 2011):



D. Inferential Statistics concerning VBN Variables

Paired samples *t* tests were run in SPSS on each of these seven variables. The null hypothesis (H0) proposed that participation in study abroad had a null effect on specific variables in the environmental orientation of participants. The alternative hypothesis (H1) proposed that participation in study abroad had a significant effect on specific variables in the environmental orientation of participants. The two-tailed test of significance only indicated that the change was significant, it did not indicate if the change was positive or negative. If statistical significance was not reached, the null hypothesis (H0) was not rejected. In that case, the null hypothesis that participation in study abroad had a null effect in regards to a particular VBN variable was

accepted as the best explanation of the data (Madrigal 1998). The alpha (α) was pre-set in SPSS as .05.

Table 5.6 Inferential Statistics from Paired Samples *t* - Tests

		Paired Differences					T	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Personal Values	-.20789	5.78453	.66353	-1.52972	1.11393	-.313	75	.755
Pair 2	Concern (NEP)	-.88026	6.48964	.74441	-2.36321	.60268	-1.182	75	.241
Pair 3	A. of Consequences	-.15526	4.33785	.49759	-1.14650	.83598	-.312	75	.756
Pair 4	A. of Responsibility	-.63158	1.65604	.18996	-1.01000	-.25316	-3.325	75	.001
Pair 5	Personal Norm	-2.30263	7.97667	.91499	-4.12538	-.47989	-2.517	75	.014
Pair 6	Policy Support	-.43947	3.06394	.35146	-1.13961	.26067	-1.250	75	.215
Pair 7	ECCB	-8.26974	7.49375	.85959	-9.98213	-6.55734	-9.621	75	.000

Of the seven variables, four readings in the 2-tailed significance column were greater than .05 indicating that the null hypothesis could not be statistically rejected. These four variables were Personal Values, Environmental Concern, Awareness of Consequences and Policy Support. Specifically, a paired samples *t* test failed to reveal a statistically reliable difference between the pre-program mean of Personal Values (M = 55.2105, s = 6.77) and the post-program mean (M = 55.4184, s = 8.31), $t(75) = 0.313$, $p = .755$, $\alpha = .05$. There was also no statistically reliable difference between the pre-program mean of Environmental Concern as measured by the NEP (M = 68.7750, s = 10.22) and the post-program mean (M = 69.6553, s = 10.97), $t(75) = 1.182$, $p = .241$, $\alpha = .05$. No statistically reliable difference existed in relation to the pre-program mean of Awareness of Consequences (M = 34.5039, s = 5.14) and the post-program mean (M = 34.6592, s = 5.64), $t(75) = .312$, $p = .756$, $\alpha = .05$. The paired samples *t* test also failed to reveal a statistically reliable difference between the pre-program mean of Policy Support (M = 13.9605, s = 4.16) and the post-program mean (M = 14.4000, s = 3.71), $t(75) =$

1.250, $p = .215$, $\alpha = .05$. Changes in mean scores for each of these four variables were not statistically significant.

There were three readings in the 2-tail significance column less than .05. These indicate statistically verifiable changes in the pre-program and post-program means of Awareness of Responsibility, Personal Norms and Ecologically-Conscious Consumer Behavioral Intentions. The two-tailed t test did not indicate whether scores increased or decreased, only that changes in scores were statistically significant. Specifically, a statistically reliable difference existed between the pre-program mean of Awareness of Responsibility (M = 9.9211, s = 1.99) and the post-program mean (M = 10.55, s = 2.11), $t(75) = 3.325$, $p = .001$, $\alpha = .05$. A statistically reliable difference existed between the pre-program mean of Personal Norms (M = 39.6579, s = 9.71) and the post-program mean (M = 41.9605, s = 8.73), $t(75) = 2.517$, $p = .014$, $\alpha = .05$. A statistically reliable difference existed between the pre-program mean of Ecologically-Conscious Consumer Behavioral Intentions (M = 43.2513, s = 11.31) and the post-program mean (M = 51.5211, s = 9.40), $t(75) = 9.621$, $p = .000$, $\alpha = .05$.

Having identified three readings that revealed statistically significant change, "the next step is to find out which score is higher" (Pallant 2010: 246). In all three variables, the higher readings occurred after participants had completed their study abroad program.

E. Comparative Statistics on Participant Mean Scores by Study Abroad Program

Comparative statistics contrasted data from each of the nine programs. I have noted that the sample mean from all participants in all nine programs increased in all seven VBN variables. Comparative statistics revealed that participants in only one of the nine programs reflected this increase in every single variable. It was the FRC Spring Break program. Tropical Ecology came close with increases in six of seven variables. In Chapter 4, a review of course objectives

identified *GORP Outdoor Adventure and Astronomy*, *Art and Culture in Latin America* and *Language and Culture Service Learning* as programs with no course objectives that absolutely required the communication of pro-environmental knowledge. I italicized these programs.

Table 5.7 Comparative Statistics from Nine Study Abroad Programs

	Nature and Envir Des 2010	Tropical Ecology F 2010	Coll. of Env. Design F10	FRC Spring Break 2011	***GORP Adv. and Ast. 2011***	***Latin A. Art and Cult. 2011***	Warnell Core in CR 2011	Nature and Envir Des 2011	***Lang and Cult S. L. C. 2011***	Full Sample
Surveyed	8	4	11	18	6	11	3	8	7	76
1. PV A *M*	5.25	4.841	5.099	5.192	4.591	4.917	4.878	5.159	4.414	5.019
PV B *M*	5.07	4.905	5.256	5.359	4.409	4.884	4.242	5.511	4.494	5.038
PV +/-	(-.18)	+.064	+.157	+.197	(-.182)	(-.033)	(-.636)	+.352	(-.22)	+.019
2. NEP A *M*	5.304	5.554	4.701	4.758	5.146	4.799	5.498	4.863	4.612	4.913
NEP B *M*	5,171	5.661	4.610	5.134	5.000	4.932	5.262	4.714	4.745	4.975
NEP +/-	(-.133)	+.107	(-.091)	+.377	(-.146)	+.133	(-.236)	(-.149)	+1.33	+.062
3. AC A *M*	6.219	6.292	5.667	5.676	5.528	5.485	6.085	6.333	5.071	5.751
AC B *M*	5.868	6.167	5.682	6.176	5.000	5.621	5.889	6.146	5.024	5.777
+/-	(-.351)	(-.125)	+.015	+.500	(-.528)	+.136	(-.196)	(-.187)	(-.047)	+.026
4. AR A *M*	5.563	5.125	4.909	4.833	4.750	4.727	5.000	5.750	4.214	4.961
AR B *M*	5.438	5.500	5.045	5.500	4.500	5.000	5.167	6.188	4.857	5.276
+/-	(-.125)	+.375	+.136	+.667	(-.250)	+.273	+.167	+.438	+.643	+.315
5. PEN A *M*	5.609	4.406	5.114	4.743	4.813	5.420	4.583	5.531	3.732	4.957
PEN B *M*	5.688	5.688	5.205	5.382	4.688	5.239	4.250	5.625	4.679	5.245
+/-	+.079	+1.282	+.091	+.639	(-.125)	(-.181)	(-.333)	+.094	+.947	+.288
6. PS A *M*	5.083	4.833	4.788	4.593	4.611	4.606	4.889	4.958	3.667	4.653
PS B *M*	4.875	5.917	4.515	4.907	4.778	4.649	5.111	4.875	4.286	4.800
+/-	(-.208)	+1.084	(-.273)	+.314	+.167	+.043	+.222	(-.083)	+.619	+.147
7. ECCB A *M*	5.203	4.700	4.356	4.211	3.983	4.232	4.133	4.705	3.440	4.325
ECCBI B *M*	5.578	5.700	5.073	5.228	4.483	5.313	4.400	5.375	4.671	5.152
+/-	+.375	+1.000	+.717	+1.017	+.500	+1.081	+.267	+.670	+1.231	+.827

Comparative statistical data shows that the College of Environmental Design program, the *Art and Culture of Latin America* program, and the *Language and Cultural Learning* program increased in five of seven variables. The 2011 Nature and Environmental Design program increased in four of seven variables. The Warnell Core in Costa Rica program program increased in three of seven categories. The 2010 Nature and Environmental Design program and the *GORP Outdoor Adventure and Astronomy* program increased in two of seven categories. All

programs had positive movement in the Ecologically-Conscious Consumer Behavioral Intentions variable indicating that participants became more ecologically conscious about their consumer behaviors regardless of which program they attended at UGA Costa Rica.

F. Summary of Quantitative Findings

This chapter reviewed survey data to determine the pro-environmental orientation of participants and to determine the impact that pro-environmental information had on participant values, beliefs, and norms. Descriptive statistics indicated that participants entered study abroad with a pro-environmental orientation. I divided each variable means by the number of questions corresponding to the variable. This provided a measurement that corresponded to a seven point scale. A score of 7.0 indicated extremely high importance or agreement and 1.0 indicated extremely low importance or strong disagreement. A score of 4.0 indicated that participants were neutral. The pre-program sample score for Personal Values was 5.02, Environmental Concern was 4.91, Awareness of Consequences was 5.75, Awareness of Responsibility was 4.96, Personal Environmental Norms was 4.96, Policy Support was 4.65 and Ecologically Conscious Consumer Behavior was 4.33. The sample arrived at study abroad with mean scores above 4.0 in each variable, indicating a self-selection bias toward pro-environmental beliefs and values consistent with the selection of UGA Costa Rica as their study abroad destination. Participants of study aboard programs at UGA Costa Rica were an excellent sample for studying people that hold pro-environmental beliefs.

Descriptive statistics indicated that mean scores either remained virtually unchanged or increased in each of the pro-environmental variables during study abroad. Personal Values, Environmental Concern, Awareness of Consequences, and Awareness of Responsibility remained virtually unchanged. Personal Environmental Norms and Policy Support showed small

increases. Ecologically Conscious Consumer Behavior intentions showed the strongest increase, suggesting that participants were planning on taking pro-environmental action.

Inferential statistics indicated that only three variables allow us to logically infer that changes in pro-environmental orientation were in fact related to the educational intervention. These three were Awareness of Responsibility, which increased .32; Personal Norms, which increased .29; and Ecologically-Conscious Consumer Behavioral Intentions, which increased .83. Increases in other variables were small and therefore did not provide statistically significant evidence of change due to something other than random variation in participant choice. However, while four variables may not be statistically significant, the fact that every one of the seven variables increased should not be overlooked.

The strongest increase was in the Ecologically-Conscious Consumer Behavioral Intentions variable that increased by 12%, corresponding to a .83 increase on a seven-point scale. This increase is consistent with the basic assumption in VBN theory that the effect of pro-environmental orientation is cumulative, leading to strong motivation or intention to change.

The initial high mean scores in all seven VBN variables, increases in all variables, and significant increases in the Ecologically-Conscious Behavioral Intentions variable confirms the logic of selecting participants at UGA Costa Rica study abroad programs as an excellent sample for this study of the pro-environmental knowledge-action process. Participants constituted an excellent sample because they received pro-environmental information, it increased their pro-environmental orientation and they left study abroad with strong intentions to align pro-environmental knowledge with action.

It is interesting that the sample ranked Ecologically Conscious Consumer Behavior as the lowest of the seven variables on pre-program scores. This indicates that participants arrived with

knowledge-action gaps already in place. They left study abroad with significant increases in their motivation to take action on their pro-environmental knowledge. Pro-environmental knowledge alignment had occurred during study abroad and participants were motivated to take pro-environmental action. If a majority of participants did not take pro-environmental action following their return to the U.S., it was not due to the intrapersonal factors measured by these VBN variables. If pro-environmental action did not take place, there must have been internal factors that were not measured by VBN surveys or contextual factors that opposed pro-environmental action.

This finding raises a question that I will address in Chapter 7. The question is: What have environmental educators defined as their primary tasks? If environmental educators have defined increasing environmental knowledge and motivating action as their two primary tasks, the data indicated that they have been successful. However, the data also indicated that participants were already pro-environmental before coming to UGA Costa Rica and were probably already struggling with pro-environmental knowledge-action gaps. If participants were pro-environmental and motivated but failed to take action, it could indicate that they did not have the political knowledge, skills or motivation to plan and implement pro-environmental change in an anti-environmental society. If this is the case, environmental educators need to consider adding the development of political knowledge, skill and motivation for implementing pro-environmental societal change as a third item in their list of primary tasks.

The 2010 Sustainability Report stated: “no matter what subject they come to Costa Rica to study, participants in UGA Costa Rica’s education abroad programs come away with a deeper appreciation of the importance of efforts to restore, protect, and preserve Costa Rica’s natural resources” (32). The statistics of this study suggest a different result, that no matter what subject

participants came to Costa Rica to study, many returned home with a deeper commitment to change their individual behaviors to be more consistent with their pro-environmental knowledge. The next chapter examines the pro-environmental knowledge-action process as participants returned from study abroad.

CHAPTER 6

INTERVIEW DATA

A. Introduction

In this chapter, I focus on how participants responded to pro-environmental information after they returned home. I begin the chapter with a table that presents information on each of the 20 interview participants. The table provides their survey numbers, self-reported ratings of pre-program Ecologically Conscious Consumer Behavior followed by post-program Ecologically Conscious Consumer Behavioral Intent ratings and corresponding increases or decreases. One of the 20 participants did not intend on taking ecologically-conscious action (8), two were undecided (13, 20). One of the 20 self-identified as less likely to make ecologically conscious consumer behavioral choices (17), and one was unchanged following study abroad (14).

Table 6.1 Ecologically-conscious Consumer Behaviors and Intentions

Interviewee	**1** – s. 4	**2** – s. 6	**3** – s. 3	**4** – s. 7	**5** – s. 13	*Sample Mean*
Pre-ECCB	4.84	5.00	6.10	5.04	5.40	*4.32*
Post-ECCBI	5.40	5.10	6.70	5.72	5.70	*5.15*
+/-	+.56	+.10	+.60	+.68	+.30	*.83*
Interviewee	**6 – s. 14**	**7 – s. 9**	**8 – s. 35**	**9 – s. 33**	**10 – s. 34**	*Sample Mean*
Pre-ECCB	5.70	4.60	2.70	4.50	2.50	*4.32*
Post-ECCBI	5.80	5.90	*3.50*	5.00	5.30	*5.15*
+/-	+.10	+1.30	+.80	+.50	+2.80	*.83*
Interviewee	**11 – s. 25**	**12 – s. 38**	**13 – s. 44**	**14 – s. 42**	**15 – s. 46**	*Sample Mean*
Pre-ECCB	5.20	3.60	3.00	4.50	4.10	*4.32*
Post-ECCBI	6.00	4.30	*4.00*	4.50	5.30	*5.15*
+/-	+.80	+.70	+1.00	0.00	+1.20	*.83*
Interviewee	**16 – s. 59**	**17 – s. 62**	**18 – s. 74**	**19 – s. 75**	**20 – s. 72**	*Sample Mean*
Pre-ECCB	3.50	5.10	3.98	5.60	1.20	*4.32*
Post-ECCBI	5.00	4.80	5.50	6.00	*4.00*	*5.15*
+/-	+1.50	(-.30)	+1.52	+.40	+2.80	*.83*

The scores of 17 of the 20 interview participant's indicated that they intended on taking pro-environmental action following their return from study abroad programs at UGA Costa Rica.

B. Interviews: Open Windows into Participant Lives

Interviews opened windows into the lives of participants that revealed details about the knowledge-action process to supplement those measured by VBN variables. Each of the following four stories begins with the participant's scores on the seven variables, followed by a short summary paragraph that introduces an interesting quote. Appendix G provides this kind of additional information on each of the 20 interview participants.

(1) It's Time to Speak Up!

Int. # 1	PV	NEP	AC	AR	PEN	PS	ECCB/I
Pre	5.82	5.71	6.67	5.50	5.63	5.33	4.84
Post	5.36	5.93	6.67	6.00	6.50	5.00	5.40
+/-	(-.46)	+.22	0.00	+.50	+.87	(-.33)	+.56

Study abroad in Costa Rica allowed one environmental educator in his early thirties to be back in the mountains. Since childhood, dreams of pristine forests and unpolluted rivers had led him deeper and deeper into the woods. Now graduate studies were producing new dreams of urban parks and green roofs to accompany old dreams of mountain peaks and green meadows. Study abroad updated his information on the health of tropical forests and being back in the mountains reinforced his resolve to live in an environmentally responsible way and protect fragile ecosystems. His study abroad experience was also leading him to make a new commitment to speak up on environmental issues as he returned to U.S. life. He explained:

> I think this is one thing I hope to change, and I haven't really put words to this yet. My behaviors are very connected to the group that I am with, unlike a lot of people that I know. So, for instance, if I am at someone's house that composts, recycles and walks, then I certainly will do all those things and it is very natural for me to do those things. However, if I am at someone's house that doesn't recycle and doesn't compost and drives everywhere, I am not typically a person that is big into judging people, I don't like people to cast judgment on me and I don't like to cast judgment on other people. So, typically I just go with the flow. I put my beer bottle in the trashcan and I will throw my left over

> grapefruit skin in the trash, and I will hop in the SUV and drive wherever we are going. Sometimes, I say something mostly in passing like, "Dude, it's 2011! You don't recycle?" But that is where it stops. (1:540-548)

(2) I'm Reevaluating the Importance of Little Things I Can Do!

Int. # 8	PV	NEP	AC	AR	PEN	PS	ECCB/I
A	4.64	4.0 0	5.33	3.50	2.50	2.33	2.70
B	4.55	4.29	5.17	3.50	3.13	3.33	3.50
+/-	(-.09)	+.29	(-.16)	0.00	+.63	+1.00	+.80

A trip to Costa Rica is a great way to get to know more people. That was the primary motivation for a female undergraduate student in her early twenties. She was nearing the completion of her degree in Economics. Study abroad was a way to make friends and she would tolerate the hiking. She had plenty of experience. Her parents had taken her hiking, camping and bird watching all through childhood. Her mom was a nature freak who lived constantly in awe of nature. Her mom's love for the environment had turned her off. She stated:

> I think I kind of had that crammed down my throat a little, so much that I was like: 'I hate nature!' So, as I have gotten older, I have kind of come around, and I can definitely say I had hiked miles and miles when I was growing up and I was like, 'I hate hiking!' But I can definitely say, after this trip in Costa Rica, I kind of enjoy hiking, and I was telling my best friend that and she was like, 'Oh my God, stop! Can we please record this?' So I can definitely say, I think being in Costa Rica has kind of made me reevaluate some of those things and some of the things I just automatically said, 'No!' Like, I just kind of like enjoyed this and you know it is important to make that small effort because something as simple as recycling might be a hassle but it is probably the smallest hassle I have to deal with in my entire day. So, it has made me reevaluate the importance of the little things that I individually can do that would make our environment a better place. (8:27-37)

(3) It's Time to Examine Myself and My Life in the Big City!

Int. # 18	PV	NEP	AC	AR	PEN	PS	ECCB/I
A	4.36	5.07	5.33	5.00	4.13	5.00	3.98
B	4.55	5.86	6.50	5.50	6.00	6.00	5.50
+/-	+.19	+.79	+1.17	+.50	+1.87	+1.00	+1.52

Reflections and connections surprised this female school counselor. She was not expecting daily chores on a Costa Rican farm to carry her back to childhood memories. She

remembered how she worked with her grandparents twenty years ago. Study abroad reconnected her to growing, planting, and being more aware of herself and her surroundings:

> It was a very good experience. It was neat going and sort of examining myself and my perspective in the middle of a place that was different from what I was used to experiencing…. I got to know my homestay family socially and culturally and I also got to understand how they live from day to day, a different type of life as far as farming and actually using what you produce. It was not completely new to me because my grandparents were farmers, but it was neat experiencing what you did every single day. I took a lot away from that and learned a lot about ecology too! I learned about different kinds of trees and animals and insects that were in my immediate surroundings. I know that I don't necessarily pay attention to that kind of stuff here in my U.S. experience…. I am more aware now of what I consume and what I throw away and make sure that whatever I am using that I don't take more than my fair share. I was positive for recycling before I went but now I am more aware of food and energy. I don't know that I have changed my behavior as far as driving, living in Metro Atlanta…it would be nice to live closer to work or close enough to walk to this place or that place…and then when we visited an artisan coop which is another one which as a female had me thinking a lot about gender roles because as an African American female, I don't know that I really reflect on my gender as much as on my race. The gender stuff was very clear to me and also some of the conversations I had with the girls in the school and my homestay sister. I had so many different experiences.... It is interesting…when you consider the history that the African American people have had with farming. We don't view it as the greatest work because of our history but I think that it's knowledge that's definitely worth having and I felt bad that my generation does not have more access to it…I think a better appreciation of nature and farming is essential… because we live on the earth and if we don't understand the subtle signs the earth is giving us, we may not be here later. (18:80-82, 88-97,100-105, 150-158)

(4) I'm Thinking through Teaching English with Its "Throw Away" Attitude!

Int. # 19	PV	NEP	AC	AR	PEN	PS	ECCB/I
A	5.18	6.21	6.67	5.00	5.38	4.33	5.60
B	5.27	6.21	6.17	5.50	6.38	5.67	6.00
+/-	+.09	0.00	(-.50)	+.50	+1.00	+1.34	+.40

Slowing down in Costa Rica allowed unanswered questions to surface in the mind of an ecologically sensitive graduate student preparing for life as an educator. She left Costa Rica unsure of where these questions would lead her, but also sure that withholding information was not the answer. When I asked what surprised her about study abroad in Costa Rica, she said:

> The biggest thing was the connection that a lot of people in the San Luis community have with the land… like for example…we asked the kids to draw a picture of their

> community. What stood out to us was that… the kids in the San Luis community were taking care to notice that there were different types of vegetation and to include them…. We talked about the way in English we "throw away" like we "throw out the garbage" and how when you look at the language it is just, 'get it out of here'… and garbage is trucked off to a landfill so we never have to think about it again…. It is easy for us not to think about how much waste we are producing. As long as we just throw it away, it is just out of our sight and we don't have to think about where it goes…. Being down there and seeing these kids and they want to learn English, and they want to learn so they can get a job as a tour operator or some reason to be able to talk to tourists around there and there is constantly this struggle with what does tourism do to an area like the San Luis community. Is it positive? It made me start looking at what teaching English language does around the world. What am I promoting? If I am going out saying that people ought to learn English, well why are they wanting to learn English? Are they wanting to learn English to be able to participate in an American way of life? That's a way of life that includes mass consumption. If so, I am not so into consumerism and capitalism! Can our earth handle everybody in the world wanting to be like Americans? Is that fair for me to say? I want to not teach English because it promotes this way of life that I have the option of living. This is really hard to explain. It has made me question what I am trying to do as a master student in TESOL. If language and culture are completely intertwined and if I go out to teach the English language, what else am I promoting? Am I promoting things that I don't necessarily agree with? That was pretty hard for me. When I left there, I had 4 classes left to finish my degree and I was seriously considering dropping out of the program. That, I was not expecting at all…. The best solution I could come up with in Costa Rica, about my role as a teacher, is that I can teach people something but I can't control what they do with it. It is not fair for me to make decisions for other people by withholding something that they want to learn. (19:112-132, 136-176)

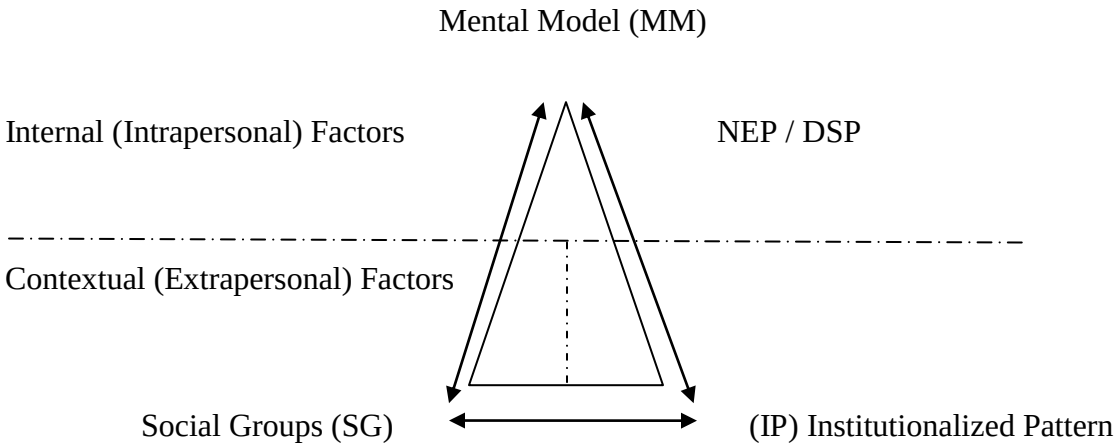
Interviews revealed people working at different points on the knowledge-action process. One was ready to speak up, another was reevaluating the importance of daily behaviors, a third saw the value in farm life and a fourth was deciding how to align a career in teaching English with pro-environmental values.

C. Examining the Knowledge-action Process

I interviewed 20 participants to gain a more comprehensive understanding of the knowledge-action process. The expanded framework added insights to VBN theory by suggesting that participants negotiated knowledge-action alignment based on three realities: their own values and beliefs in their internal mental model (MM); external social relationships that

were part of the participant's social context and personal identity (SG); and the availability and cost of pro-environmental options within institutionalized societal patterns (IP).

Figure 6.1 Expanding our Understanding of the Knowledge-action Process



(1) Intrapersonal Factors

In this diagram of the knowledge-action process, intrapersonal factors sit above the horizontal line. They are similar to the proverbial *tip of the iceberg*, because they have been measured in some degree by VBN surveys. Interviews allowed participants to provide more information concerning their beliefs and values measured by survey questions.

(a) Nature Will Reestablish Its Balance

Five of the 20 interview participants expressed such strong belief in the evolutionary adaptability of nature that they could not fully agree with the NEP statement that the balance of nature is delicate and easily upset. When I asked them to respond to the statement that nature's balance can be upset if humans continue to abuse the environment, they were sure that nature would adjust to whatever changing conditions human behavior produced and that while those adjustments might present difficulties for humans, life itself on the planet would be just fine when viewed from a geologic time scale. A male graduate student in his late twenties directly expressed this perspective in his interview. He talked about his extensive connection with and

knowledge of nature through hiking, rafting, fishing, gardening, hunting, farming and camping. He had travelled extensively and while he agreed that global warming was occurring, he was sure things would be okay. He stated:

> The environment is a large system. We can temporarily throw it out of whack. There are consequences to those actions. Anytime you have a system that is in equilibrium, the system tries to get back to equilibrium. We might completely throw it out of whack, but then we will create unlivable situations. Sometime in the future, if we do more and more terrible things, maybe a bunch of people will die. Then there will be less consumption and the environmental system will go back to its equilibrium. I don't think we can completely upset it. It will get back to equilibrium whether we like it or not. (5:127-136)

(b) DSP Beliefs Present

The literature review, presented in Chapter 2, suggested that beliefs from Dominant Social Paradigm (DSP) would not automatically or immediately disappear when a person added beliefs consistent with the New Environmental Paradigm (NEP) to his or her personal mental model. The presence of contradictory DSP beliefs could, in theory, produce internal residence that could contribute to knowledge-action gaps. Interviews provided an opportunity to have participants rank and discuss five DSP beliefs using the same seven-point scale used with VBN questions.

The five DSP concepts were belief in individual freedom, pro-anthropocentrism, the goodness of economic growth, human exemptionalism from environmental deterioration and a belief in human progress. Interview data revealed that 75% of interview participants held DSP beliefs (1, 2, 3, 5, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18), confirming that DSP beliefs do not automatically disappear. All interview participants that decreased in NEP scores indicated strong support for two or more DSP beliefs (2, 5, 22, 15, 16). The presence of DSP beliefs did not keep participants from expressing concern for the environment or indicating their intentions to modify their consumer behavior but it appeared to encourage participants to question NEP beliefs.

Table 6.2 Interviewee Scores on Conflicting Variables

Interviewee – survey	Pre-NEP	Post-NEP	+ / -	Conflicting DSP Variables 7 point scale
1 – s. 4	5.71	5.93	+.22	7 Progress
2 – s. 6	5.43	4.93	(-.50)	7 Growth, 7 Progress
3 – s. 3	5.71	6.00	+.29	5.5 Growth
4 – s. 7	4.43	4.86	+.43	All scores neutral or negative
5 – s. 13	4.21	3.79	(-.42)	5.5 Pro Anth, 6.0 Growth, 6.0 Progress
6 – s. 14	5.71	5.71	0.00	All scores neutral or negative
7 – s. 9	5.29	5.57	+.28	6 Growth
8 – s. 35	4.00	4.29	+.29	6.5 Ind. Free, 7 Growth
9 – s. 33	5.07	5.50	+.43	6 Growth
10 – s. 34	4.14	5.21	+1.07	7 Growth, 5 Progress
11 – s. 25	5.50	4.86	(-.64)	6 Ind. Free, 7 Pro Anth, 7 Growth, 7 Progress
12 – s. 38	4.00	3.93	(-.07)	6.8 Ind. Free, 7 Growth, 6 Progress
13 – s. 44	5.00	5.36	+.36	6 Growth, 7 Progress
14 – s. 42	5.95	6.00	+.05	All scores neutral or negative
15 – s. 46	4.64	4.29	(-.35)	5 Ind. Free, 6 Growth, 5 Progress
16 – s. 59	4.42	3.93	(-.49)	5.5 Ind. Free, 5 Pro Anth, 7 Growth, 6 Progress
17 – s. 62	5.00	5.00	0.00	5 Pro Anth, 5 Progress
18 – s. 74	5.07	5.86	+.79	5 Growth, 7 Progress
19 – s. 75	6.21	6.21	0.00	All scores neutral or negative
20 – s. 72	4.14	4.86	+.72	All scores neutral or negative

Table 6.2 reveals the possibility of inner conflict between NEP and DSP beliefs. During interviews, individuals with low NEP scores and high DSP scores indicated that they took fewer pro-environmental actions (See Table 6.3 – Notice columns 8, 12, 15, 16 which correspond to the rows 8, 12, 15, 16 in Table 6.2), unless they received strong encouragement to take pro-environmental action from members of their study cohort. Participants 2, 5, and 11 indicated that peers in Ecology and Landscape Architecture encouraged them to take pro-environmental action, confirming that contextual factors influenced participants to take pro-environmental action even if they continued to hold DSP beliefs internally.

(c) Knowledge-action Alignment in Progress

Interviews revealed that the majority of participants believed they were aligning at least some of their behaviors with their pro-environmental knowledge. I found this by first asking participants to define environmental responsibility and then asking if they were living in an

environmentally responsible manner. All participants were able to quickly respond with a clear definition. The eighth interview participant was introduced through the summary, *Can we record this?* This undergraduate student in her twenties defined environmental responsible in this way:

> An environmentally responsible person would be someone who is conscientious of how they live, on how their actions affect the environment and other living organisms in the environment. So, it is somebody who would try to be aware that if they are doing something that could possibly harm something else in the environment, they would try to make a conscious effort not to do it or to find a better way of doing whatever they are doing (8:14-18).

I interviewed a graduate student in her twenties just before she left on another study abroad program. Her definition mentioned extrapersonal factors in the knowledge-action process:

> It is a person that makes every decision in their life with a consciousness of the resources they are using and the energy inputs in the environment. They may not always do something that is best for the environment. They have the desire to, but the way the world is set up, you cannot always do what is best (4:12-15).

There was consensus among participants that they could not control society. Their environmental choices were made within predetermined societal constraints. An individual was primarily responsible for his or her own choices. I asked each participant to compare his or her behavior with the definition he or she gave of environmental responsibility. Of the 20 participants, 19 felt they were environmentally responsible. My first interview was with a graduate student in his early thirties who had worked as an environmental educator previous to entering his graduate program. He considered "recycling, reducing your carbon footprint… thinking about where your food comes from… considering overpopulation and the carrying capacity of the earth… as part of environmentally responsible behavior" (1:17-20). He stated that he considered himself to be an environmentally responsible person. His interview illustrated two themes that flow through the interview data. First, the majority of participants believed they were living environmentally responsible lives but they qualified their lifestyle choices based on the

limited options available in their context. Secondly, participants continually talked about social acceptance and rejection as key variables in the knowledge-action process. In other words, they were making responsible choices in light of the extrapersonal factors they faced. The first interviewee stated:

> I am not sure I would ever introduce myself as an environmentally responsible person. Same thing with environmentalism, if you are not working for the environment, a lot of people think, well then you are working against it. Environmentalist is such as loaded term that … I am not sure I would ever openly admit that in a public forum (1:27-32).

Twelve participants included explanations of why they were not doing all they would like to for the environment. A female graduate student in her early thirties that works as a school counselor in Atlanta explained, "If I was on a continuum of absolutely not being environmentally responsible to being environmentally responsible, I think I would probably be somewhere in the middle. I think I am aware of what I do… there is probably more that I could do" (18:18-21). She went on to name her biggest hindrance.

> Atlanta hinders me partly because it's so big.… I have to travel a lot in my car… It can be a hindrance as far as how much energy I am consuming…. It is so large and so big, if you are trying to do some of the day-to-day things, you are going to have to use a car. I guess you could car pool. It is not easy to look for environmentally conscious things (18:252-259).

The fourteenth interview participant was a female college freshman. She described herself as "a wildlife major that wanted to help save endangered species" (14:24). When asked if she was environmentally responsible, she said yes but with limitations:

> I can't do everything I wish I could do just because I feel like as a college student I don't have all the choices that I could have. I do not have the finances to do everything to help the environment but I am educated and interested in environmental issues and I am very concerned for the environment" (14:19-22).

Only one participant stated that she did not consider herself to be living in an environmentally responsible manner. She was an undergraduate biological science major in her

early twenties. As a child, she was connected to nature through hiking, fishing and camping. She defined an environmentalist as someone concerned with the world that wants to protect it. Pressures from her social network produced hesitancy concerning lifestyle change. She stated,

> Living where we do, definitely makes it difficult. Where I am from, everybody is very conservative and global warming is associated with being liberal. It is almost like a negative thing. They do not really understand mainly because they don't know a lot about it. I would say it is hard living somewhere where you are surrounded by people who don't know and don't believe in it. As a whole in Georgia, it is probably harder to make good decisions for the environment.

She regularly practiced energy saving behaviors, but said that her motivation was economic rather than environmental.

(d) Responsible Pro-environmental Action Occurring

After asking participants to define environmental responsibility and compare their lifestyle with their definition, my next question was: To what extent does your lifestyle align with your updated pro-environmental beliefs? Nineteen of the interview participants felt they aligned their individual lifestyles in several ways with their pro-environmental beliefs. Only one participant felt she was not being environmentally responsible, because even though she practiced several pro-environmental behaviors, her motivation was primarily economic.

I also asked participants whether they had taken one of several pro-environmental actions. Recycling was the most common action mentioned with all participants either continuing to recycle or beginning to recycle after study abroad. Eighteen participants regularly purchased green products. Seventeen tried to reduce their energy footprint by walking, purchasing energy saving light bulbs, taking shorter showers or adjusting apartment thermostats. Ten informed and encouraged friends and family to support pro-environmental issues.

Participant responses are presented in Table 6.3. Interviewee data is presented in 20 individual columns representing each of the 20 interviews. An "x" indicates the participant had adopted this action.

Table 6.3 Self-reported Pro-environmental Individual and Collaborative Behaviors

Participants		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		G	G	G	G	G	G	Jr	Jr	Sr	Sr	Sr	So	F	F	So	G	G	G	G	Sr
Private/Individual																					
Recycle	20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Green Products	18	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X
Reduce footprint	17	X	X	X	X	X	X	X			X	X	X	X	X	X		X	X	X	X
Speak for Env. Iss.	10	X	X	X	X	X	X	X						X	X					X	
Read Env. Lit.	8	X	X	X	X					X		X	X		X						
Check on Env. Org.	8	X		X	X					X		X	X		X			X			
Vote for Env. Policy	8	X	X	X		X	X	X			X				X				X		
Contribute funds	6	X	X		X					X						X		X			
Vote based on Env.	5	X	X	X			X								X						
Big purchases	5						X				X	X	X		X						
Collaborative																					
Eco clean-up	8	X	X	X	X	X						X			X				X		
Signed Petitions	7	X		X	X	X	X								X			X			
Work local problem	2			X		X															
Join Env. Organ.	1											X									

As I reviewed interview transcripts, it became evident that participants did not feel they were responsible for changing society; rather their responsibility was to select pro-environmental behaviors from the options available within their context. As I questioned them concerning the specific behaviors they practiced, it became evident that they preferred individual actions that could be carried out conveniently on their own time schedule. They were recycling, purchasing green products, reducing their ecological footprint and speaking out in favor of the environment.

(e) Environmental Responsibility Unassociated with Political Involvement

When the topic of becoming politically active arose in the interview, I was surprised by the emergence of a consensus of opinion concerning political action. A male undergraduate student in his early twenties, completing a double major in Ecology and Language reflected this consensus when he stated: "An environmentally responsible person isn't necessarily aiming for political change" (7:35). A graduate student in his thirties stated:

> I would not say I am an environmentalist, because it comes with the connotations or image associated with the 60s or 70s when there was a big environmental movement and push and there was a lot of legislation coming out at the time. There were protestors and picketing and a lot of passion about an issue, whether it was whales which was a big one back in the 1960s or whether it was superfund sites or whatever. I have never protested anything formally in my life (1:69-71)

When I ask a female graduate student in her late twenties if she was an environmentalist, she stated: "I am not a protestor" (6:30). Another female graduate student in her late twenties said, "Environmentalist…has a radical connotation…sort of 'out there'" (3:20-21). When I asked a male graduate student in his early thirties if the terms "environmentally responsible person" and "environmentalist" were identical or different, he explained, "An environmentalist…has made the environment his or her cause or the thing to rally political support for" (5:39). Later in the interview he said, "I try to avoid anything political or too policy oriented but I want…to be as responsible as I can be with the environment" (5:66-68). An undergraduate student in his early twenties stated, "An environmentally responsible person isn't aiming for political change. They are more involved in terms of their personal actions, what they can do to minimize their footprint on the environment" (7:32-36).

The comments of participants repeatedly demonstrated that political involvement was not an action they wanted to include in their definition of "environmental responsibility." The only political behavior in Table 6.1 that enjoyed the support of half of the participants was speaking up for environmental issues (10/20), which is an individual political act that does not require any involvement with political movements. All other pro-environmental political actions were practiced by less than half of participants: voting for environmental policies (8/20), signing petitions (7/20), voting for individual candidates based on their environmental position (5/20), and working collaboratively to change local problematic patterns (2/20). In the minds of several

participants, environmental organizations were linked to political activism and only one of the twenty participants had actually joined an environmental organization.

Participants were disillusioned with politics in general. When a few of them spoke of past experiences with pro-environmental political action, they did not tell success stories. The third interview participant had acted politically to place recycling boxes at her apartment complex. She and her husband were very pro-environmental. They reduced their energy footprint by riding bikes and combining errands, they ate local foods, recycled, were part of a community garden, and have spoken in favor of pro-environmental policies. However, their experience in collaborative political action for change had been discouraging. They had worked to encourage recycling at their apartment complex but their efforts failed:

> We got all our neighbors in our apartment complex to sign a petition to get recycling started at our complex. When we tried to work with the person that oversees the management company, it never went anywhere. At this point, it is all new tenants and they would make us start over again. So, it is really unfortunate. (3:340-343)

I reviewed the interview data, differentiating between political and non-political actions as well as between routine and non-routine actions (Strauss 1997), producing the following table:

Table 6.4 Self-reported Routine/Non-Routine/Individual/Collaborative/Political Behaviors

Participants		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		G	G	G	G	G	G	Jr	Jr	Sr	Sr	Sr	So	F	F	So	G	G	G	G	Sr
Routine/Indiv/N-p																					
Recycle	20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Green Products	18	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X
Reduce footprint	17	X	X	X	X	X	X	X			X	X	X	X	X	X		X	X	X	X
Routine/Indiv/Pol																					
Speak for environ.	10	X	X	X	X	X	X	X						X	X					X	
Read Env. Lit.	8	X	X	X	X					X		X	X		X						
Check on Env. Org.	8	X		X	X					X		X	X		X			X			
Vote for Env. Policy	8	X	X	X		X	X	X			X				X				X		
Contribute funds	6	X	X		X					X						X		X			
Vote based on Env.	5	X	X	X			X								X						
Non -r/Indiv/N-p																					
Big purchases	5						X				X	X	X		X						
Non-r/Coll/N-p																					
Eco clean-up	8	X	X	X	X	X						X			X				X		
N-r/Coll/Pol																					
Signed Petitions	7	X		X	X	X	X								X			X			
Worked loc problem	2			X		X															
Join Env. Organ.	1											X									

This additional coding can provide some additional insight into criteria that participants use in classifying themselves environmentally responsible. They self-identified as environmentally responsible if they were selecting pro-environmental alternatives from the routine behavioral options available within their context. If they were recycling, purchasing green products and working to reduce their energy footprint; they were living in an environmentally responsible manner. Half of the interview participants also stated that they actively tried to influence select friends or family members to support pro-environmental actions and policies. Knowledge-action alignment immediately weakened when the practices required political involvement or involved enacting non-routine behaviors. Some of the younger participants had not yet made major purchases so were unable to answer questions concerning these purchases. When interviewing them, I asked follow-up questions concerning the criteria they used in selecting apartments. Did they consider pro-environmental issues such as energy efficient appliances, reduced usage shower heads and recycling? They answered consistently that their primary concern in renting apartments was economical, not pro-environmental.

(f) Summary on Intrapersonal factors

Participants returned from study abroad with stronger pro-environmental beliefs. They aligned actions with beliefs in a responsible manner. In contexts where there were pro-environmental options, they aligned knowledge with corresponding actions such as recycling, purchasing green products and reducing their ecological footprint. They were prepared to take pro-environmental actions within the socio-economic system but did not want to become involved in political actions that attempted to change the socio-economic system, other than voting for particular candidates or policies. This summary concludes an examination of the intrapersonal area, the part of the triangle above the line.

I now focus on contextual factors that lie outside the internal factors examined by VBN surveys. It has not been possible to share participant comments about internal factors without also mentioning contextual factors because participants determine how to live out their internal beliefs and values within a context of social relationships and institutionalized societal patterns.

(2) Social Pressures that Encouraged Pro-environmental Action

The majority of interview participants indicated that they fully intended to take action on their pro-environmental knowledge when they returned from study abroad. Peers, academic groups, family members, employers and environmental organizations were mentioned as social groups that encouraged participants to take pro-environmental action.

(a) Peers

A female graduate student in her twenties returned from study abroad feeling guilty about her contributions to global warming. Dialogue with peers helped her figure out some practical action steps. She said, "My peers are conscious of these issues and we talk about them often" (4:27-28). Later in the interview she added, "My personal social groups, my friends… encourage environmental responsibility. We go camping and hiking and it engenders a sense of relationship with the environment (4:335-338). The need for peer encouragement was shared. A female undergraduate student in her early twenties, completing a degree in Economic found it easier to take pro-environmental action with others that were being responsible. She said:

> It is easier to act more environmentally responsible when the people around you are trying to make an effort… when I was in Costa Rica, I did try to act environmentally responsible because it was definitely something that was important and other people were trying to do it. It is not like everyone is born being environmentally responsible, it is something you have to work at. Whether you love it or not, you've go to make a conscious effort. So, other people trying to do it made it a lot easier and it made me want to behave more environmentally responsible (8:406-412).

Peers helped inform a female undergraduate sociology student about environmental issues. Her peers were active at the Office of Sustainability and she said, "I am environmentally aware because of others (9:41-45). Participation in study abroad helped participants connect with pro-environmental peers. A female undergraduate Education major explained:

> We have Costa Rica dinner night at least once a month. We cook Costa Rican food. On the first night that we all went out together, it was funny because we just sat there and we were all just talking about environmental resources and that kind of thing and I was thinking I never thought I would be sitting downtown talking about this kind of stuff (20:250-254)

(b) Academic Groups

Participants mentioned academic groups as significant sources of pro-environmental encouragement. A male undergraduate student in his early twenties explained that "As a member of the School of Ecology… I have certainly been exposed to a lot of people that are very environmentally friendly…. Being around them is definitely an inspiration (7:415-420). A female undergraduate student in her first year of college decided to attend the Southeastern Student Renewable Energy Conference hosted at UGA. After the conference, she said: "I was really encouraged to step up my environmental consciousness because everyone there was doing so much more than I even knew was possible" (14:264-270). A graduate student in her upper thirties stated that her network of friends in class encouraged her to adopt environmentally healthy behaviors. She said, "I guess just doing what they do is something that I watch and that encourages me" (16:198-200).

(c) Family Members

Several participants mentioned family members as sources of encouragement for pro-environmental action. Parents were the family members mentioned most often. A graduate student in her twenties referred to both her parents and her husband's parents:

> A lot of how I got interested in the first place was growing up with my parents, who are very much into like only keep your refrigerator door open as short amount of time as possible and recycling… I think his parents have really picked up on how important it is to us to be environmentally responsible and they are making some changes (3:41-44)

The most common pro-environmental activity mentioned by participants when describing parental influence was recycling. A female graduate student stated, "Mom's actions were in line with environmental responsibility. She was the one that made sure that everything was put in the right recycle bins and went out on time (6:32-35). An undergraduate student referred to her dad as "a big recycler" and said, "We always pick it up and recycle it" (13:30).

Other activities with parents included reducing energy usage, composting, farming and even protesting. A graduate student in his late twenties explained:

> I guess my dad, especially for a period of time, would have been in that environmentalist kind of group because I remember at some point they were going to put a dump near where we lived and there were people that were going to town meetings and standing outside of where they were going to build it and did like a little picket thing, so, at one point I remember going with my dad to a couple of those meetings. (5:98-103)

(d) Employers

Several participants mentioned their work, employers and coworkers as sources of encouragement for pro-environmental actions. This was mentioned regularly in interviews with graduate students completing degrees in environmental disciplines such as Ecology or Landscape Design. However, it was also mentioned by an undergraduate journalism major in her early twenties who stated, "I work at a local family-owned cooking store and they really promote living green. They purchase local and we talk about environmental responsibility" (15:22-23).

(e) Environmental Organizations

Participants that attended the meetings of environmental organizations found that social relationships within these organizations encouraged pro-environmental action. One participant

had joined a group because of an assignment to research an environmental organization in preparation for study abroad. Another participant that was a married graduate student said, "I think the different organizations that my husband is a part of encourage environmental responsibility. It is constantly the topic and other people there are making changes, so you can learn from them and feel encouraged by that" (3:410-412).

(3) Social Pressures that Discouraged Pro-environmental Action

Most participants intended to take action on their pro-environmental knowledge. Peers, social stigma, the discouraging influence of quitters and complainers, generational misunderstandings and employers and coworkers were mentioned as social groups and social dynamics that discouraged participants from taking pro-environmental action.

(a) Peers

Peer opinion was mentioned repeatedly as either encouraging or discouraging pro-environmental action. One undergraduate biological science major said, "I am glad my roommates all like to recycle. If even one of them had said, 'Well that is stupid! I do not want to do it!' I probably would have said, 'Okay, we won't do it'" (12:67-72). Peer pressure was also mentioned by graduate students as discouraging pro-environmental action; one graduate landscape architecture student stated that when he was among people who did not practice recycling or other pro-environmental behaviors, he would "just go with the flow" (1:545).

(b) Social Stigma Associated with Environmental Activism

More than one quarter of participants mentioned concern with being overly committed to pro-environmental action. The kind of activism associated with the term "environmentalist" was stigmatized. This issue became apparent in the very first interview when I asked a graduate student if he considered himself an environmentalist. He responded that "environmentalist" was

such a loaded term that he would not admit to being one even in the comfort of his own home. He was quite sure he would never openly admit to being one in a public setting. Other participants shared his concern. A female graduate student in her twenties explained that the term "environmentalist" conjured up "pictures of people with big signs, protesting, and having very strong opinions" (6:25-26). Both graduate and undergraduate students mentioned a strong social stigma within their network of friends associated with being an "environmentalist." An undergraduate mentioned in his interview that "the term environmentalist… is a political term" (7:36). A female graduate student stated, "I am not a Greenpeace member. I am not an activist in terms of an aggressive activist. I would never contribute to those organizations" (17:213-217).

(c) The Discouraging Influence of Quitters and Complainers

Participants mentioned that when people gave up on pro-environmental action, it was very discouraging. A few mentioned friends that had given up. A female graduate student in her twenties referred specifically to professors that had given up and said, "They were environmentally responsible at one point but now … they don't want to have anything to do with it because they have tried it and have been unfulfilled (2:38-40). These comments confirm that expert opinion and example strongly affect participants. If experts endorsed pro-environmental behavior it influenced participants to adopt the behavior but if after they endorsed the behavior they retracted their endorsement, its impact could be devastating. Participants also mentioned that when students complain about the difficulty of living in an environmentally responsible way, they find that it discourages them from taking pro-environmental action.

(d) Generational Misunderstandings

A quarter of participants listed family members as a source of discouragement. A female graduate student in her late twenties said, "My grandparents… are ones that still don't believe

global warming is actually happening, that it is propaganda" (6:40-44), she went on to explain that she cannot talk with them about environmental issues without producing a strong disagreement, so she avoids the topic when she is with them. A female undergraduate Journalism major in her early twenties said, "With my family, it is kind of a generation thing where they just don't believe we have had as much of an impact as we actually have, so they sometimes hinder me because in their eyes we have not actually affected earth very much" (15:261-263). A female graduate student in her upper thirties said, "Most of my family and friends that I've grown up with probably hinder me from making environmentally good decisions because of lack of information and knowledge" (16:198-200).

(e) Employers and Coworkers

Participants also identified work associates and workplace environments as discouraging to pro-environmental action. One graduate student in his twenties said,

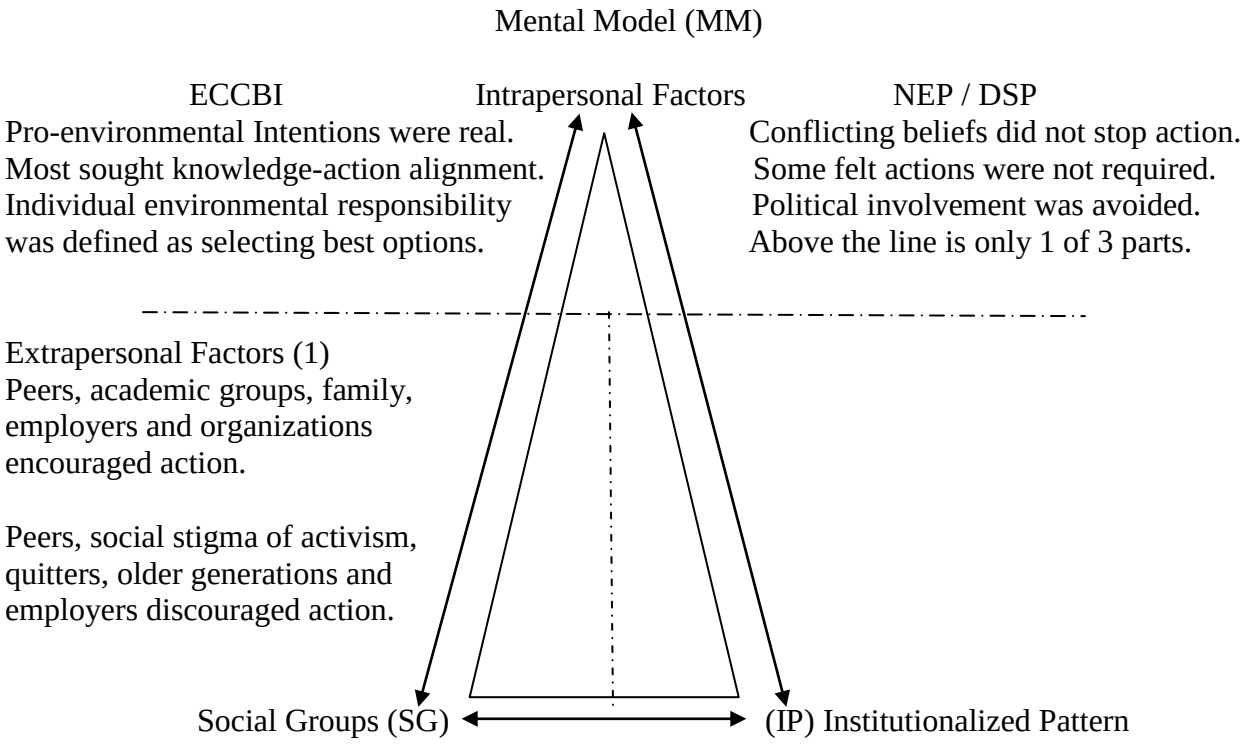
> The place that I worked at before starting grad school was a copper tubing factory, and we used lots of harsh chemicals and oils. I think they would pay lip service to environmental responsibility but not necessarily follow through on it just because it is what they depended on to make money. Most people kind of avoided talking or thinking about the environment. (5:92-96)

(f) Summary on Social Groups

As participants returned from Costa Rica, the majority intended on aligning their behaviors with their updated environmental knowledge. Some were encouraged to take pro-environmental action by people within their social network. Others were discouraged from taking pro-environmental action by people in their social network. Professors, peers, and family members were powerful influences in either encouraging or discouraging participants from taking pro-environmental actions consistent with their pro-environmental knowledge. The opinion and influence of social groups was not the only variable revealed in interviews. The

pattern of society was not neutral, it could either encourage or discourage pro-environmental action, and after a quick review of the knowledge-action process, it will be our next topic..

Figure 6.2 Social Group Influence on the Knowledge-action Process



(4) Societal Patterns that Encouraged Pro-environmental Action

Participants mentioned more discouraging societal patterns than encouraging ones. On the encouraging side, multiple participants made references to the Office of Sustainability, recycling, bus routes, new buildings and bike lanes as recent UGA developments that have encouraged the student body to develop a more pro-environmental lifestyle.

(a) Office of Sustainability

Throughout this study, participant references to the Office of Sustainability increased. It was mentioned as I interviewed students from the first study abroad program. A graduate student majoring in Landscape Design said, “I am glad that they have the Sustainability Office….and are

looking toward moving towards using locally supplied food. The new buildings are LEED certified. I think the campus is going in the right direction" (3:392-399).

(b) Recycling, Bus Routes, LEED Buildings and Bike Lanes

Several graduate students noted that the campus atmosphere was moving in a pro-environmental direction. One graduate student listed several pro-environmental changes:

> There is the recycling program…. The creation of the office of sustainability is a step in the right direction. The new LEED certified buildings… I think that all new buildings have to be at least LEED silver from this point forward. The Arts School I think is an example of one. They have a green-roof … that I think is a step in the right direction… They have a great public transit system here in place. There are bike racks and things like that. In transportation, they do an okay job, better than a lot of communities (1:511-520).

Another graduate student felt that UGA was doing a lot to promote a pro-environmental orientation on campus. She said:

> I see an awful lot of facilitation going on. You've got the recycling boxes and they are not as prevalent as the trashcans but they are there. I know in our studios we have a whole big bin dedicated just to recyclables and paper. The bus system is very, very helpful. I am not a bike rider and so life becomes more difficult if you don't want to drive a car, if they don't have some alternate form of transportation. There are some issues with buses and how much pollution they are putting in the air as opposed to a car but still I think it is a move in the right direction (6:443-448).

Interview participants reflected their pro-environmental beliefs in the excitement they expressed when communicating about the positive changes they had seen at UGA. They were clearly excited about positive changes, but spoke with even more emotional intensity about their frustration with the multiple obstacles present in American society that hindered them from carrying out their pro-environmental intentions.

(5) Societal Patterns that Discouraged Pro-environmental Action

Participants returned from Costa Rica to a fast-paced, unsustainable, party-oriented, car dominated pattern of life. Instead of accepting American lifestyle as normal, they examined and

assessed it, and found that it was anti-environmental. They classified it as too spread out, too busy, too plastic and as producing too much waste. They found that the comforts of this lifestyle were addictive and that attempts to significantly alter their lifestyle met with strong resistance.

(a) Few Pro-environmental Options in My America

An undergraduate Biological Science major in her early twenties was a Georgia resident. When she returned, she observed, "When I go home there is not a bus, you have to drive everywhere…. There is not even an organic grocery store" (12:290-295). An undergraduate religion and sociology student in her early twenties stated:

> My America has been very disconnected… with everybody rushing around, like everybody is stressed all the time, and everybody puts so much emphasis on materialistic things, and there just wasn't a lot of that in Costa Rica and there was so much time to be quiet and reflective. And I don't think, as far as my America has been, it is not reflective at all. It is very much like just rush to the next thing and that is definitely to our detriment. I think that we are so wasteful and I knew that to begin with but just going through these experiences makes it hit home a little harder that America has so much and its wastes so much and it wants so much. (9:196-204)

A female undergraduate Education major in her early twenties concluded that "to come back to the US was really tough because you kind of realized, wow there is a lot that we've got to do" (20:225-227).

(b) The American Pattern Is Just Too Much

Participants described different aspects of the U.S. pattern as being over the top. They referred to America as too spread out, too busy, too plastic and producing too much waste. An undergraduate religion and sociology student said, "We are so spread out. When I went to Italy, I walked to everywhere and I loved it…. Here you have to use cars. There is no way around it" (9:428-436). A graduate student in his early thirties felt the whole lifestyle pattern was too busy. He said, "There is a lot of eating on the run and a culture of grab it and go. We are busy, we have

things to do" (1:574-584). An undergraduate Ecology and Language major noted that there was too much plastic. "There is plastic on every single thing that we do. We use plastic. Very little of it ends up being recycled" (7: 291-295). There was strong consensus that U.S. society produced too much waste. An undergraduate Biological Science major had worked for a wedding catering company. She said that "they threw out so much food, that it was ridiculous!" (12: 46)

(c) Consumer Comforts Were Addictive

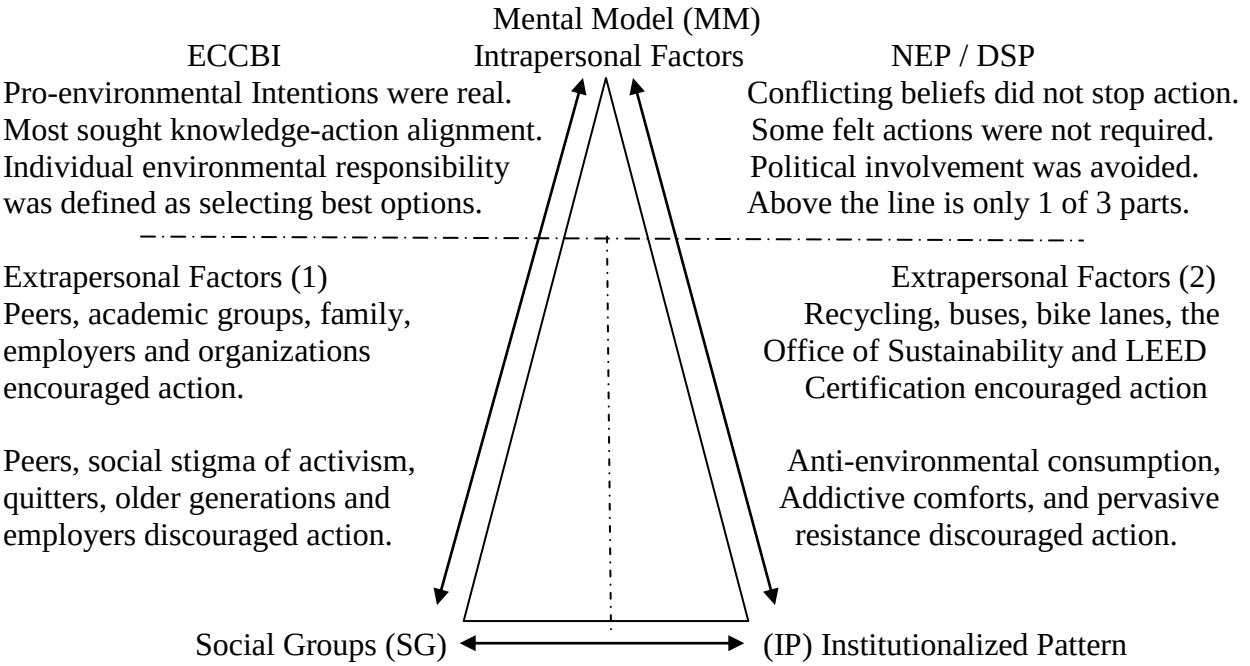
During study abroad, several participants realized that they were addicted to the comforts and conveniences of consumer-driven capitalism. Two graduate students with strong pro-environmental values spoke of their appreciation for American convenience. One stated, "I am going to be honest about it. We can have whatever we want whenever we want it. We are a consumer culture. I knew that but it kind of put it in a different perspective. I think I am conflicted about it…. I like it but I think it is bad" (2:116-122). A second graduate student said, "I am not as sustainable as I like to think I am. I like my creature comforts. I am not quite where I like to think I am and probably never will be…. That is part of who I am" (6:174-176).

(d) Pervasive Resistance to Pro-environmental Change

Several participants indicated that they were aligning their actions with their updated pro-environmental knowledge by selecting from available pro-environmental options. They did not anticipate major societal change because people and organizations within the larger U.S. society were not open to pro-environmental change. I have already mentioned that one graduate student and her husband petitioned an apartment complex to provide recycling. Their request was publically accepted but corporately ignored. Another graduate student in her thirties said, "I try not to make environmental responsibility a casual conversation topic because there is a lot of conflict in some circles. If I'm out and meet someone, I would not start talking about

environmental issues" (17:20-22). A graduate student in her twenties, preparing for a career in Landscape Design explained, "The world is set up so you cannot do what is best" (4:15).

Figure 6.3 Institutionalized Societal Patterns and the Knowledge-action Process



D. Qualitative Findings

The expanded framework guided the collection and analysis of qualitative data in this study. It accurately predicted knowledge-action negotiation, demonstrated that participation in study abroad triggered serious assessment of consumer behaviors and documented the struggle of study abroad participants to modify their behaviors after returning to American from Costa Rica.

(1) The Framework Accurately Predicted Knowledge-action Negotiation

I have examined the three areas outlined in the expanded framework for understanding the knowledge-action process. VBN surveys measured intrapersonal variables in the mental models of participants and interviews provided a window into the world of participants and confirmed that the pro-environmental intentions indicated in survey scores were accurate. Most interview participants were endeavoring to align their individual actions with their pro-

environmental knowledge and therefore classified themselves as environmentally responsible as long as they were negotiating individual action steps within their current contextual limits. Participants realized that they could not always do what was best.

(2) Study Abroad Participants Struggled with Application

Participants returned from Costa Rica with strong intentions to align their actions with their newly acquired pro-environmental knowledge. Interviews revealed that participants struggled with how to apply the principles of sustainability that they had seen in a rural context in an urban setting. The question of applicability in Athens was raised by several participants. An undergraduate student in her early twenties stated,

> At UGA CR it is important to be at one with the environment in a sense. It seems that they respect the environment and they treat it as if it was almost like a person that is someone else that you need to consider. They have more respect for the environment as if it is a person that does not have a voice. They are trying to think like, what can we do to make the environment better off? Opposed to here, there is not that great of a concern for the environment, but there again there are a lot more things that UGA Athens has to take into consideration as opposed to UGA CR. Like UGA Athens is a lot bigger, there are a lot more students; there are so many other intricate parts of running the school. UGA CR is so small. It is easier to live and act and make the atmosphere environmentally stable in a smaller arena than on this grand scale. (8:375-383)

(3) Negotiation Was Ongoing in the Knowledge-action Process

At the close of Chapter 2, I presented a framework for encouraging pro-environmental action. I suggested that individuals that considered themselves environmentally conscious negotiated trade-offs in the knowledge-action process. Participant comments reflected that negotiation was ongoing. An undergraduate English major in his early twenties said:

> Here, life itself is probably the biggest deterrent to actually being more environmentally conscious, because things get so busy, things get in the way. There ends up being a lot of work to do or you have to get somewhere and you don't really have options a lot of times. I have to go to Atlanta for this and I have to drive there. I don't really have a choice. When things get busy; people, myself included, end up looking more inward at

> what we need to do to get what we need to get done, rather than actually considering the wider implications of things, which is more difficult. (10:262-267)

(a) Limited Time

Participants were negotiating trade-offs between efficiency and environmental responsibility. How much time and effort did pro-environmental actions require? An undergraduate student in her early twenties, completing studies in Economics said, "It is easier to do the less environmentally responsible thing. It is more of a hassle to recycle" (8:22). She also stated that more often than not, educational efficiency won in negotiation. She explained that "in Athens, what is important… is just passing the class and being able to go downtown and party" (8:420-423). Even a graduate student completing a degree in an environmentally-related field of study felt the need to prioritize efficiency. He stated,

> There is always more that I feel like I could do and there are corners that I cut when I am in a hurry, particularly when it comes to things like carpooling or walking to class. Sometimes I just get in a hurry and I drive. And it is 20 minutes to walk and it takes me 8 minutes to drive, so I am only shaving off about 12 minutes. For some reason, at a certain point I feel like I am in too much of a hurry to walk. I think time is the biggest factor when it comes to the decisions that I think I should make or know I should make and the decisions that I actually make (1:38-43).

There was evidence across interviews that participants negotiated knowledge-action alignment based on the cost of responsible action in terms of time efficiency.

(b) Limited Economic Resources

There was also evidence throughout interviews that participants negotiated knowledge-action alignment based on economic costs. A female graduate student in her late twenties really wanted to eat locally produced foods but explained, "There may not be much of difference in price between the organic fruits and vegetables and the Wal-Mart variety, but the reality is I cannot afford the organic ones at this point in time (6:456-458). An undergraduate Biological

Science major in her early twenties said virtually the same thing. “I feel as much as I would like to buy all fresh vegetables and only shop at Earth Fare, I just can’t afford it, honestly. I still buy fruits and vegetable, but I don’t buy organic” (12:179-183).

(c) Limited Options for Renters

Participants mentioned that there were certain pro-environmental actions that they were postponing until they entered a more permanent housing arrangement. They were not purchasing more energy efficient appliances and composting because those investments only made sense if you were going to be in the same location for an extended period of time. As students, they rented apartments and had limited control over appliances and land use. A graduate student in her twenties said, “I am limited in some ways by living in an apartment where I do not have as much control over some of the things that I would like to change” (3:17-18). An undergraduate Education major in her early twenties said, “I am living in a rented house and there are many things that I can’t really do on this property because it is rented… I cannot start my own compost pile out the back; they would probably be upset (20: 240-242).

I have examined the knowledge-action process through the windows provided by participant interviews. I tend to become so focused on the details that I fail to appreciate the broader landscape view. I close this chapter with the broader landscape view.

(4) Study Abroad Programs Triggered Transformative Learning

I selected participants in study abroad programs at UGA Costa Rica because I believed that the influence of nonformal learning experiences at a pro-environmental campus would affect participants as they received and evaluated pro-environmental information. Interviews confirmed this prediction. Study abroad programs at UGA Costa Rica triggered pro-environmental transformative learning in many participants. For some, transformative learning was triggered by

seeing the beauty of biodiversity. For others, transformative learning was triggered by meeting Costa Ricans who connected their personal identify with their land.

The comments of one graduate student revealed the impact of seeing the cloud forests. She knew in theory that her actions affected biodiversity but seeing the forests changed her.

> I will always have that image in my mind of the primary forest down there that I would not for the world want to see destroyed. I think that is really an important place. We need to keep that. So, knowing that the choices I make have an impact on that, now it has an image… something physical as opposed to some theory about what the world should be like. My image of a primary forest has an actual physical location now. (6:306-310)

An undergraduate Religion and Sociology student mentioned that she had taken classes about biodiversity but seeing it was an eye opener:

> It is funny that I say it was an eye opener because I fully realized environmental impact, I have had those classes, I have had those conversations but it is just another thing when you actually see it completely in action. I took away from the experience, the beauty of the earth and I think I wrote in my journal so many times that I was just awed by the vastness and the complexity. I took away how incredible it is that there is such life available on the earth and it is just right there too. It was just incredible for me that a tiny little plot of land, the size of this room right here, and there could just be millions of things living and working together and just teaming. The entire environment just teamed with life. (9:146-153)

E. Concluding Summary

Study abroad programs triggered limited transformative learning that led participants to return to the U.S. intending to align their behaviors with pro-environmental knowledge. The majority of participants took individual actions and recycled, reduced their energy footprint and purchased green products. They negotiated pro-environmental actions within contexts that offered both encouragement and discouragement to those who wanted to apply pro-environmental intentions in tangible lifestyle changes. Participants avoided political commitments, did not want to be associated with environmental activism, and were uncertain about how to apply principles of sustainability in an urban context.

CHAPTER 7

RESEARCH FINDINGS

I began this study to find out why some people holding pro-environmental beliefs take action, while other people holding pro-environmental beliefs, who were apparently exposed to the same or similar information, do not take action. Moran (2006) believes "we probably have no more than another 50-60 years to turn our production and consumption behavior around" (176). If Moran's prediction is an accurate assessment of our current environmental reality, there is cause for alarm, because Americans, while expressing high levels of environmental concern for more than 20 years, have not significantly altered American behavioral patterns. This study utilized VBN surveys, a tool from environmental mobilization studies, to measure the attitudes of Americans and documented that the aforementioned pattern persists among Americans that participated in study abroad programs at UGA Costa Rica. During study abroad, their already high biospheric concern increased but upon their return to the United States, their concern failed to resolve contextual factors that had previously created knowledge-action gaps. In this final chapter, I summarize research findings by answering three questions. First, did I complete this study as outlined? Second, what answers did the study provide to the primary research question? Third, what questions are raised by these findings? After answering these three topics, I conclude the study with closing comments.

A. Did I Complete The Study Stages?

I outlined six stages near the end of Chapter 1 that would need to be completed in order to answer the research question. The first was to complete a literature review on environmental

mobilization theory (Clover 2002; Dietz et al. 1998; Gurung 2005; Kollmus and Agyeman 2002; Stern 2000) and this first stage was completed through the information presented in Chapter 2. The second was to gain access to a purposive sample of American people in the knowledge-action process and this sample was identified in Chapter 3. The third stage was to design the study and systematically carry out data collection and this was described in Chapter 4 and completed through the data presented in Chapters 4 through 6. The fourth stage was to statistically calculate the environmental orientation of study participants at the beginning and end of study abroad programs and results were presented in Chapter 5. The fifth stage was to identify important contextual factors in the knowledge-action process and these were identified and presented in Chapter 6, providing a more comprehensive understanding of the process.

B. What Answers Did the Study Provide?

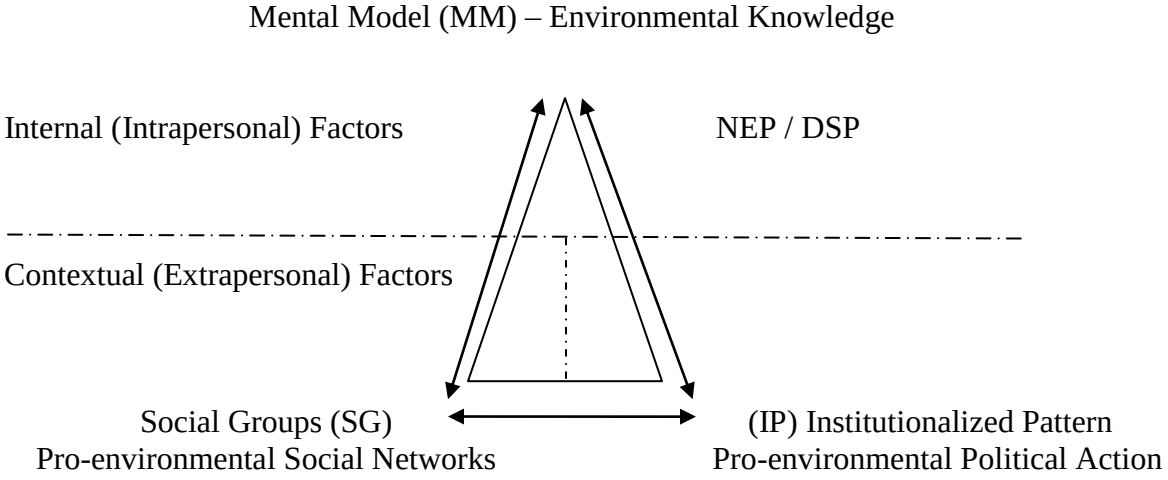
This study found that the majority of participants expressed pro-environmental beliefs at the beginning of their study abroad experience and maintained those pro-environmental beliefs throughout the study. Participants returned from study abroad intending to align their pro-environmental beliefs with corresponding pro-environmental actions and in fact, took action on easily adoptable pro-environmental behavioral alternatives. However, the adoption of pro-environmental action was not automatic as participant had to live out beliefs and values in daily work and residential contexts where choices were limited by the availability of pro-environmental alternatives, individual awareness of pro-environmental options, and attitudes within social networks toward pro-environmental behaviors.

The findings of this study are not revolutionary; they confirm that previously documented patterns persist. However, the study does produce a more comprehensive understanding of the pro-environmental knowledge-action process that provides insights into why attempts at

environmental mobilization through environmental education have often produced less than anticipated results among Americans. I began the study with VBN theory and constructed a theoretical framework from established cognitive theory compatible with social psychology. The work of Strauss and Quinn (1997) stood out to me as particularly appropriate because it represented the culmination of years of research in cognitive and psychological anthropology, Quinn (2010a) received a lifetime achievement award from the Psychological Anthropology Association for her work, and Quinn indicated that the development of the cognitive theory of cultural meaning was one of her greatest achievements. This theory and corresponding theoretical insights that led to its development and followed its development were reviewed and incorporated into an expanded framework for examining the knowledge-action process. This study confirmed that the environmental knowledge-action process involves more than receiving and agreeing with environmental information. Beliefs and values, while important, must be lived out in specific American contexts. The study documented that if participants faced strong opposition toward pro-environmental action within social groups or if pro-environmental alternatives were deemed too costly either in terms of time or money, then knowledge-action gaps occurred. If participants sensed social support for proposed actions and the costs associated with pro-environmental alternatives were deemed acceptable, then participants took action. This suggests that environmental mobilization efforts must include but not be limited to information concerning environmental conditions. If the knowledge –action process involves three areas, then attempts to reduce knowledge-action gaps must address all three areas. Communicating environmental knowledge is an essential part of effective mobilization because it can increase pro-environmental beliefs and values, but it must be accompanied by the creation of pro-environmental social networks that encourage the adoption and spread of pro-environmental

behaviors, as well as efforts to increase involvement in pro-environmental political action to create and expand pro-environmental options in institutionalized behavioral patterns.

Figure 7.1 Applying Our Understanding of the Knowledge-action Process



At the conclusion of Chapter 1, I listed seven questions that were linked to a more comprehensive understanding of the knowledge-action process. Answering the first six of those seven questions will provide a more detailed breakdown of the answers this study provided to the central question.

Table 7.1 Seven Additional Questions

1	Did participants consider themselves to be acting responsibly within their context?
2	How did participants justify inactivity after the reception of compelling information?
3	What variables hindered or facilitated private individual pro-environmental action?
4	What variables hindered or facilitated public collaborative pro-environmental action?
5	What questions raised in the literature review were addressed?
6	What questions raised in the literature review were left unanswered?
7	What questions were raised by this study?

(1) Did Participants Consider Themselves to Be Acting Responsibly?

Nineteen of 20 interview participants felt they were acting responsibly by taking personal action on the pro-environmental options that were available within their work and living contexts. This response could indicate that participants overcame multiple barriers to take pro-

environmental action (Kempton et al. 1995) but a review of interview data clarified that participants took action because changes had occurred in their work and residential contexts that increased the visibility and acceptability of pro-environmental options. They were not directly involved in bringing about those changes, but appreciated the corresponding increase in pro-environmental alternatives. These actions included establishing the Office of Sustainability, increasing public transit, facilitating recycling, providing bike racks, and a variety of other developments in Athens (Office of Sustainability 2012; Office of Sustainable Endowments Institute 2011). Participants returned from study abroad with an increased willingness to act on pro-environmental options, but the key to breaking the impasse between pro-environmental concern and pro-environmental action was significantly increasing accessibility to and attitude toward pro-environmental options.

(2) How Did Participants Justify Inactivity?

Most participants took advantage of available pro-environmental alternatives such as recycling, purchasing green products, and reducing their energy consumption as they returned to the University of Georgia campus. However, even participants with high pro-environmental orientations sometimes failed to recycle or reduce their energy footprint and offered corresponding justifications for why they sometimes did not live in an environmentally responsible manner. Their reasons differed depending on where they resided. Those living outside of Athens stated that the pattern of life itself in Atlanta or in rural Georgia was the big obstacle to pro-environmental action. The greatest need in these areas was to increase the availability of pro-environmental alternatives. Those in Athens stated that social pressure sometimes kept them from taking pro-environmental action, but this was decreasing with the increase of pro-environmental attitudes and alternatives on campus. Participants in Athens also

mentioned that time pressures associated with the completion of educational assignments took priority and produced lapses in pro-environmental action. These lapses did not appear to be long-term; rather they were momentary lapses in pro-environmental behavior during times of high stress. Once academic requirements were met, pro-environmental behaviors returned.

(3) What Variables Hindered or Facilitated Individual Action?

Pro-environmental study abroad programs had informed and motivated participants to take advantage of pro-environmental alternatives available within their context. Participants were individually making limited lifestyle changes but were not collaboratively identifying and solving actual problems (Groom et al. 2006). They were well-informed concerning environmental issues and could provide clear definitions of environmental responsibility but were not actively involved in collaboratively and democratically working to alter the U.S. system (US Department of Education 2012). Participants were so busy in their academic endeavors that individual pro-environmental actions had to be carried out within the time constraints and financial limitations of individual participants and any pro-environmental actions that were not efficient in terms of time and finances were rejected. Collaboration typically provided less flexibility for fitting into predetermined academic schedules and this presented a significant obstacle for collaborative action.

Study results confirmed that VBN surveys measure several key variables in the intrapersonal area of the knowledge-action process (Dunlap 2008; Dunlap et al. 2000; Stern et al. 1999; Wynveen et al. 2011) and that there tends to be a cumulative effect in VBN variables that produces significant increases in the intention of participants to become more ecologically conscious in their consumer behaviors. A majority of participants returned from study abroad programs intending to increase their pro-environmental behaviors and took private individual

pro-environmental actions such as recycling, purchasing green products and reducing energy consumption. The study revealed that participants held pro-environmental values, desired a closer connection to the environment, and were concerned about the health of the environment. It also indicated that participants consistently avoided involvements in political actions that required collaborative effort; therefore, their behaviors were limited to accepting available options within their context and voting for candidates endorsing pro-environmental positions.

Table 7.2 Three Areas that Reveal Answers to the Central Research Question

Area	Internal Beliefs	Social Relationships	Societal Patterns
Study findings	affirm understanding	expand understanding	expand understanding
Pro-environmental influences	American concern for the environment was affirmed. Most participants sought knowledge-action alignment and self-assessed as being responsible	Pro-environmental action was encouraged by peers, academic groups, family, employers and environmental organizations.	Pro-environmental action was facilitated by recycling, public transit, bike lanes, the Office of Sustainability and LEED Certification.
Anti-environmental influences	Participants avoided identification with Environmental Activism	Pro-environmental action was discouraged by pervasive anti-activism stigma, quitters, older generation and employers.	Pro-environmental action was hindered by consumption patterns, addictive comforts and pervasive resistance to change.
Partial answers to central question	Participants adopted available pro-environmental options as long as it did not conflict with time and financial priorities. Believed they would do more in next life phase.	Participants were more likely to take pro-environmental action if they received social encouragement and less likely if they received social discouragement.	Participants took action if the society provided pro-environmental options. In strongly anti-environmental contexts, participants accepted limitations.

(4) What Variables Hindered or Facilitated Collaborative Action?

These findings, while affirming that UGA Costa Rica had a positive effect on participants in one area of the knowledge-action process, also indicate that improving the effectiveness of the educational transfer of pro-environmental information does not address the two other areas that cause knowledge-action gaps because these causes are contextual not

internal. Environmental education programs that focus primarily on environmental information are failing to fully prepare or motivate participants to actively engage in changing societal patterns. These 20 participants returned with a willingness to adopt available pro-environmental options but remained politically uninvolved in efforts to change American societal patterns. Interviews revealed that priority was given to the completion of educational obligations and their lack of political involvement was justified based on the importance of academic achievement during this period of life. Participants opted instead for the adoption of available pro-environmental behaviors, weekend hikes, and camping trips to reconnect with nature.

While these findings were disappointing, interviews also revealed that participants were highly motivated immediately following their return to America from Costa Rica; they spoke with similar emotional intensity about completing their studies and protecting the environment, which suggested that immediately following their return to America both issues were what D'Andrade (1992) called master motive schemes. Participation in study abroad programs at UGA Costa Rica increased biospheric concern to a master motive level. That is significant, for it suggests that participants could have been motivated immediately following their return to take collaborative pro-environmental action if appropriate opportunities had been available, but without immediate pro-environmental encouragement within the participant's context, actual changes were limited to the adoption of available time-efficient pro-environmental behaviors.

All participants indicated that the opinions expressed within their social networks influenced their actions. Participants repeatedly mentioned an anti-activist bias within their social networks, even in networks that encouraged pro-environmental action. In those networks, it was acceptable to take pro-environmental action but activism was strongly discouraged. If there was strong encouragement, participants were likely to take pro-environmental action and if there was

strong discouragement, participants were likely to develop knowledge-action gaps. More than half of interview participants adopted socially approved pro-environmental behaviors.

During the study, I identified key societal patterns that facilitated pro-environmental behaviors. Participants expressed strong support for these kinds of developments in Athens, such as recycling bins, improved public transit systems, bike lanes, the Office of Sustainability and LEED Certification for new buildings. While participants applauded these improvements at the University of Georgia, they described the larger American society as remaining largely unchanged and saw its overall lifestyle pattern as a hindrance to pro-environmental action and did not see changing this pattern as an viable option because of America's deeply rooted commitment to anti-environmental consumption-driven economic growth. They noted that American society offered addictive comforts and resisted pro-environmental change.

(5) What Questions Raised in the Literature Review Were Addressed?

The literature review included studies on how to encourage change in internal and contextual areas with Strauss (1997) suggesting reflection, emotion, and identity as three key steps toward implementing internal change. In interviews, participants repeatedly *reflected* on the importance of recycling, reducing one's energy footprint, or purchasing green products. They voiced positive *emotion* associated with these actions and negative *emotion* toward geographic areas in the state where these options were not available. The vast majority of participants connected personal responsibility with their *self-identity*. In terms of facilitating contextual change, Strauss (1997) listed social discourse, strong emotions, repeated presentations and the development of people, practices and social institutions. Half of the interview participants mentioned their engagement in *social discourse*, talking in favor of pro-environmental policies. Strong *emotional* linkage was evident in approximately one-fourth of interviews with some

participants having difficulty putting the strength of their emotions into words. Recent pro-environmental change on the UGA campus in Athens involved *repeated pro-environmental presentations*. The final element listed by Strauss (1997) is the *development of people, practices and social institutions*. There has been progress in this area (Office of Sustainability 2010) with participants talking about their visits to the Office of Sustainability or friends that work there.

The literature review included individual and social transformation theories. Individual critical thinking skills were exercised as participants evaluated pro-environmental options available in their society (Short 2010) and found ways to adopt those actions. They welcomed a more sustainable attitude on campus, but were not open to political involvement at a level that would produce strategic societal change (Kollmus and Agyeman 2002). They appreciated increases in pro-environmental options but were not involved in social transformation (Freire 1999), preferring to limit their involvement to the transformation of their own thinking and lifestyles (Mezirow 2000; Taylor 2008).

In order to assure that all literature questions were addressed, I reviewed Chapter 2 and compared the questions it raised to the answers presented in this chapter. I found that this study confirmed the VBN hypothesis that if individuals (1) strongly value the environment, (2) hold beliefs consistent with the New Environmental Paradigm, (3) understand the consequences of environmental damage, and (4) perceive ways to reduce this damage; they will develop a sense of obligation to (5) purchase green products, recycle, reduce waste, protect the environment *as long as those options exist within their context*, (6) support pro-environmental policies *by exercising their right to vote* and (7) seriously consider altering their consumer lifestyle (Stern et al. 1999; Tarrant 2009a).

This study provided evidence that cultural models theory (Quinn and Holland 1987: Quinn 2005; Quinn 2010b) produced a reliable and more comprehensive explanation of the knowledge-action process. Participants mentioned that contextual factors were different in San Luis, Athens, rural Georgia and Atlanta. Clearly, considering the knowledge-action process from a variety of scales was helpful.

(6) What Questions Raised in the Literature Review Were Left Unanswered?

This study provided evidence that individual support for pro-environmental change existed without participants experiencing a complete ideological shift away from the Dominant Social Paradigm (Pirages and Ehrlich 1973). This was consistent with Strauss and Quinn's (1997) observation that change "always originates from existing conceptual systems" (4). Dunlap, Van Liere, Mertig and Jones (2000) noted that a gradual ideological shift was occurring; however, interview data in this study suggested that DSP beliefs continued to have strong support even among some participants that demonstrated strong pro-environmental knowledge and action alignment. This suggested that the adoption of pro-environmental behaviors did not require a complete ideological shift and raised once again the possibility of increasing pro-environmental motivation to take action by linking it to religious beliefs (Kempton et al. 1995), including those rooted in the biblical narrative (Bozonnet 2009). The question of whether pro-environmental actions can be fully supported by a theology of stewardship rooted in the biblical narrative was raised in the literature review but left unanswered by this study.

This study provides empirical evidence that study abroad programs encourage pro-environmental knowledge-action alignment in contexts where there are pre-existing pro-environmental options. Short (2010) defined one of the goals of environmental education as developing "long-term responsible behaviors" (11) and this study demonstrated that when study

abroad participants returned to contexts that encourage pro-environmental lifestyles, participants adopted pro-environmental behaviors. Unfortunately, their avoidance of involvement in the political process did not allow participants to create new pro-environmental alternatives within their context. There were reaching environmental consciousness (Clover 2002), becoming aware of environmental conditions and developing a sense of personal responsibility to practice available pro-environmental behavioral options; but this awareness did not go beyond basic consciousness, for it did not reach a critical level of environmental consciousness (Friere 1999; Shor 1987) that would involve both an analysis of the systemic structural support for anti-environmental patterns and participation in political action to change the pattern. The possibility of using study abroad programs to stimulate critical environmental consciousness was raised in the literature review but left unanswered by this study.

This study confirmed Tarrant's insight that environmental mobilization studies need to explore the assumptions of participants concerning responsible citizenship (Tarrant 2010). This study did not include an exploration of those assumptions because they fall within the category of internal factors, and this study primarily explored the contribution of contextual factors in the knowledge-action process. However, understanding participant assumptions concerning responsible citizenship could clarify participant preference for non-political individual actions. My focus in this study was on the fact that contextual factors significantly contribute to the pro-environmental knowledge-action process and were unexplored by VBN surveys. This study affirms the need to go deeper than VBN analysis, and my findings provide additional affirmation for the investigation of citizenship assumptions as internal factors in the knowledge-action process. I choose not to explore this area, but my findings affirm the importance of the research being conducted by Michael Tarrant.

C. What Questions Were Raised during the Study?

This study revealed that while participants were environmentally conscious, supporting private, individual pro-environmental behaviors; they were not working collaboratively to modify our capitalistic system that produces large amounts of waste and uses enormous amounts of energy. They were completing degrees to successfully position themselves within the system. This raised two questions. First, what part of society prepares and engages "the people" for changing the system? Secondly, what are the implications of this question for pro-environmental study abroad programs?

A publication of the U.S. Department of Education (2012) suggests that the U.S. educational system has the responsibility of preparing and engaging "the people" for changing the system on both a national and global scale:

> The return of the hundreds of billions of dollars invested in education each year must be measured not just in terms of individual success in educational attainment and in the job market or even national economic growth. It must also be gauged by how well the next generation of Americans is prepared to solve collective problems creatively and collaboratively. (2)

If preparing and engaging "the people" in the political process of collaborative change is the responsibility of the U.S. educational systems, what are the implications for pro-environmental study abroad programs? I see four implications. First, study abroad programs need to increase the pro-environmental concern of participants and find effective ways to motivate pro-environmental action. I hope that the findings of this study encourage educational planners at UGA Costa Rica for their work had a positive effect on study abroad participants.

Secondly, study abroad programs have an opportunity to move participants to the next level of commitment. This study documented that most participants at UGA Costa Rica arrived with a pro-environmental orientation. I hope that this realization encourages educational planners

to raise their educational objectives to reflect the fact that UGA Costa Rica programs draw participants that are already in agreement with pro-environmental beliefs. The affirmation of pro-environmental beliefs should continue, but educational planners at UGA Costa Rica have an opportunity to consider how their programs can affect the other two areas of the pro-environmental knowledge-action process. If participants arrive with pro-environmental beliefs they could acquire clear practical experience in how to turn beliefs into pragmatic actions. If they arrive with a commitment to private pro-environmental action, they could leave with a commitment to collaborative action. If they arrive with experience in routine pro-environmental behaviors they could leave with practical experience in creating new non-routine pro-environmental options. Their commitment to pro-environmental action could expand to include strategic collaborative political action.

Thirdly, study abroad programs at UGA Costa Rica are uniquely positioned to encourage participants to take pro-environmental action steps immediately after their return to the U.S. Modeling and explaining applicable behaviors at UGA Costa Rica could help. The modeling is occurring but making the linkage between a Costa Rican tropical zone application and a UGA temperate zone application was left up to participants. More participants would make the connection if additional explanation was provided. Linking participants to pro-environmental groups on campus would provide social encouragement for pro-environmental action and inform participants of collaborative events. The combination of these two suggestions could increase the speed of knowledge-action alignment.

The fourth implication is a logical outcome of delegating to education the responsibility of preparing "the people" to collaboratively resolve global difficulties (US Department of Education 2012). If "the people" are going to be prepared, they must develop political

knowledge and skill. This study documented the presence of knowledge-action gaps in relation to political action. Strategic collaborative political actions are required to significantly address the excesses of the U.S. capitalistic system of production. If the planners of study abroad programs want to add the development of political knowledge and skill for implementing societal change to their lists of primary tasks, discussions of the Earth Charter would be an effective way to begin the conversation. I noted that reading the Earth Charter was a requirement in the FRC Spring Break program (Earth Charter US 2011).

D. Concluding Remarks

Why do some people holding pro-environmental beliefs take action, while other people do not take action? In this study, I found people returned to different social networks in contexts that offered different pro-environmental alternatives; however, there was a consistent pattern across all the diversity. People took pro-environmental actions if they believed the environment was important, had members of their social network that encouraged their actions, and lived or worked in communities with available pro-environmental alternatives. I found that people could believe the environment was important and not take action when the actions they considered produced strong social disapproval or required unacceptable levels of personal investment. I also found that when study participants considered actions beyond private behaviors, social networks and social institutions mitigated against these actions in ways that discouraged individuals from taking collaborative political action. I found that participants prioritized the completion of academic programs above all other issues and I wonder if academic courses are being offered to UGA Costa Rica alumni that engage them in applied projects for pro-environmental change in American society.

The combination of rapid ethnographic assessment of nonformal pro-environmental educational experiences, followed by VBN surveys administered in a pre-program and post-program design, combined with interviews guided by an expanded analytical framework produced a more comprehensive understanding of the pro-environmental knowledge-action process. I enjoyed researching, appreciated the guidance and patience of my dissertation committee, and look forward to applying what I have learned in my work at Toccoa Falls College.

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APPENDICES

Appendix A: Comparative Analysis of Course Objectives

Syllabi for each of the courses offered in 9 programs were reviewed. Some syllabi listed course objectives while others included statements that revealed course objectives without directly listing them. To facilitate comparative analysis, objectives were listed in a consistent format for each of the courses offered in the 9 programs of this study. The objectives were analyzed by asking: Do you have to communicate some level of environmental information to accomplish these objectives? Highlighted objectives require basic levels of environmental knowledge. *Sustainability, conservation, ecologically sound* indicate pro-environmental information.

#	Programs, Dates and Courses	Course Objectives – Adapted to systematic format style
1	Nature and Environmental Design 7/09–7/30/2010 Joint syllabus included LAND 4910/6910 Landscape Architecture – Independent Project in Costa Rica and HIPR 4680/6680 Community Design Charrettes – Independent Project in Costa Rica	Students will: 1. Document the diversity of life zones and ecosystems as they tour three major regions of Costa Rica 2. Document their travel experiences using written journals, sketches, watercolors and photography 3. Be exposed to land planning, campus planning, resort development, tropical ecosystems, garden design, ecotourism, sustainable building and design, way finding and sense of place through lectures, discussions and travel. 4. Expand their worldview to include previously unexplored natural conditions, cultural values and daily experiences in an unfamiliar country.
2	Tropical Ecology 8/23–11/20/2010 ECOL 3100 Trop. Field Ecol. ECOL 3500 General Ecology ECOL 4960 Ecology Research	ECOL 3100 Tropical Field Ecology Students will: 1. Understand the major patterns of geology, and geography, biogeography, climate, and soils, of Costa Rica. 2. Gain proficiency in natural history and the observation of wildlife. 3. Develop skills of analysis and critical thinking. 4. Be aware of the interplay of structure, function, and behavior in the evolution and ecology of plants and animals. 5. Recognize the major groups of tropical flora and fauna, including plants, insects, amphibians, reptiles, birds, and mammals, and learn to identify them in the field. 6. Apply skills of observation and field taxonomy on visits to new areas, identifying unfamiliar species. ECOL 3500 General Ecology Students will: 1. Gain an appreciation of the complexity and simplicity of natural systems. 2. Gain foundational knowledge in preparation for advanced courses in ecology such as population and community ecology, behavioral ecology, limnology, and systems ecology.

		3. Gain a better understanding of system structure and regulation at the levels of organisms, populations, communities, and ecosystems. 4. Think in both a holistic and reductionist framework and utilize these perspectives to examine novel situations. 5. Evaluate environmental problems confronting society, and understand how to conserve and/or manage systems for future generations. ECOL 4690 Ecology Research Students will: 1. Focus on the design and implementation of original Neotropical field research. 2. Learn the fundamentals of project design. 3. Learn to critically analyze data. 4. Carry out self-designed research including data analysis, formal write up, and effective presentation of findings.

#	Programs, Dates and Courses	Course Objectives – Adapted to systematic format style
3	College of Environmental Design 8/30–11/19/2010 LAND 4050/6030 Region, Site, Place Sustainability LAND 4250/6240 Portfolio Development LAND 4360 Applied Landscape Ecology LAND 4910 Independent Study of Region, Site, or Place LAND 6330 Landscape Construction LAND 6912 Independent Project: Region, Site, Place	LAND 4050/6050 Region, Site, Place Sustainability Students will: 1. Demonstrate a clear understanding of a) the design process and its application to site design, b) the significance of interrelationships between local ecology, culture and the sense of place, and c) the application of principles of sustainability to site design. 2. Demonstrate the ability to a) quickly generate a variety of presentable concepts representing a broad field of solutions, b) use natural and cultural characteristics and systems to inform and direct design decisions, c) synthesize moderately complex programs with ecological systems and aesthetic considerations into harmonious solutions, d) generate grading plans and construction drawings in response to site and program constraints, and e) effectively communicate research and design solutions in oral, written and graphic forms. 3. Articulate why aesthetics, function and ecologically sound design are compatible, realistic and necessary. LAND 4250/6240 Portfolio Development Students will: 1. Develop awareness of the various elements that constitute a portfolio – selecting representative samples of completed work. 2. Demonstrate learning techniques of composition and design, using advanced graphic software. 3. Understand the importance of a good portfolio in career development. LAND 4360 Applied Landscape Ecology Students will: 1. Understanding how principles of landscape ecology can inform the processes of landscape design, planning and management. 2. Apply principles of landscape ecology to the planning of communities and the design of individual sites. 3. Understand the principles of habitat preservation,

		conservation and restoration and how these can be integrated into landscape design and planning. 4. Understand methods and practices of landscape design. 5. Be aware of the importance of respecting unique physical and ecological characteristics in landscape planning and design. 6. Be aware of the ecological costs of development and the potential for minimizing those costs. 7. Be aware of the potential positive relationship between ecologically sound landscapes and aesthetic quality. 8. Be aware of our potential to restore ecological function, productivity and aesthetic quality to previously degraded sites. LAND 4910 Independent Study of Region, Site, or Place Students will: 1. Understand the regional, cultural and physical determinants in landscape architecture, 2. Understand the unique characteristics of the Costa Rican landscape and their significance toward design in that region. 3. Understand the historic natural and cultural forces that have contributed to the shaping of the built environment. 4. Increase perceptual skills in seeing and interpreting both vernacular and built landscapes. 5. Increase their sensitivity to regional and cultural qualities in landscapes – creating designs that are more "place based" and grounded in regional and cultural context. 6. Appreciate regional and cultural contexts of physical design that reflect "place" and are rooted in "place". LAND 6330 Landscape Construction Students will: 1. Understand the professional basics of landscape construction drawing and specification; 2. Discover their own minds in application to landscape architecture; 3. Examine sources of landscape construction information; 4. Gain experience in the design and specification of three common types of landscape construction systems: pavement, wall, and boardwalk, in their full context of site-specific concerns. 5. Demonstrate the ability to a) read and prepare construction documents, b) apply construction criteria to a site specific project, c) be able to design a pavement, a wall and a boardwalk. 6. Promote "environmentally positive, financially sound, and sustainable solutions" in landscape construction. (ASLA Code of Environmental Ethics. http://www.asla.org/about/codeenv.htm). LAND 6912 Independent Project: Region, Site, Place (Same as LAND 4910 – listed above)

#	Programs, Dates and Courses	Course Objectives – Adapted to systematic format style
4	FRC Spring Break 3/12–3/20/2011 LACS 4900 Culture and Ecology of Costa Rica	LACS 4900 Culture and Ecology of Costa Rica Students will: 1. Meet weekly in preparation for 9 full days of immersion in Costa Rican ecology and culture! 2. Understand and Apply Sustainability Principles as outlined in The Earth Charter Text. 3. Appreciate Costa Rican culture and ecology. 4. Write a Reflective Journal concerning key issues.
5	GORP Outdoor Adv. and Astron. 5/17–6/8/2011 Astronomy 1020 – Stellar and Galactic Astronomy PEDB 1090 – Outdoor Adventure Activities	Astronomy 1020 Stellar and Galactic Astronomy Students will: 1. Work through *The Cosmic Perspective: Stars, Galaxies, and Cosmology* (6th ed.) PEDB 1090 – Outdoor Adventure Activities Students will: 1. Develop and participate in a minimum of 25 hours of adventure activities. Activities include trail hiking in rainforests and cloudforests. 2. Participate in 5 hours of class instruction on trip safety, trip preparedness, team-building and outdoor activity knowledge base. 3. Participate in adventure activities beyond class. 4. Understand the importance of exercise to overall health. 5. Gain knowledge of basic health, fitness and wellness principles.
6	Art and Culture in Latin America 5/17–6/8/2011 ARST 3120 Paint/Watercolor ARST 4180 Directed Study ARST 4900 Digital Photo	ARST 3120 Painting/Watercolor Students will: 1. Gain comfort in the use, value, color, line and general mark making to demonstrate space, volume, direction of light, and mood. 2. Gain a grasp of landscape, texture, architecture and figure studies. 3. Combine media 4. Understand how compositions adjust the way you think. ARST 4180 Directed Study in Painting (Same as above) ARST 4900 Digital Photography Student will 1. Study formal aspects of design, use of colors, and different compositional tools in photography. 2. Learn basic skills in digital photography. 3. Discuss difficulties and issues in visual literacy. 4. Examine contemporary artists' work. 5. Go beyond touristic pictures to capture the essence of Costa Rican place, people, and culture.

#	Programs, Dates and Courses	Course Objectives – Adapted to systematic format style
7	Warnell Core in Costa Rica 6/8–7/5/2011 FANR 4201/6201 Spatial Analysis for Integrative Natural Resource Problem-Solving FANR 4202/6202 People, Economics and Nature in Global Contexts	FANR 4201/6201 Spatial Analysis for Integrative Natural Resource Problem-Solving Students will: 1. Understand fundamental concepts of geographic information systems (GIS), including spatial data structures, map projections, and systems 2. Use aerial photography and satellite imagery to map terrestrial and aquatic features relevant to natural resource management 3. Create spatial datasets through air photo interpretation and GPS surveys 4. Use GIS software to import spatial data, create custom maps, query spatial databases, and perform basic spatial analyses 5. Understand how and when geospatial data and techniques would improve understanding of a research or management question. 6. Be able to converse with others about the utility of geospatial analysis in your field of study 7. Be able to assist others with the use and application of geospatial data 8. Apply GIS techniques and methods to address real-world natural resource, ecology, and management issues both in the US and abroad FANR 4202/6202 People, Economics and Nature in Global Contexts Student will: 1. Discuss the history of societal values for nature and natural resource conservation, both domestically and internationally. 2. Describe the role of economics in natural resource decision making. 3. Solve basic resource allocation problems. 4. Provide examples of natural resource conflicts, identify the perspectives of different groups of stakeholders, and discuss approaches to conflict resolution and decision making. 5. Distinguish private and social optimization. 6. Identify instances when market solutions are inefficient and describe why this occurs. 7. Describe the impact of regulation and control on renewable natural resources. 8. Conduct basic cost-benefit analysis, including discounting of future costs and benefits.

#	Programs, Dates and Courses	Course Objectives – Adapted to systematic format style
8	Nature and Environmental Design 7/16–8/1/2011 HIPR 4680/6680 Community Design Charrettes – Independent Project in Costa Rica LAND 4910/6910 Landscape Architecture – Independent Project in Costa Rica	HIPR 4680/6680 Community Design Charrettes – Independent Project in Costa Rica Students will: 1. Provide community members with design recommendations and other resources based on their goals for their property. 2. Engage with other students and faculty in dynamic and thoughtful discussions based on readings and shared experiences in and of the place. 3. Creatively express, through writings, illustrations, and photographs, the study abroad service-learning experience. 4. Gain an appreciation for and an understanding of: a. San Luis heritage, culture and place; b. Ecotourism opportunities; c. Community development; d. Cloud forest environment (flora and fauna). LAND 4910/6910 Landscape Architecture Independent Project in Costa Rica Students will: 1. Understand issues of place in response to existing wildlife habitats and native flora within the natural environment of Costa Rica. 2. Propose design improvements to the UGA Costa Rica Campus to be realized, after the semester, and constructed using local labor and materials. 3. Develop an applied understanding of Plant forms, Plant Layering, Plant communities, Bird communities, Plant selection, as well as site inventory, analysis, and synthesis.
9	Language and Culture Service Learning Course 7/6–8/1/2011 Joint syllabus for LING 2100 – Intro to Linguistics; LLED 4620 – ESOL Service Learning; LLED 5040 - Language and Culture	LING 2100, LLED 4620, and LLED 5040 Students will: 1. Intensively explore the concepts of language and reading and their relationship to culture and how this relationship affects the teaching of English to non-native speakers in a school setting. 2. Experience cultural immersion in a setting which is unfamiliar to most course participants in terms of both language and culture. 3. Cultural immersion will position us to reflect on and develop an understanding of a) our own and others‟ language use; b) critical perspectives on socio-cultural interactions and their impacts on language use, acquisition and teaching; c) how we conceive of reading inside and outside schools; and d) how language and literacy are acquired and used within and outside schools and how teachers might use that knowledge to address the needs of diverse student populations.

Conclusions:

The courses in 6 of the 9 programs (1. Nature and Environmental Design 2010; 2. Tropical Ecology 2010; 3. The College of Environmental Design 2010; 4. FRC Spring Break 2011; 7. Warnell Core in Costa Rica 2011; 8. Nature and Environmental Design 2011) require the communication and/or affirmation of significant amounts of pro-environmental information in order for students to accomplish course objectives.

The courses in 3 of the 9 programs (5. GORP Outdoor Adventure and Astronomy; 6. Art and Culture in Latin America; 9. Language and Culture Service Learning Course) contain objectives that could be used to link course content to pro-environmental information, but course objectives could be accomplished without the communication and/or affirmation of significant amounts of pro-environmental information.

APPENDIX B: Consent Form

I, _____, agree to participate in a research study titled "An Examination of Transformative Education in Environmentally-based Study Abroad," conducted by Jonathan S. Penland from the Department of Anthropology at the University of Georgia (706-542-1463) under the direction of Dr. J. Peter Brosius, Department of Anthropology, University of Georgia (706-542-1463). I understand that my participation is voluntary. I can refuse to participate or stop taking part at anytime without giving any reason, and without penalty or loss of benefits to which I am otherwise entitled. I can ask to have all of the information about me returned to me, removed from the research records, or destroyed.

The reason for this study is to examine the transformative learning process that study-abroad programs trigger. Transformative environmental learning is a process involving assessment of core values that leads to pro-environmental action steps.
If I volunteer to take part in this study, I will be asked to do the following things:

1) **Answer a survey at the beginning of the study abroad program [TAKES APPROXIMATELY 30 MIN].**
2) **Answer a second version of the same survey at the end of the study abroad program [TAKES APPROXIMATELY 30 MIN].**
3) **I may be asked to participate in an interview lasting approximately one hour approximately one month after the program.**
4) **I may be asked to participate in a final interview lasting approximately one hour five months after the program.**

There are no direct benefits for participation in the study, but participation in the study may help me think through my own perspectives concerning the environment and my responsibility toward it. The researcher hopes that this study will provide information to those planning environmental study-abroad programs that will make the programs more transformative for learners.

No risk of any kind is expected for survey participants. Interview participants may experience some added stress, but this stress will be no greater than the normal stress faced in everyday life experience. PARTICIPANTS MAY SKIP ANY QUESTIONS THAT CREATE DISCOMFORT OR STRESS.

Those who participate in the interviews will receive a one-year gift membership to the Nature Conservancy [$10.00 VALUE] which includes a year-long subscription to the Nature Conservancy Journal. [The Co-researcher will keep a chronologically dated list of all interviews. Part A of each numbered interview will be the first interview. Part B of each numbered interview will be the second interview. Each interview will be assigned an interview number with its corresponding A or B. At the completion of the second interview (Part B) the participant will be asked to check a statement that thanks him or her for completing both interviews and reaffirms that he or she will be receiving a one-year gift membership to the nature conservancy. A mailing address will be needed so that the gift membership can be activated. As soon as the gift membership has been activated, the co-principal researchers will notify the interview participant by e-mail.]

No individually-identifiable information about me, or provided by me during the research, will be shared with others without my written permission. The researcher will take the following steps to insure the confidentiality of this study:

1. **Surveys are numbered. A separate sheet will list student names with survey numbers but names will not be on surveys.**
2. **Student names are needed in order to contact approximately 20% of students for follow-up interviews after the program. Once interviews are completed, the list of survey numbers and names will be destroyed.**
3. **Interviews will be tape recorded for transcription purposes. During transcription a randomly selected pseudonym will be used in place of student names. When interview transcripts are complete, tapes of interviews will be destroyed.**
4. **All surveys, interview materials, and participant lists will be kept in a locked storage case by the researcher.**

5. **A list of student names and pseudonyms will be kept until the completion of the study. At the completion of the study all lists that contain student identity information will be destroyed.**

The investigator will answer any further questions about the research, now or during the course of the project.

I understand that I am agreeing by my signature on this form to take part in this research project and understand that I will receive a signed copy of this consent form for my records.

Jonathan S. Penland	_____	_____
Name of Researcher	**Signature**	**Date**
Telephone: (706) 491-6418		
Email: ibjp@uga.edu		
_____	_____	_____
Name of Participant	**Signature**	**Date**

Please sign both copies, keep one and return one to the researcher.

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu

APPENDIX C: Pre-Program and Post-Program Surveys
The Construction of Pre-Program Survey A

I have organized the following information to correspond to the seven composite measures utilized in this study. Tarrant's VBN survey collects additional information which has been described after the seven composite measures.

Section 1 Personal values will be assessed using three value orientations on a 7-point response scale from 7 ("Extremely important as a guiding principle for you) to 1 ("Not at all important as a guiding principle for you") (Stern, 2000; Stern et al., 1999; Stern et al., 1995).

A. Biospheric (items 1-4),
    - PV1a – Unity with nature, fitting in with nature
    - PV2a – Protecting the environment, preserving nature
    - PV3a – Respecting the Earth, harmony with other species
    - PV4a – Preventing pollution, conserving natural resources
B. altruistic values (items 5-7),
    - PV5a – A world at peace, free of war and conflict
    - PV6a – Equality, equal opportunity for all
    - PV7a – Social justice, correcting injustice, care for the weak
C. egoistic values (items 8-11)
    - PV8a – Authority, the right to lead or command
    - PV9a – Influential, having an impact on people and events
    - PV10a – Wealth, material possessions, money
    - PV11a – Social power, control over others, dominance

Section 2 The revised New Ecological Paradigm (NEP) Scale (Dunlap et al., 2000) will be used as an indicator of general environmental concern. Agreement with the eight odd-numbered items and disagreement with the *seven even-numbered* items indicate pro-NEP responses. A 7-point response scale from 7 ("Strong Agree") to 1 "Strongly Disagree") with a mid-point of 4 ("Neither Agree or Disagree") will be used.

- NEP1a – We are approaching the limit of the number of people the Earth can support
- *NEP2a – Humans have a right to modify the environment to suit their needs*
- NEP3a – When humans interfere with nature it often produces disastrous consequences
- *NEP4a – Human ingenuity will insure that we do NOT make the earth unlivable*
- NEP5a – Humans are severely abusing the environment
- *NEP6a – The earth has plenty of natural resources if we just learn how to develop them*
- NEP7a – Plants and animals have as much right as humans to exist
- *NEP8a – The balance of nature is strong enough to cope with the impacts of modern industrial nations*
- NEP9a – Despite our special abilities humans are still subject to the laws of nature
- *NEP10a – The so-called "ecological crisis" facing humankind has been greatly exaggerated*
- NEP11a – The earth is like a spaceship with very limited room and resources

- *NEP12a – Humans were meant to rule over the rest of nature*
- NEP13a – The balance of nature is very delicate and easily upset
- *NEP14a – Humans will eventually learn enough about how nature works to be able to control it*
- NEP15a – If things continue on their present course, we will soon experience a major ecological catastrophe

The NEP will be examined as both a single dimensional scale and also as a multi-dimensional scale in which three items are hypothesized to tap into each of five hypothesized facets of an ecological worldview:

A. The reality of limits to growth (1, 6, 11),
    - NEP1a – We are approaching the limit of the number of people the Earth can support
    - *NEP6a – The earth has plenty of natural resources if we just learn how to develop them*
    - NEP11a – The earth is like a spaceship with very limited room and resources
B. Anti-anthropocentricism (2, 7, 12),
    - *NEP2a – Humans have a right to modify the environment to suit their needs*
    - NEP7a – Plants and animals have as much right as humans to exist
    - *NEP12a – Humans were meant to rule over the rest of nature*
C. The fragility of nature's balance (3, 8, 13),
    - NEP3a – When humans interfere with nature it often produces disastrous consequences
    - *NEP8a – The balance of nature is strong enough to cope with the impacts of modern industrial nations*
    - *NEP12a – Humans were meant to rule over the rest of nature*
D. Rejection of exemptionalism – the notion that humans are exempt from the constraints of nature (4, 9, 14),
    - *NEP4a – Human ingenuity will insure that we do NOT make the earth unlivable*
    - NEP9a – Despite our special abilities humans are still subject to the laws of nature
    - *NEP14a – Humans will eventually learn enough about how nature works to be able to control it*
E. The possibility of an eco-crisis (5, 10, 15) (Dunlap et al., 2000).
    - NEP5a – Humans are severely abusing the environment
    - *NEP10a – The so-called "ecological crisis" facing humankind has been greatly exaggerated*
    - NEP15a – If things continue on their present course, we will soon experience a major ecological catastrophe

Section 3 Awareness of Consequences (AC) of Environmental Conditions will be measured using the Scale of Beliefs about Consequences of Environmental Conditions (Stern et al., 1995). A 7-point response scale from 7 ("Strong Agree") to 1 "Strongly Disagree") with a mid-point of 4 ("Neither Agree or Disagree") will be used.

A. AC biosphere (items 1 and 2),
    - AC1a – Over the next decade, thousands of species of plants and animals will become extinct

- *AC2a – Claims that we are changing the climate are greatly exaggerated*

B. AC altruism (items 3 and 4), and
   - AC3a – Environmental protection benefits everyone
   - AC4a – Environmental protection will help people have a better life

C. AC egoism (items 5 and 6).
   - AC5a – Environmental protection will provide a better world for me and my children
   - AC6a – Environmental protection is beneficial to my health

Section 4 Awareness of Responsibility (AR) will be measured using two-items: "How responsible are you for environmental problems" (from Schultz and Zelenzy, 1998) and "How would you rate your overall personal responsibility to improve the environment (from Zelenzy et al., 2000). A 7-point response scale from 7 ("Extremely Responsible") to 1 ("Not at all Responsible") will be used.

- AR1a – How responsible are you for environmental problems?
- AR2a – How would you rate your overall personal responsibility to improve the environment?

Section 5 Personal Environmental norms/obligation will be measured using an eight-item Personal Environmental Norm scale from Minton and Rose (1999) adapted from Schwartz (1977) with a reported alpha coefficient of .95. The response format is a 7-point scale from 7 ("Very Strong Personal Obligation") to 1 ("No Obligation") with higher scores indicating a stronger personal norm. All items begin with "Do you feel a personal obligation to…"

- PEN1a – Buy environmentally friendly products for your household?
- PEN2a – Recycle household waste?
- PEN3a – Pay attention to advertisements about products which are safe for the environment?
- PEN4a – Read and compare package labels for environmentally safe ingredients when you shop?
- PEN5a – Buy products made from recycled ingredients?
- PEN6a – Buy larger size products in order to reduce waste?
- PEN7a – Do whatever you can to help protect the environment?
- PEN8a – Buy products made by companies known for being environmentally responsible?

Section 6 Policy Support for public environmental policies is measured on a 7-point scale from 7 ("Strong Agree") to 1 ("Strongly Disagree") with a mid-point of 4 ("Neither Agree or Disagree; Stern et al., 1999); and

- PS1a – I would be willing to pay much higher taxes in order to protect the environment
- PS2a – I would be willing to accept cuts in my standard of living to protect the environment
- PS3a – I would be willing to pay much higher prices in order to protect the environment

Section 7 Ecologically Conscious Consumer Behavior uses 10 items selected from the 29-item, six-factor, Ecologically Conscious Consumer Behavior (ECCB) scale (Roberts and Bacon, 1997). The first two scales have reported internal reliabilities (alpha) of .78 (policy support) and .77 (for the 7-item environmental citizenship) (see Stern et al., 1999). All selected items had reported loadings on the respective factor of between .65 and .95 (Roberts and Bacon, 1997). A 7-point response scale from 7 ("Always True") to 1 ("Never True"), with higher scores indicating greater levels of ECCB, will be used. The 10 items selected from the ECCB represent four of the six factors:

A. Two items from the oil/driving factor,
    - ECCB1a – To save energy, I drive my car as little as possible
    - ECCB2a – To reduce our reliance on foreign oil, I drive my car as little as possible
B. Three items reflecting general recycling behavior,
    - ECCB3a – I use a recycling center or in some way recycle some of my household trash
    - ECCB4a – I have convinced members of my family or friends not to buy some products which are harmful to the environment
    - ECCB5a – I try only to buy products that can be recycled
C. Three items of general environmental consumption,
    - ECCB6a – I have switched products for ecological reasons
    - ECCB7a – When I purchase products, I always make a conscious effort to buy those products that are low in pollutants
    - ECCB8a – I do not buy household products that harm the environment
D. Two items from the electricity-saving factor
    - ECCB9a – I buy high-efficiency light bulbs to save energy
    - ECCB10a – I have purchases a household appliance because it used less electricity than other brands

ADDITIONAL SECTIONS

Section on Environmental Citizenship contains eight items/questions reflecting environmental citizenship (six of these are from Stern et al., 1999 with a response scale of "Yes" or "No," and one item reflects size of vehicle driven, and a single question asks about environmental group/organization membership).

A. Behaviors: In the last 12 months, have you…
    - EC1a – Read any newspapers, magazines, or other publications written by environmental groups?
    - EC2a – Signed a petition in support of protecting the environment?
    - EC3a – Given money to an environmental group?
    - EC4a – Written or called your member of Congress or another government official to support strong environmental protection?
    - EC5a – Boycotted or avoided buying the products of a company because you felt that company was harming the environment?

- EC6a – Voted for a candidate in an election at least in part because he or she was in favor of strong environmental protection?

B. Vehicle
    - EC7a – What is the engine size of the car/vehicle you normally drive?

C. Membership
    - EC8a – Are you are member of any group whose main aim is to preserve or protect the environment?

Section on Political Beliefs/orientation will be measured by asking respondents to indicate (by placing an "X") on a continuum with "Green" on the far left and "Libertarian" on the far right and "Democratic" and "Republican" at one-third and two-third intervals, respectively.

A. Political orientation
    - PB1a – Which of the following best describes your political orientation? [Green (Left-wing) – Democrat – Republican – Libertarian (Right wing)]

B. Post-materialism will be measured using an approach consistent with Stern et al. (1999) and with Oreg and Katz-Gerro (2006) in which respondents were asked to prioritize the top two political goals of four statements reflecting two materialist goals (maintaining order in the nation, fighting rising prices), and two post-materialist goals (giving people more say in important government decisions, protecting freedom of speech) for the United States. The post-materialism variable is scored 0 if the respondent selected neither postmaterialist items as a priority, scored 1 if a materialist item is the first priority but a post-materialist item as the second, scored 2 if a post-materialist item is first priority but a materialist the second priority and scored 3 if post-materialist items are selected as both first and second priorities. [Four items some people consider important priorities for the United States are: a. maintaining order; b. fighting inflation; c. giving more input in government decisions; d. freedom of speech]
    - PB2a – Which one of the four items do you consider the highest priority?
    - PB3a – Which one of the remaining items do you consider the second highest priority?

Section on Citizen Types provides three citizen categories: personally responsible, participatory, and justice-oriented.

- CTa – Which of the following best describes the type of citizen that you consider yourself to be?

Section on Environmental Citizenship Intensions for each of the environmental citizenship variables will be measured by asking respondents to indicate how likely is it they will perform the respective behaviors in the next 12 months on a 7-point Likert-type scale from 7 ("Extremely Likely") to 1 ("Not at all Likely"). Statements will be edited to reflect a future intention to act. In the next 12 months, how likely is in that you will…

- ECI1a – Read any newspapers, magazines, or other publications written by environmental groups?
- ECI2a – Sign a petition in support of protecting the environment?
- ECI3a – Given money to an environmental group?

- ECI4a – Write or called your member of Congress or another government official to support strong environmental protection?
- ECI5a – Boycott or avoid buying the products of a company because you feel that company is harming the environment?
- ECI6a – Vote for a candidate in an election at least in part because he or she is in favor of strong environmental protection?
- ECI7a – Consider changing the car/vehicle you normally drive to a smaller engine size?
- ECI8a – Become a member of any group whose main aim is to preserve or protect the environment?

Section on Ecologically Conscious Consumer Behavior Intensions for each of the three pro-environmental behavior variables will be measured by asking respondents to indicate how likely is it they will perform the respective behaviors in the next 12 months on a 7-point Likert-type scale from 7 ("Extremely Likely") to 1 ("Not at all Likely"). Statements will be edited to reflect a future intention to act; for example, instead of "To save energy, I drive my car as little as possible" (ECCB item), the revised item will read "To save energy, I will drive my car as little as possible."

- ECCBI1a – To save energy, I will drive my car as little as possible.
- ECCBI2a – To reduce our reliance on foreign oil, I will drive my car as little as possible.
- ECCBI3a – I will use a recycling center or in some way recycle some of my household trash.
- ECCBI4a – I will convince my family and friends not to buy some products which are harmful to the environment.
- ECCBI5a – I will try to only buy products that can be recycled.
- ECCBI6a – I will switch products for ecological reasons.
- ECCBI7a – When I purchase products, I will always make a conscious effort to buy those products that are low in pollutants.
- ECCBI8a – I will not buy household products that harm the environment.
- ECCBI9a – I will buy high-efficiency light bulbs to save energy.
- ECCBI10a – I will purchase household appliances which use less electricity than other brands.

Section on Personal Characteristics include gender (male or female), date of birth, zip code of permanent residence, institution, past study abroad experience, academic standing, major area of study, and size of residential area. Gender, date of birth, and zip code will be used to identify and match respondents for the repeated measures design.

- PC1a – Gender
- PC2a – Date of Birth
- PC3a – Zip code
- PC4a – University
- PC5a – Previously completed a study abroad program?
- PC6a – Which country and what year?

Previous Cross-cultural Exposure [Yes – No Questions]

- PC71a – Previously traveled to Costa Rica?
- PC72a – Previously had an overseas vacation for less that 4 weeks?
- PC73a – Previously had an overseas vacation for more than 4 weeks?
- PC74a – Have you previously lived overseas?
- PC75a – Are you, your parents, or grand-parents US immigrants?
- PC76a – Are you fluent in another language, in addition to English?

Sources of Motivation for Study Abroad [Likert scale Questions]

- PC81a – Parents/family
- PC82a – Professor/academic program of study
- PC83a – Personal goals
- PC84a – Tourist image of the country
- PC85a – Other (specify)

Section on Personal Reflection Questions are used to gather information for qualitative interviews and to explore potential themes. This information is not used in quantitative analysis.

- If I say "nature" what ideas or pictures come up in your mind?
- Which of the following activities were a part of your childhood?
- What/when are some of the earliest memories you have concerning nature?
- Describe how you view "global warming" differently than other people you know:
- What is an environmentalist? Are you one?
- Share anything else you think is important about your view of "nature"?

APPENDIX C (continued):
Construction of Post-Program Survey B

I have organized the following information to correspond to the seven composite measures utilized in this study. Tarrant's VBN survey collects additional information which has been described after the seven composite measures.

Section 1 Personal values will be assessed using three value orientations on a 7-point response scale from 7 ("Extremely important as a guiding principle for you) to 1 ("Not at all important as a guiding principle for you") (Stern, 2000; Stern et al., 1999; Stern et al., 1995).

A. Biospheric (items 1-4),
    - PV1b – Unity with nature, fitting in with nature
    - PV2b – Protecting the environment, preserving nature
    - PV3b – Respecting the Earth, harmony with other species
    - PV4b – Preventing pollution, conserving natural resources
B. Altruistic values (items 5-7),
    - PV5b – A world at peace, free of war and conflict
    - PV6b – Equality, equal opportunity for all
    - PV7b – Social justice, correcting injustice, care for the weak
C. Egoistic values (items 8-11)
    - PV8b – Authority, the right to lead or command
    - PV9b – Influential, having an impact on people and events
    - PV10b – Wealth, material possessions, money
    - PV11b – Social power, control over others, dominance

Section 2 The revised New Ecological Paradigm (NEP) Scale (Dunlap et al., 2000) will be used as an indicator of general environmental concern. Agreement with the eight odd-numbered items and disagreement with the *seven even-numbered* items indicate pro-NEP responses. A 7-point response scale from 7 ("Strong Agree") to 1 "Strongly Disagree") with a mid-point of 4 ("Neither Agree or Disagree") will be used.

- NEP1b – We are approaching the limit of the number of people the Earth can support
- *NEP2b – Humans have the right to modify the environment to suit their needs*
- NEP3b – When humans interfere with nature it often produces disastrous consequences
- *NEP4b – Human ingenuity will insure that we do NOT make the earth unlivable*
- NEP5a – Humans are severely abusing the environment
- *NEP6b – The earth has plenty of natural resources if we just learn how to develop them*
- NEP7b – Plants and animals have as much right as humans to exist
- *NEP8b – The balance of nature is strong enough to cope with the impacts of modern industrial nations*
- NEP9b – Despite our special abilities humans are still subject to the laws of nature
- *NEP10b – The so-called "ecological crisis" facing humankind has been greatly exaggerated*

- NEP11b – The earth is like a spaceship with very limited room and resources
- *NEP12b – Humans were meant to rule over the rest of nature*
- NEP13b – The balance of nature is very delicate and easily upset
- *NEP14b – Humans will eventually learn enough about how nature works to be able to control it*
- NEP15b – If things continue on their present course, we will soon experience a major ecological catastrophe

The NEP will be examined as both a single dimensional scale and also as a multi-dimensional scale in which three items are hypothesized to tap into each of five hypothesized facets of an ecological worldview:

A. The reality of limits to growth (1, 6, 11),
   - NEP1b – We are approaching the limit of the number of people the Earth can support
   - *NEP6b – The earth has plenty of natural resources if we just learn how to develop them*
   - NEP11b – The earth is like a spaceship with very limited room and resources
B. Anti-anthropocentricism (2, 7, 12),
   - *NEP2b – Humans have a right to modify the environment to suit their needs*
   - NEP7b – Plants and animals have as much right as humans to exist
   - *NEP12b – Humans were meant to rule over the rest of nature*
C. The fragility of nature's balance (3, 8, 13),
   - NEP3b – When humans interfere with nature it often produces disastrous consequences
   - *NEP8b – The balance of nature is strong enough to cope with the impacts of modern industrial nations*
   - *NEP12b – Humans were meant to rule over the rest of nature*
D. Rejection of exemptionalism – the notion that humans are exempt from the constraints of nature (4, 9, 14),
   - *NEP4b – Human ingenuity will insure that we do NOT make the earth unlivable*
   - NEP9b – Despite our special abilities humans are still subject to the laws of nature
   - *NEP14b – Humans will eventually learn enough about how nature works to be able to control it*
E. The possibility of an eco-crisis (5, 10, 15) (Dunlap et al., 2000).
   - NEP5a – Humans are severely abusing the environment
   - *NEP10b – The so-called "ecological crisis" facing humankind has been greatly exaggerated*
   - NEP15b – If things continue on their present course, we will soon experience a major ecological catastrophe

Section 3 Awareness of Consequences (AC) of Environmental Conditions will be measured using the Scale of Beliefs about Consequences of Environmental Conditions (Stern et al., 1995). A 7-point response scale from 7 ("Strong Agree") to 1 "Strongly Disagree") with a mid-point of 4 ("Neither Agree or Disagree") will be used.

A. AC biosphere (items 1 and 2),
    - AC1b – Over the next decade, thousands of species of plants and animals will become extinct
    - *AC2b – Claims that we are changing the climate are greatly exaggerated*
B. AC altruism (items 3 and 4), and
    - AC3b – Environmental protection benefits everyone
    - AC4b – Environmental protection will help people have a better life
C. AC egoism (items 5 and 6).
    - AC5b – Environmental protection will provide a better world for me and my children
    - AC6b – Environmental protection is beneficial to my health

Section 4 Awareness of Responsibility (AR) will be measured using two-items: "How responsible are you for environmental problems" (from Schultz and Zelenzy, 1998) and "How would you rate your overall personal responsibility to improve the environment (from Zelenzy et al., 2000). A 7-point response scale from 7 ("Extremely Responsible") to 1 ("Not at all Responsible") will be used.

- AR1b – How responsible are you for environmental problems?
- AR2b – How would you rate your overall personal responsibility to improve the environment?

Section 5 Personal Environmental norms/obligation will be measured using an eight-item Personal Environmental Norm scale from Minton and Rose (1999) adapted from Schwartz (1977) with a reported alpha coefficient of .95. The response format is a 7-point scale from 7 ("Very Strong Personal Obligation") to 1 ("No Obligation") with higher scores indicating a stronger personal norm. All items begin with "Do you feel a personal obligation to…"

- PEN1b – Buy environmentally friendly products for your household?
- PEN2b – Recycle household waste?
- PEN3b – Pay attention to advertisements about products which are safe for the environment?
- PEN4b – Read and compare package labels for environmentally safe ingredients when you shop?
- PEN5b – Buy products made from recycled ingredients?
- PEN6b – Buy larger size products in order to reduce waste?
- PEN7b – Do whatever you can to help protect the environment?
- PEN8b – Buy products made by companies known for being environmentally responsible?

Section 6 Policy Support for public environmental policies is measured on a 7-point scale from 7 ("Strong Agree") to 1 ("Strongly Disagree") with a mid-point of 4 ("Neither Agree or Disagree; Stern et al., 1999); and

- PS1b – I would be willing to pay much higher taxes in order to protect the environment
- PS2b – I would be willing to accept cuts in my standard of living to protect the environment

- PS3b – I would be willing to pay much higher prices in order to protect the environment

Section 7 Ecologically Conscious Consumer Behavior uses 10 items selected from the 29-item, six-factor, Ecologically Conscious Consumer Behavior (ECCB) scale (Roberts and Bacon, 1997). The first two scales have reported internal reliabilities (alpha) of .78 (policy support) and .77 (for the 7-item environmental citizenship) (see Stern et al., 1999). All selected items had reported loadings on the respective factor of between .65 and .95 (Roberts and Bacon, 1997). A 7-point response scale from 7 ("Always True") to 1 ("Never True"), with higher scores indicating greater levels of ECCB, will be used. The 10 items selected from the ECCB represent four of the six factors:

A. Two items from the oil/driving factor,
    - ECCB1b – To save energy, I will drive my car as little as possible
    - ECCB2b – To reduce our reliance on foreign oil, I will drive my car as little as possible
B. Three items reflecting general recycling behavior,
    - ECCB3b – I will use a recycling center or in some way recycle some of my household trash
    - ECCB4b – I will convince members of my family or friends not to buy some products which are harmful to the environment
    - ECCB5b – I will try to only buy products that can be recycled
C. Three items of general environmental consumption,
    - ECCB6b – I will switch products for ecological reasons
    - ECCB7b – When I purchase products, I will always make a conscious effort to buy those products that are low in pollutants
    - ECCB8b – I will not buy household products that harm the environment
D. Two items from the electricity-saving factor
    - ECCB9b – I will buy high-efficiency light bulbs to save energy
    - ECCB10b – I will purchase household appliances which use less electricity than other brands

ADDITIONAL SECTIONS

Section on Environmental Citizenship contains eight items/questions reflecting environmental citizenship (six of these are from Stern et al., 1999 with a response scale of "Yes" or "No," and one item reflects size of vehicle driven, and a single question asks about environmental group/organization membership).

A. Behaviors: In the next 12 months, how likely is it that you will…
    a. EC1b – Read any newspapers, magazines, or other publications written by environmental groups?
    b. EC2b – Sign a petition in support of protecting the environment?
    c. EC3b – Give money to an environmental group?
    d. EC4b – Write or call your member of Congress or another government official to support strong environmental protection?

e. EC5b – Boycott or avoid buying the products of a company because you feel that company is harming the environment?
f. EC6b – Vote for a candidate in an election at least in part because he or she was in favor of strong environmental protection?

B. Vehicle
- EC7b – Consider changing the car/vehicle you normally drive to a smaller engine size?

C. Membership
- EC8b – Become a member of any group whose main aim is to preserve or protect the environment?

Section on Political Beliefs/orientation will be measured by asking respondents to indicate (by placing an "X") on a continuum with "Green" on the far left and "Libertarian" on the far right and "Democratic" and "Republican" at one-third and two-third intervals, respectively.

A. Political orientation
- PB1b – Which of the following best describes your political orientation? [Green (Left-wing) – Democrat – Republican – Libertarian (Right wing)]

B. Post-materialism will be measured using an approach consistent with Stern et al. (1999) and with Oreg and Katz-Gerro (2006) in which respondents were asked to prioritize the top two political goals of four statements reflecting two materialist goals (maintaining order in the nation, fighting rising prices), and two post-materialist goals (giving people more say in important government decisions, protecting freedom of speech) for the United States. The post-materialism variable is scored 0 if the respondent selected neither postmaterialist items as a priority, scored 1 if a materialist item is the first priority but a post-materialist item as the second, scored 2 if a post-materialist item is first priority but a materialist the second priority and scored 3 if post-materialist items are selected as both first and second priorities. [Four items some people consider important priorities for the United States are: a. maintaining order; b. fighting inflation; c. giving more input in government decisions; d. freedom of speech]
- PB2b – Which one of the four items do you consider the highest priority?
- PB3b – Which one of the remaining items do you consider the second highest priority?

Section on Citizen Types provides three citizen categories: personally responsible, participatory, and justice-oriented.
- CTb – Which of the following best describes the type of citizen that you consider yourself to be?

Section on Personal Characteristics include gender (male or female), date of birth, zip code of permanent residence, institution, past study abroad experience, academic standing, major area of study, and size of residential area. Gender, date of birth, and zip code will be used to identify and match respondents for the repeated measures design.
- PC1b – Gender
- PC2b – Date of Birth
- PC3b – Zip code
- PC4b – University

- PC5b – Current class status
- PC6b – Intended major
- PC7b – Describe the area you life [City, suburb, town, rural]
- PC8b – Study Abroad Program participant is completing

Section on Personal Reflection Questions are used to gather information for qualitative interviews and to explore potential themes. This information is not used in quantitative analysis.

- What did you learn about the country you visited?
- What did you learn about the environment that you visited?
- What did you learn about yourself as an American?
- What did you learn about yourself as a global citizen and consumer?
- How have your perspectives about the world changed?
- Please take this opportunity to add anything further…

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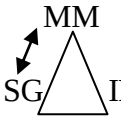
APPENDIX D: Survey Data Analysis Chart – Full Sample Data

VBN Survey Variables	VALID	NULL	Survey A Mean	Sur. A Std. Dev.	Sur. A Ave.	Survey B Mean	Sur. B Std. Dev.	Sur. B Ave	+ / -
1. Personal Values PVaSUM1to11 PVbSUM1to11	76	0	55.2105	6.76721	5.019	55.4184	8.30737	5.038	+.019
D. Altruistic PVaSUM5to7 / PVb/ UM5to7	76	0	17.0263	3.25361	5.675	16.9711	3.54396	5.657	(-.018)
E. Biospheric PVaSUM1to4 / PVbSUM1to4	76	0	22.8026	4.07274	5.701	23.4474	4.08377	5.862	+.161
F. Egoistic PVaSUM8to11/PVbSUM8to11	76	0	15.3816	3.75932	3.845	15.0000	4.67047	3.750	(-.095)
2. NEP Complete PVaSUM1to4w6to15 PVbSUM1to4w6to15	76	0	68.7750	10.22135	4.913	69.6553	10.96903	4.975	+.062
F. Limits NEPa1w6w11/NEPb1w6w11	76	0	13.3026	3.39419	4.434	13.8526	3.65402	4.618	+.184
G. Anti-anthropoc NEPa2w7w12 / NEPb2w7w12	76	0	15.3947	3.25813	5.116	15.4566	3.31632	5.152	+.036
H. Nature NEPa3w8w13 / NEPb3w8w13	76	0	14.8250	2.84277	4.942	15.1197	2.89809	5.04	+.098
I. Reject Human Exemptionalism NEPa4w9w14 / NEPb4w9w14	76	0	14.7355	2.60588	4.912	14.7868	2.72418	4.929	+.017
J. Eco-Crisis NEPa10w15 / NEPb10w15	76	0	10.5171	2.55073	5.259	10.4395	2.30501	5.220	(-.039)
3. A of Consequences ACa1to6 / ACb1to6	76	0	34.5039	5.14456	5.751	34.6592	5.64386	5.777	+.026
D. Altruistic ACa3w4 / ACb3w4	76	0	11.7895	2.15602	5.895	11.6711	2.47865	5.836	(-.059)
E. Biospheric ACa1w2 / ACb1w2	76	0	10.3066	2.33223	5.153	10.6184	2.30921	5.309	+.156
F. Egoistic ACa5w6 / ACb5w6	76	0	12.4079	1.73726	6.204	12.3697	2.04490	6.185	(-.019)
4. A of Responsibility ARa1w2 / ARb1w2	76	0	9.9211	1.98503	4.961	10.5526	2.11278	5.276	+.315
5. Personal Norms PENa1-8 / PENb1-8	76	0	39.6579	9.71398	4.957	41.9605	8.73223	5.245	+.288
6. Policy Support PSa1to3 / PSb1to3	76	0	13.9605	4.16474	4.654	14.4000	3.71304	4.800	+.147
7. Eco-conscious Consumer Behavior ECCBa1to10 ECCBIb1to10	76	0	43.2513	11.31018	4.325	51.5211	9.40111	5.152	+.827

APPENDIX E: Interview Guide

I am trying to understand the knowledge-action process and its role in environmental choices. Your answers are correct because they are what you think and do. I am glad you are honoring me by participating in this study and letting me have access to what you think. Later, if you want to update or change your interview information, just write me an e-mail. I will add and adjust the interview data based on your instructions.
Let's begin by talking about environmental responsibility:



[Motivation linked to social identities]

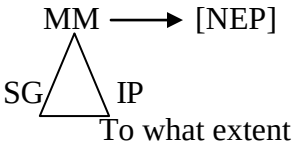
A. How would you describe an "environmentally responsible" person?

B. Are you that kind of person?

C. Who do you talk with about "the environment" or about making "responsible" choices?

D. Could you see yourself having a conversation about "environmental responsibility" with:

1. A professor in your major
2. Your current or last boss
3. Family members



To what extent are you in agreement with the following statements (paraphrased NEP). Provide a numerical total. Seven (7) indicates you are in full agreement, four (4) indicates partial agreement, and one (1) indicates full disagreement? You may want to say I agree but…

11. Human population growth increasingly threatens global environmental health.
12. Human population growth combined with current consumption patterns will at some point exceed the earth's maximum carrying capacity.
13. Human actions produce unanticipated impacts leading to environmental disasters.
14. Nature's balance can be upset if humans continue to abuse the environment
15. Humans should carefully study and monitor the modifications/changes they make in their environment and stop destructive environmental practices.

16. Environmental changes caused by the collective actions of 7 billion humans threaten local habitats of animal and plant species and may cause the extinction of some species.

17. Animal and plant species that are not overtly beneficial to humans have a right to exist.

18. Limited resources logically require humans to live in harmony with nature (sustainability).

19. Humans must seek the health of the environment, not only the meeting of human need.

20. Humans are abusing the environment. We will abuse it unless we plan "environmentally healthy economies" that control industrial growth and limit resource consumption.

[Triggers for transformative learning]

We have been talking about "environmentally responsible behavior." Costa Rica is advertised as a showcase of environmental biodiversity and sustainable ecotourism. There are many components and experiences in a study abroad experience.

1. What did you take away from the study abroad experience in Costa Rica?

2. What surprised you about study abroad?

3. What did you learn from the experience about yourself, your place and responsibility in the world, or your place and responsibility in the environment?

4. What types of environmentally responsible behaviors if any have you decided to continue or to begin after returning to the US?

5. Have you recommended study abroad to your friends?

    - What encourages you to do so or discourages you from doing so?

6. What is your opinion of the environmental responsibility…

    - Of UGA Costa Rica?

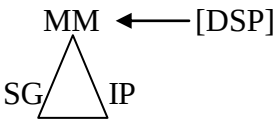
    - Of the Monteverde Cloud Reserve?

    - Of other places you went during your time in Costa Rica?

[Clarity on how to apply pro-environmental beliefs locally or a lack of commitment]

1. Has your experience in Costa Rica made you think seriously about how you live here in the US (at UGA)?
2. Do you think it will make any change in how you live after you graduate?
3. This question has two parts. First, are you doing this? Secondly, are you more likely to do / not do this after study abroad?

    - Read environmental/conservation literature
    - Purchased green products
    - Find ways to reduce your energy footprint such as walking, biking, etc.
    - Participate in recycling
    - Check out a website of an environmental group / organization to join it
    - Write letters, send e-mails, or sign a petition for an environmental cause
    - Contribute funds to a conservation organization or for an environmental cause
    - Participate in eco clean-ups, fund-raising or awareness-raising events
    - Vote for candidates primarily based on their stand on environmental issues
    - Vote for changes in policies that would conserve the environment
    - Speak in favor of environmental policies that would conserve the environment
    - Support tax increases to discourage high energy use
    - Support increases in environmental regulation and accountability
    - Purchase energy efficient appliances or rent because of efficiency
    - Purchase a smaller home or rent a smaller apartment to conserve energy
    - Purchase a smaller car or more energy efficient car
    - Work on local environmental problems and solutions like recycling options
    - Be an environmental activist or a leader in a conservation organization



To what extent are you in agreement with the following statements (paraphrased DSP). Answer however you want. Seven (7) indicates you are in full agreement, four (4) indicates partial agreement, and one (1) indicates full disagreement? You may want to say I agree but…

1. I am an individual. I am primarily responsible for my life, not the decisions of my society.
2. Science and technology will ultimately find acceptable way to increase our harvests and efficiency in order to meet the demands of growing population and consumption. (NEP 4a)
3. Personal freedom is very important. I believe in small government and that ultimately the market itself should decide the limits to industrial growth.
4. Nature must be studied, refined, modified, and maximized. It must be used to be of significant value to humans.
5. Humanity is making progress. We have made mistakes but we are making progress.
6. Growth is necessary and with wise planning growth is good.
7. Material abundance is a key measure of success. It is a valid life goal.

As far as environmentally responsible behavior,

1. In what ways will study abroad at UGACR change the way you live at UGA Athens?
2. What environmentally responsible behaviors will you adopt at UGA Athens?
3. What beliefs and values have been strengthened through study abroad that motivate you to become more responsible in your behavior? (MM)
4. How do peers, social networks, family, or other social groups hinder or encourage you to take environmentally responsible actions? (SG)
5. How does life at UGA hinder or encourage you to take environmentally responsible actions? (IP)

APPENDIX F: Survey Data on Interview Participants

Participants 1-10

Interviewee	**1**	**2**	**3**	**4**	**5**	*sample*
Survey #	4	6	3	7	13	*mean*
1. Pre-PV	5.82	4.73	4.27	5.27	5.45	*5.02*
Post-PV	5.36	4.55	4.09	5.00	5.18	*5.04*
PV +/-	(-.46)	(-.18)	(-.18)	(-.27)	(-.32)	*.20*
2. Pre-NEP	5.71	5.43	5.71	4.43	4.21	*4.91*
Post-NEP	5.93	4.93	6.00	4.86	3.79	*4.97*
NEP +/-	+.22	(-.50)	+.29	+.43	(-.42)	*.06*
3. Pre-AC	6.67	5.22	6.17	7.00	5.83	*5.75*
Post-AC	6.67	4.83	6.00	7.00	5.33	*5.78*
+/-	0.00	(-.39)	(-.17)	0.00	(-.50)	*.03*
4. Pre-AR	5.50	5.00	5.00	6.00	4.50	*4.96*
Post-AR	6.00	4.00	6.00	5.00	5.00	*5.28*
+/-	+.50	(-1.00)	+1.00	(-1.00)	+.50	*.32*
5. Pre-PEN	5.63	5.13	6.38	5.63	5.38	*4.96*
Post-PEN	6.50	5.25	7.00	5.00	5.63	*5.25*
+/-	+.87	+.12	+.62	(-.63)	+.25	*.29*
6. Pre-PS	5.33	4.67	5.00	5.67	6.00	*4.65*
Post-PS	5.00	4.33	6.00	5.67	5.67	*4.80*
+/-	(-.33)	(-.34)	+1.00	0.00	(-.33)	*.15*
7. Pre-ECCB	4.84	5.00	6.10	5.04	5.40	*4.32*
Post-ECCBI	5.40	5.10	6.70	5.72	5.70	*5.15*
+/-	+.56	+.10	+.60	+.68	+.30	*.83*

Interviewee	**6**	**7**	**8**	**9**	**10**	*sample*
Survey #	14	9	35	33	34	*mean*
1. Pre-PV	5.36	4.36	4.64	5.45	4.55	*5.02*
Post-PV	4.45	5.09	4.55	5.00	4.82	*5.04*
PV +/-	(-.91)	+.73	(-.09)	(-.45)	+.27	*.20*
2. Pre-NEP	5.71	5.29	4.0 0	5.07	4.14	*4.91*
Post-NEP	5.71	5.57	4.29	5.50	5.21	*4.97*
NEP +/-	0.00	+.28	+.29	+.43	+1.07	*.06*
3. Pre-AC	6.17	6.00	5.33	6.50	4.67	*5.75*
Post-AC	6.67	6.67	5.17	6.67	6.67	*5.78*
+/-	+.50	+.67	(-.16)	+.17	+2.00	*.03*
4. Pre-AR	5.00	4.50	3.50	5.00	5.00	*4.96*
Post-AR	6.00	4.50	3.50	5.00	6.00	*5.28*
+/-	+1.00	0.00	0.00	0.00	+1.00	*.32*
5. Pre-PEN	6.50	4.25	2.50	5.13	2.38	*4.96*
Post-PEN	5.75	5.13	3.13	4.50	5.25	*5.25*
+/-	(-.75)	+.88	+.63	(-.63)	+2.87	*.29*
6. Pre-PS	5.33	5.00	2.33	5.33	4.66	*4.65*
Post-PS	4.33	6.00	3.33	4.67	5.33	*4.80*
+/-	(-1.00)	+1.00	+1.00	(-.66)	+.67	*.15*
7. Pre-ECCB	5.70	4.60	2.70	4.50	2.50	*4.32*
Post-ECCBI	5.80	5.90	3.50	5.00	5.30	*5.15*
+/-	+.10	+1.30	+.80	+.50	+2.80	*.83*

Participants 11-20

Interviewee	**11**	**12**	**13**	**14**	**15**	*sample*
Survey #	25	38	44	42	46	*mean*
1. Pre-PV	6.45	5.18	4.27	4.09	4.55	*5.02*
Post-PV	6.36	5.09	3.82	3.64	4.64	*5.04*
PV +/-	(-.09)	(-.09)	(-.45)	(-.45)	+.09	*.20*
2. Pre-NEP	5.50	4.00	5.00	5.95	4.64	*4.91*
Post-NEP	4.86	3.93	5.36	6.00	4.29	*4.97*
NEP +/-	(-.64)	(-.07)	+.36	+.05	(-.35)	*.06*
3. Pre-AC	6.83	4.17	5.00	6.67	5.00	*5.75*
Post-AC	6.83	4.00	4.50	5.17	5.00	*5.78*
+/-	0.00	(-.17)	(-.50)	(-1.50)	0.00	*.03*
4. Pre-AR	5.50	3.50	4.50	5.00	5.00	*4.96*
Post-AR	6.50	4.50	4.00	4.50	4.00	*5.28*
+/-	+1.00	+1.00	(-.50)	(-.50)	(-1.00)	*.32*
5. Pre-PEN	6.00	4.00	3.63	6.00	5.25	*4.96*
Post-PEN	6.25	4.25	3.13	5.63	5.63	*5.25*
+/-	+.25	+.25	(-.50)	(-.37)	+.38	*.29*
6. Pre-PS	3.67	3.00	3.33	7.00	4.00	*4.65*
Post-PS	6.00	4.33	2.33	7.00	4.33	*4.80*
+/-	+2.33	+1.33	(-1.00)	0.00	+.33	*.15*
7. Pre-ECCB	5.20	3.60	3.00	4.50	4.10	*4.32*
Post-ECCBI	6.00	4.30	4.00	4.50	5.30	*5.15*
+/-	+.80	+.70	+1.00	0.00	+1.20	*.83*

Interviewee	**16**	**17**	**18**	**19**	**20**	*sample*
Survey #	59	62	74	75	72	*mean*
1. Pre-PV	4.73	4.63	4.36	5.18	4.63	*5.02*
Post-PV	5.73	4.91	4.55	5.27	4.27	*5.04*
PV +/-	+1.00	+.28	+.19	+.09	(-.36)	*.20*
2. Pre-NEP	4,42	5.00	5.07	6.21	4.14	*4.91*
Post-NEP	3.93	5.00	5.86	6.21	4.86	*4.97*
NEP +/-	(-.49)	0.00	+.79	0.00	+.72	*.06*
3. Pre-AC	5.83	6.83	5.33	6.67	4.50	*5.75*
Post-AC	5.00	6.17	6.50	6.17	6.00	*5.78*
+/-	(-.83)	(-.66)	+1.17	(-.50)	+1.50	*.03*
4. Pre-AR	5.50	5.50	5.00	5.00	2.50	*4.96*
Post-AR	6.00	5.50	5.50	5.50	4.50	*5.28*
+/-	+.50	0.00	+.50	+.50	+2.00	*.32*
5. Pre-PEN	5.88	5.00	4.13	5.38	1.25	*4.96*
Post-PEN	5.38	5.00	6.00	6.38	4.25	*5.25*
+/-	(-.50)	0.00	+1.87	+1.00	+3.00	*.29*
6. Pre-PS	4.67	5.33	5.00	4.33	1.33	*4.65*
Post-PS	4.00	4.33	6.00	5.67	4.00	*4.80*
+/-	(-.67)	(-1.00)	+1.00	+1.34	+2.67	*.15*
7. Pre-ECCB	3.50	5.10	3.98	5.60	1.20	*4.32*
Post-ECCBI	5.00	4.80	5.50	6.00	4.00	*5.15*
+/-	+1.50	(-.30)	+1.52	+.40	+2.80	*.83*

APPENDIX G: Individual Participant Scores with Quotes

Summaries are presented on each of the 20 interview participants. Each summary begins with descriptive data. Additional information was gathered on any early childhood experiences with nature and mental images associated with terms such as "nature" or "environment." Discussions with study abroad participants during initial rapid assessment research revealed the importance of understanding participant definitions of environmentalist and perspectives on global warming. Each of the following descriptions of interview participants provides gender, educational level, age, a list of nature-based childhood experiences, definitions of environmentalist and participant perspectives on global warning. This information is followed by a chart of comparative data from surveys. The first table provides the overall scores for the participant in each area of the VBN survey. NEP scores are then provided with a breakdown of each of the five question areas of the NEP and comparative data on the DSP scores of participants in values that correspond to NEP areas. The following table illustrates data layout.

Int. # 1	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	5.82	5.71	6.67	5.50	5.63	5.33	4.84	
B	5.36	5.93	6.67	6.00	6.50	5.00	5.40	
+/-	(-.46)	+.22	0.00	+.50	+.87	(-.33)	+.56	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	6	5	4.7	6.3	7
2 Post-program	5	5.7	5.7	7	6.5
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	3	4	4	1	7

The layout of data indicates that NEP data provided as part of the upper VBN table is further broken down into specific scores in five categories in the lower table. The table presents pre-program and post-program measures of the five NEP categories. The survey uses 15 questions to establish an NEP measurement for each participant. Each of the five categories was measured by

3 questions. The answer marked by each candidate in each category were added and divided by three. This provided a measurement for each participant on each of the five NEP categories plus an overall NEP score. All measures were on a 7-point Likert scale. The first NEP category was the reality of needing limits to growth. It was measured by NEP questions 1, 6, and 11. The second NEP category was having an anti-anthropocentristic view of the environment. It was measured by questions 2, 7, and 12. The third category was belief in the fragility of nature. It was measured by 3, 8, and 13. Rejection of human exemptionalism from nature's constraints was the fourth category. It was measured by 4, 9, and 14. The final category measured participant belief concerning the possibility of an eco-crisis. This was measured by questions 5, 10, and 15. An error in the printing of surveys failed to collect data on question 5 in the first 21 surveys. After discussion options with the survey's originator, Dr. Michael Tarrant, the decision was made to calculate the fifth category based solely on data from questions 10 and 15. Therefore, data in the first table will not at first glance appear to equal data from the second table if this omission of question 5 data is not noted. For example, the NEP score on Survey A is recorded as 5.71 but if the NEP average from each of the five categories listed in the second table is tabulated (6 + 5 + 4.7 + 6.3 + 7 = 29/5= 5.8), the score is 5.8. This is because the tabulation did not take into account the missing data from question 5. If the tabulation is modified to (6 x 3 + 5 x 3 + 4.7 x 3 + 6.3 x 3 + 7 x 2 = 18 + 15 + 14.1 + 18.9 + 14 = 80/14 = 5.71) the apparent inconsistency is resolved.

The final data line of the secondary chart provides self-reported measures of conflicting DSP beliefs and places that information in contrast to the NEP category it is most likely to contradict. Following the chart, brief summary observations are provided. Each introduction closes with a salient quote from the participant's interview.

Interview Participant 1

The first interview participant was a male graduate student in his thirties. His childhood connection to nature was hiking and camping. The terms "nature and environment" produced images of pristine forests, unpolluted rivers, gardens, urban parks, and green roofs. He had a broad knowledge of environmental issues previous to study abroad at UGACR. He defined an environmentalist as someone who takes an active role in protecting the environmental against threats. He viewed "global warming" as a looming threat caused by carbon dioxide emission. He believed all members of modern societies all responsible, not just big business. Study abroad did not really change his general perspective concerning the world but reinforced the importance of being responsible to protect fragile ecosystems. His scores were consistently pro-environmental.

Int. # 1	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	5.82	5.71	6.67	5.50	5.63	5.33	4.84	
B	5.36	5.93	6.67	6.00	6.50	5.00	5.40	
+/-	(-.46)	+.22	0.00	+.50	+.87	(-.33)	+.56	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	6	5	4.7	6.3	7
2 Post-program	5	5.7	5.7	7	6.5
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	3	4	4	1	7

His NEP increased .22. His belief in human progress tempered his sense of eco-crisis. He was interviewed face-to-face, four weeks after returning from study abroad. He stated:

> My behaviors are very connected to the group that I am with, unlike a lot of people that I know. So, for instance, if I am at someone's house that composts and recycles and walks out from the house, then I certainly will do all those things and it is very natural for me to do those things. However, if I am at someone's house that doesn't recycle and doesn't compost and drives everywhere. I am not typically a person that is big into judging people, I don't like people to cast judgment on me and I don't like to cast judgment on other people. So, typically I just go with the flow, so I put my beer bottle in the trash can and I will throw my left over grapefruit skin in the trash, and I will hop in the SUV and drive wherever we are going. Sometimes I say something, mostly in passing like, "Dude, it's 2011! You don't recycle?" But that is where it stops.

Interview Participant 2

The second interviewee was a female graduate student in her twenties. Her childhood connection to nature was bird watching, fishing, gardening, recycling, and four-wheeling. In her mind, the term "nature" produces images of plants, life, biodiversity, spirituality, completeness, and discovery. Her knowledge of ecotourism increased through study abroad at UGACR. She defines an environmentalist as one who respects nature for what it is and continues to make efforts that are mindful of nature. Global warming is a threat that will be amplified if we continue our current habits. Her perspectives, whole evolving are pro-environmental.

Int. # 2	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	4.73	5.43	5.22	5.00	5.13	4.67	5.00	
B	4.55	4.93	4.83	4.00	5.25	4.33	5.10	
+/-	(-.18)	(-.50)	(-.39)	(-1.00)	+.12	(-.34)	+.10	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	4.67	6.33	5.00	5.67	5.50
2 Post-program	4.33	6.00	4.67	5.67	5.00
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	4.50	2.00	7.00	4.00	7.00

The overall NEP reading decreased .50 during study abroad. All NEP areas weakened except her rejection of exemptionalism which remained unchanged. Positive views concerning human progress and growth remove any sense of urgency from pro-environmental action steps. She was interviewed four weeks after study abroad in a face-to-face interview. During the interview she said: "I think it was a good experience and it may change some things about how I live but not definitely change the way that I live."

Interview Participant 3

The third interviewee was a female graduate student in her twenties. Her childhood connection to nature was hiking, bird watching, fishing, gardening, recycling, camping, and mountain biking. The terms "nature and environment" produced images of unspoiled land with native plants and animals. She had a broad knowledge of environmental issues previous to study abroad at UGACR. She defined an environmentalist as someone who cares about the earth, its creatures, and works to protect them. She took "global warming" very seriously, feeling a need to take action to make a difference in mitigating its effects. Her perspectives about the world have not changed greatly through study abroad. Her scores are pro-environmental.

Int. # 3	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	4.27	5.71	6.17	5.00	6.38	5.00	6.10	
B	4.09	6.00	6.00	6.00	7.00	6.00	6.70	
+/-	(-.18)	+.29	(-.17)	+1.00	+.62	+1.00	+.60	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	6.00	5.33	5.33	5.66	6.50
2 Post-program	5.67	6.00	6.33	6.00	6.00
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	2.50	1.00	5.50	3.00	5.00

NEP increased .29 during study abroad. She continued to have very strong pro-environmental beliefs. She may face mild internal resistance from belief in human progress and the benefits of economic growth. During our face-to-face interview she stated:

> This is the best place that I have ever traveled to. Just seeing the wide variety of birds, plants, and animals, things you have seen in maybe a zoo, but being able to see them in their habitat and so up close, to happen upon monkeys eating in a tree, was just a really amazing experience. And the other thing that was most meaningful was the homestay and really getting to know people who live there and having sort of a closer relationship now and being interested in different policies and what is going on in Costa Rica, realizing you know somebody that it's impacting.

Interview Participant 4

The fourth interviewee was a female graduate student in her twenties. As a child she enjoyed hiking, visiting national parks, gardening, and recycling. The terms "nature and environment" produced images of national parks with forests and mountains. She believes environmentally responsible people make every decision with a consciousness of resource use. An environmentalist makes taking care of the environment their profession or driving passion. She feels we are causing global warming and feels guilt about it. She felt that the impact of this study abroad program was somewhat limited because of prior exposure to the information.

Int. # 4	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	5.27	4.43	7.00	6.00	5.63	5.67	5.04	
B	5.00	4.86	7.00	5.00	5.00	5.67	5.72	
+/-	(-.27)	+.43	0.00	(-1.00)	(-.63)	0.00	+.68	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	3.67	4.00	4.67	4.00	6.50
2 Post-program	5.00	4.33	4.67	4.00	7.00
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	2.00	1.00	4.00	1.00	4.00

Her NEP increased .43 during study abroad. She entered with strong pro-environmental beliefs and ended with strong intentions to live responsibly. In our face-to-face interview she talked about recreational choices with friends. She said, "We go camping and hiking and it engenders a sense of relationship with the environment where as other people's primary activity might be to go shopping or something like that, which is much more of a consumption attitude."

Interview Participant 5

The fifth interviewee was a male graduate student in his late twenties. His childhood connection to nature was through hiking, visiting national parks, rafting, fishing, gardening, recycling, hunting, farming, and camping. The terms "nature and environment" produced mental images of forests and hiking. He had extensive knowledge of environmental issues and had traveled internationally previous to study abroad at UGACR. He defined an environmentalist as a person who dedicates his or her whole life to saving the environment, whereas an environmentally responsible person lives life and tries to make good decisions related to the environment. Global warming was real but things would be okay in the long-run. Study abroad did not change his thinking but deepened some of his knowledge and beliefs.

Int. # 5	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	5.45	4.21	5.83	4.50	5.38	6.00	5.40	
B	5.18	3.79	5.33	5.00	5.63	5.67	5.70	
+/-	(-.32)	(-.42)	(-.50)	+.50	+.25	(-.33)	+.30	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	3.00	4.67	4.00	4.66	5.00
2 Post-program	2.00	4.33	4.00	4.33	4.50
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	3.00	5.50	6.00	3.50	6.00

His NEP decreased .42 during study abroad. He began with moderate pro-environmental beliefs. The strength of DSP beliefs such as pro-anthropocentric perspective, the goodness of growth, and belief in the progress of humanity may have played a significant role in his lowered NEP. In our face-to-face interview he made an interesting observation concerning UGA Athens:

> It is kind of funny culturally in Athens. You have very forward, environmental, local foods kind of people and you have the people that are really into football. They are not always on opposite ends of the spectrum but often it is kind of like, you guys have this place in common but outside of here you would not have a lot in common. I think it is kind of interesting that both of them seem to kind of co-exist and even overlap in a lot of places.

Interview Participant 6

The sixth interviewee was a female graduate student in her late twenties. Her childhood experiences with nature included hiking, fishing, visiting national parks, gardening, recycling, framing and camping. The terms "nature and environment" produced images of trees, green things, camping, bugs, deer, and birds. She had developed a solid knowledge of environmental issues previous to study abroad at UGACR through studies in landscape architecture. She defined an environmentalist as someone who is politically active in environmental protest. She viewed "global warming" as clear and very real threat that human activity accelerates.

Int. # 6	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	5.36	5.71	6.17	5.00	6.50	5.33	5.70	
B	4.45	5.71	6.67	6.00	5.75	4.33	5.80	
+/-	(-.91)	0.00	+.50	+1.00	(-.75)	(-1.00)	+.10	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	6.00	4.67	5.67	5.67	7.0
2 Post-program	5.67	5.00	5.67	5.67	7.0
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	4.50	4.00	3.00	3.50	2.00

Her NEP score was unchanged at 5.71. She had strong pro-environmental beliefs and her DSP beliefs do not seriously challenge her pro-environmental beliefs. In our face-to-face interview, she stated:

> I always have that image in my mind of that primary forest down there that I would not for the world want to see destroyed. I think that is really an important place. We need to keep that. So, knowing that the choices I make do have an impact on that, now it has an image on that, something physical in the world as opposed to some out there theory about what the world should be like. It has an actual physical location now.

Interview Participant 7

The seventh interviewee was a male undergraduate student in his early twenties, completing a double major in Ecology and language. He listed hiking, camping, visiting national parks, gardening, rafting, recycling, and mountain biking as childhood activities. The terms "nature and environment" produced images of mountains removed from highly populated areas. He defined an environmentalist as someone who takes steps to preserve our environment and maintain biodiversity. He viewed "global warming" as a serious risk that could damage the environmental unnecessarily. One of the impacts of study abroad was a deep appreciation for the people of Costa Rica who seem to place high value on people and the natural world.

Int. # 7	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	4.36	5.29	6.00	4.50	4.25	5.00	4.60	
B	5.09	5.57	6.67	4.50	5.13	6.00	5.90	
+/-	+.73	+.28	+.67	0.00	+.88	+1.00	+1.30	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	3.66	5.67	5.67	6.33	5
2 Post-program	5.33	5.67	4.33	6.33	6.5
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	4.00	3.00	6.00	1.50	4.00

His NEP score increased .28 during study abroad. The resiliency of Costa Rican forests may have been reflected in the decrease in his concern about the fragility of nature. There are no serious challenges revealed in his DSP scores. In our face-to-face interview, he stated that he encourages other to study abroad:

> Everyone or most people at UGA are from Georgia and most are from the Metro Atlanta area. They have grown up seeing this one little part of the world, and it is very sheltered outlook in a lot of cases. So, that is one of the biggest reasons I have encouraged it, it has broadened my own perspective and for an informed citizenry, you need to understand what is going on, not just at home and not just in your state or your own country.

Interview Participant 8

The eighth interviewee was a female undergraduate student in her early twenties completing studies in economics. She listed hiking, visiting national parks, camping, and recycling as childhood activities. Her family planned activities to develop an appreciation for nature. The terms "nature and environment" produced pictures of trees, field, and animals in her mind. An environmentalist was defined as someone who lives to care for the environment and finds pure pleasure in their relationship with nature. She did not consider herself one. Global warming was viewed as an issue in our world that was receiving "more hype" than necessary.

Int. # 8	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	4.64	4.0 0	5.33	3.50	2.50	2.33	2.70	
B	4.55	4.29	5.17	3.50	3.13	3.33	3.50	
+/-	(-.09)	+.29	(-.16)	0.00	+.63	+1.00	+.80	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	3.66	4.00	4.67	5.00	2.00
2 Post-program	3.66	4.67	4.67	5.00	3.00
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	6.50	1.50	7.00	3.50	4.00

Study abroad triggered transformative reflection and assessment in this participant. She wrote, "My time in Costa Rica was amazing and I would probably now be willing to donate money and to help protect the environment where as I probably would not have before the trip." Her overall NEP score increased .29. She self-reported strong DSP values concerning individual freedom and these could produce internal conflict when considering action steps to limit resource use. Increasing belief in the fragility of nature may trigger a reassessment of growth as good. She stated, "I had a pre-conceived bias from my childhood that the environment will be fine, don't worry about it. I definitely can say, it is something that I need to be educated on. Because, once I am educated on the true facts of what is going on, then I can make a more educated choice."

Interview Participant 9

The ninth interviewee was a female undergraduate religion and sociology student in her early twenties. Her childhood activities included hiking, visiting national parks, bird watching, and recycling. Many family activities were "nature oriented" with special trips to national parks. An environmentalist was defined as someone who is aware of the preciousness of the environment and how we as humans can so easily negatively affect it. An environmentalist wants to help and she viewed herself as one. She viewed global warming as a serious issue and felt the government should take stronger steps to counteract it. During study abroad she realized that the world is smaller than it seems and that our actions in the United States can affect the biodiversity of Costa Rica.

Int. # 9	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	5.45	5.07	6.50	5.00	5.13	5.33	4.50	
B	5.00	5.50	6.67	5.00	4.50	4.67	5.00	
+/-	(-.45)	+.43	+.17	0.00	(-.63)	(-.66)	+.50	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	4.00	4.67	7.00	3.67	6.50
2 Post-program	4.67	6.33	6.67	4.33	5.50
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	2.00	1.00	6.00	1.50	3.00

Her NEP score increased .43 during study abroad. The overall impact was positive with gains in rejecting a human-centered view of the environment overcoming reductions in her concern over the fragility of nature and an impending eco-crisis. During her face-to-face interview, she stated:

> This was an experience unlike any other in my life. My family goes to national parks and things like that but this was the first time by myself and I was older and able to understand what I was going into. It is funny, because I went into it thinking it was like a vacation but it was really an eye opener. It is funny that I say it was an eye opener because I fully realized the concept of environmental impact, I have had those classes, I have had those conversations but it is just another thing when you actually see it completely in action.

Interview Participant 10

The tenth interviewee was a male undergraduate English major in his early twenties. He listed a trip to the mountains as a childhood environmental activity. The terms "nature and environment" produced images of what he described as "the typical things, trees and animals." An environmentalist was someone who cares passionately about the conservation of the environment and takes action to preserve it. He stated that while he cared about the environment, he did not do much to help. He did not feel he had enough information concerning global warming to have an informed opinion. He had seen a lot of contradictory statistics and evidence. He felt that his trip to Costa Rica had increased his passion abut environmental issues.

Int. # 10	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	4.55	4.14	4.67	5.00	2.38	4.66	2.50	
B	4.82	5.21	6.67	6.00	5.25	5.33	5.30	
+/-	+.27	+1.07	+2.00	+1.00	+2.87	+.67	+2.80	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	3.00	5.00	4.00	4.67	4.00
2 Post-program	4.00	4.67	6.33	5.33	6.00
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	3.50	1.00	7.00	1.50	5.00

His NEP score increased 1.07. The strongest increase was concern for the fragility of nature. His experiences triggered reflection. His positive DSP views on growth and human progress will create internal conflict when he pursues action steps. In our face-to-face interview, he stated:

> It was the first time I was being taught about plants and I was actually interested and actually cared about the uses, how each plant grows and lives. It was the first time it was ever interesting to me. It was kind of like the first time noticing just how many different types there are and how many different conditions there are for them to survive in there various circumstances. Before, it was like, plants are plants. A similar thing happened with birds as well. From the trip we did a lot of bird watching and listened to the bird calls and the different ways that birds have to migrate or not migrate. How they do things. It was the first time I actually started to make a differentiation in my mind between different species. That was really cool.

Interview Participant 11

The eleventh interviewee was a male undergraduate Genetics and Ecology student in his early twenties. He listed hiking, visiting national parks, rafting, fishing, gardening, recycling, camping, and mountain biking as childhood activities. The terms "nature and environment" produced images of cascades and forests. He defined environmentalists as individuals that use their awareness to influence daily choices and positions on social and governmental policy. He viewed global warming as a long-term trend that people mistakenly think they observe daily.

Int. # 11	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	6.45	5.50	6.83	5.50	6.00	3.67	5.20	
B	6.36	4.86	6.83	6.50	6.25	6.00	6.00	
+/-	(-.09)	(-.64)	0.00	+1.00	+.25	+2.33	+.80	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	4.33	5.67	6.33	4.67	7.00
2 Post-program	5.00	4.33	5.00	4.00	6.50*
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	6.00	7.00	7.00	3.25	7.00

* Participant partially marked a high value on this line and added a note that he did not feel he knew enough to answer the question with certainty. The score was higher than the mean sample score for this line. Because the participant's mark was visible, the higher score was entered.

His comments during our face-to-face interview indicate that study abroad definitely triggered transformative learning. He stated:

> I went into it with expectations that it would be a very interesting experience but I really wasn't imagining it to have such a strong impact on me. It is kind of hard, like, what surprised me is that it is almost, its hard for me to even communicate to other people how amazing the entire experience is and it is like I don't think people can empathize. It is like almost a completely personal experience and telling my parents, family, or friends is like, I thought it would be easier to explain to them what I discovered there and it has just been very difficult to relate to them with regards to like how profound it was to be in such a beautiful part of the planet. I think that has really surprised me because I feel like usually you can describe just about anything but this is almost beyond words to a certain extent.

Interview Participant 12

The twelfth interviewee was a female undergraduate biological science major in her early twenties. She listed hiking, fishing, recycling, and camping as childhood experiences. The terms "nature and environment" produced images of rainforests, wildlife, saving trees, and global warming. She defined an environmentalist as someone concerned with the world we live in and that wants to protect it. She views herself as environmentally responsible but would not classify herself as an environmentalist. She is not sure she believes that global warming is occurring as rapidly as some people day it is. She felt she learned a lot in Costa Rica and that the world would be better if we always offset our carbon. At the close of study abroad she wrote:

> I learned so much! I learned that Ticos love their life in Costa Rica. Everything they do, they do with passion. They're satisfied with what they have. There is amazing diversity and everything serves a specific purpose in the ecosystem. I learned I am really selfish. I appreciate what I have now since I have seen how hard people work to provide food for their families and how much they love their environment. I wish I were more like them.

Int. # 12	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	5.18	4.00	4.17	3.50	4.00	3.00	3.60	
B	5.09	3.93	4.00	4.50	4.25	4.33	4.30	
+/-	(-.09)	(-.07)	(-.17)	+1.00	+.25	+1.33	+.70	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	3.67	4.00	4.00	5.00	3.00
2 Post-program	2.67	3.67	4.33	5.00	4.00
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	6.75	4.00	7.00	4.25	6.00

Her written comments stand in stark contrast to her NEP score. In our interview she said:

> Living where we do, definitely makes it difficult and the fact that especially where I am from, everybody is very conservative and often times global warming is associated with being liberal. It is almost like a negative thing. They do not really understand mainly because they don't know a lot about it. I would say it is hard living somewhere where you are surrounded by people who don't know and don't believe in it. As a whole, living in Georgia, it is probably harder to make good decisions for the environment.

Interview Participant 13

The thirteenth interviewee was a female undergraduate student, completing her first year of college. She was in her late teens. She listed hiking, recycling, and camping as childhood experiences. Camping had included extended wilderness camping trips. The terms "nature and environment" produced images of waterfalls, animals, peacefulness, camping, and trees. She defined an environmentalist as someone who has large concerns for the environment as whole, while also taking into account society's effect on the environment. She wrote that she had strong beliefs about environmental issues and felt it was imperative to save our environment even though she was not currently acting on her beliefs. She felt that the primary impact of her study abroad experience was cultural learning, particularly about practicing subsistence agriculture.

Int. # 13	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	4.27	5.00	5.00	4.50	3.63	3.33	3.00	
B	3.82	5.36	4.50	4.00	3.13	2.33	4.00	
+/-	(-.45)	+.36	(-.50)	(-.50)	(-.50)	(-1.00)	+1.00	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	4.33	6.00	4.67	5.67	4.00
2 Post-program	6.00	5.67	5.33	5.00	4.50
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	4.50	3.00	6.00	3.50	7.00

During study abroad her overall NEP score increased .36. During our phone interview she indicated strong DSP beliefs in the goodness of growth and human progress. The strength of these beliefs could produce conflict in the knowledge-action process when she considers action steps. During study abroad, her NEP scores concerning the fragility of nature and possibility of an eco-crisis increased. Her strongest area of increase was in her recognition that humans must limit resource use. During our interview she said, "Our environment is so much different than Costa Rica. I don't think about the environment unless something provokes me."

Interview Participant 14

The fourteenth interviewee was a female undergraduate student, completing her first year of college. She was in her late teens. Her childhood experiences included hiking, visiting national parks, fishing, recycling, and camping. One of her earliest childhood memories of nature was fishing at a nearby park. She remembers really enjoying fishing. The terms "nature and environment" produce images of leavers, animals, and beautiful scenes. She defined an environmentalist as person who cares about and strives to improve the environment. She viewed "global warming" as a genuine problem requiring immediate attention.

Int. # 14	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	4.09	5.95	6.67	5.00	6.00	7.00	4.50	
B	3.64	6.00	5.17	4.50	5.63	7.00	4.50	
+/-	(-.45)	+.05	(-1.50)	(-.50)	(-.37)	0.00	0.00	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	5.67	7.00	5.67	5.33	6.13*
2 Post-program	6.33	6.33	5.33	5.33	7.00
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	3.00	1.00	2.00	1.50	1.50

* Participant skipped a line in survey. The mean sample score for that line of data was entered

The overall NEP basically remained unchanged, increasing only by .05. There was a significant decrease in anti-anthropocentrism but it was balanced by a significant increase is concern regarding the possibility of an eco-crisis. Her pre-program scores were very high. During our phone interview she stated, "I am very interested in the environment. I am actually a wildlife major, so I want to help save endangered species. That is what I want to do in my life. I feel very connected to nature and it is very important to me to know about these things, so I talk about it often to people to try and share information and get information."

Interview Participant 15

The fifteenth interviewee was a female undergraduate journalism major in her early twenties. Her childhood experiences with nature were hiking, rafting, gardening, recycling, and camping. The terms "nature and environment" produced images of mountains, trees, insects, and the globe as a whole being. She defined an environmentalist as someone aware of the environment that actively seeks to inform others of earth's conditions and issues. She did not see herself as an environmentalist. She viewed "global warming" as a natural process that has been accelerated by human activity. She felt that our current rate of warming was not natural or good.

Int. # 15	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	4.55	4.64	5.00	5.00	5.25	4.00	4.10	
B	4.64	4.29	5.00	4.00	5.63	4.33	5.30	
+/-	+.09	(-.35)	0.00	(-1.00)	+.38	+.33	+1.20	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	4.00	5.00	5.33	4.00	5.00
2 Post-program	2.67	5.33	4.67	4.33	4.5
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	5.00	1.00	6.00	3.50	5.00

Her overall NEP decreased .35 during study abroad. The three categories that relate to ecosystem protection declined. The two categories that deal with the position of humans in relation to the environment became more pro-environmental as measured by the NEP. She felt that study abroad helped her realize that the amount of resources that she consumes is big and that she should try to reduce her consumption. In our phone interview she stated, "Study abroad reinforces the idea of your place in life and to not be self-centered and learn from others. That is something I believe in and try and live."

Interview Participant 16

The sixteenth interviewee was a female graduate student in her upper thirties. She listed visiting national parks, gardening, and camping as childhood experiences. The images that came to mind while reading the terms "nature and environment" were animals and vegetation. She did not answer many of the reflection questions on the survey.

Int. # 16	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	4.73	4.42	5.83	5.50	5.88	4.67	3.50	
B	5.73	3.93	5.00	6.00	5.38	4.00	5.00	
+/-	+1.00	(-.49)	(-.83)	+.50	(-.50)	(-.67)	+1.50	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	1.00	5.00	5.31*	6.00	5.00
2 Post-program	2.33	4.00	4.33	5.33	3.50
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	5.50	5.00	7.00	4.50	6.00

* Participant skipped a line in survey. The mean sample score for that line of data was entered.

Her overall NEP score decreased .49 during study abroad. She self-reported strong DSP values concerning individual freedom, pro-anthropocentrism, the goodness of growth, and human progress. During our phone interview she explained that her cultural learning in Costa Rica had been very eye opening. She said, "I took away that it is really important to take the time to get to know who people are by spending time with them as opposed to drawing conclusions about them from what you read or what you imagine yourself."

Interview Participant 17

The seventeenth interviewee was a female graduate student in her early thirties. The terms "nature and environment" was associated with an ecosystem and a microclimate. This would include all organisms within a given place and the community they represent. She felt strongly that she was not an environmentalist. She defined an environmentalist as someone moved by emotion instead of science. She felt environmentalism was often counterproductive. She associated environmentalists with political activism. She was moved by facts, research, and productive conservation rather than emotion. When discussing global warming she mentions that the problem is the rate at which it is occurring, not the cyclical warming patterns of the earth.

Int. # 17	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	4.63	5.00	6.83	5.50	5.00	5.33	5.10	
B	4.91	5.00	6.17	5.50	5.00	4.33	4.80	
+/-	+.28	0.00	(-.66)	0.00	0.00	(-1.00)	(-.30)	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	4.67	6.33	3.67	5.00	5.5
2 Post-program	4.67	6.67	3.67	5.67	4.0
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	4.50	5.00	3.00	2.00	5.00

Participation in study abroad did not produce any change in her overall NEP score. There were only minor variations in categories with anti-anthropocentrism and rejection of human exemptionalism increasing and belief in a possible eco-crisis decreasing. During our phone interview we talked about the UGACR program of environmental education. She stated:

> In terms of like the environmental lifestyle type stuff; like recycling, composting, and organic gardening, things that you may not be exposed to unless you kind of dive into that stuff or are in a community of people that do that on a regular basis; there is not a lot of exposure of what happens there. It is kind of on the background. It is the way they run their program.

Interview Participant 18

The eighteenth interviewee was a female graduate student in her early thirties. She listed visiting national parks, recycling, vacationing in the country, and farming as her childhood experiences with nature. She farmed with her grandparents and remembers celebrating Earth Day in elementary school. She defined an environmentalist as someone who strives to protect the environment. In her view, she is probably in the middle to the low end of a theoretical continuum of environmentalists. She is aware of environmental issues but not always active. She believes our actions have a clear impact on the environment. Study abroad showed her the relevance of growing, planting, recycling, and consciously engaging in her environment.

Int. # 18	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	4.36	5.07	5.33	5.00	4.13	5.00	3.98	
B	4.55	5.86	6.50	5.50	6.00	6.00	5.50	
+/-	+.19	+.79	+1.17	+.50	+1.87	+1.00	+1.52	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	4.67	5.00	5.33	5.33	5.00
2 Post-program	5.67	5.67	6.33	6.00	5.50
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	1.50	2.00	5.00	2.50	7.00

Her overall NEP score increased .79. In her phone interview she self-reported strong DSP beliefs in the goodness of growth and human progress. She was very positive about her learning experience in Costa Rica. She said, "It was a very good experience. It was neat going and sort of examining myself and sort of my perspective in the middle of a place that was different from what I was used to experiencing."

Interview Participant 19

The nineteenth interviewee was a female graduate student in her early thirties. She was working on a graduate degree in teaching English. She listed visiting national parks, fishing, gardening, and vacationing as childhood experiences with nature. The terms "nature and environment" produce an image of trees. She did not fill out many questions on the survey.

Int. # 19	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	5.18	6.21	6.67	5.00	5.38	4.33	5.60	
B	5.27	6.21	6.17	5.50	6.38	5.67	6.00	
+/-	+.09	0.00	(-.50)	+.50	+1.00	+1.34	+.40	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	5.00	7.00	5.33	7.00	7.00
2 Post-program	6.00	6.67	6.33	6.00	6.00
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	3.00	1.00	3.00	1.50	2.00

Her overall NEP scores began very high and remained unchanged during study abroad. Our phone interview reveals that her experience in Costa Rica had clearly triggered deep reflection that meets all criteria of transformative learning even though the NEP indicated no change. She said:

> Being down there and seeing these kids and they want to learn English, and they want to learn so they can get a job as a tour operator or some reason to be able to talk to tourist around there and there is constantly this struggle with what does tourism do to an area like the San Luis community and is it positive, and so… it made me start looking at what teaching English language does around the world, what am I promoting? If I am going out saying that people ought to learn English, well why are they wanting to learn English? Are they wanting to learn English to be able to participate in an American way of life, a way of life that includes mass consumption and if so, I am not so into consumerism and capitalism and so can our earth handle everybody in the world wanting to be like Americans? Is that fair for me to say, I want to not teach English because it promotes this way of life that I have the option of living? It is really hard to explain. It has made me question what I am trying to do as a master student in TESOL. If language and culture are completely intertwined and if I go out to teach the English language, what else am I promoting? Am I promoting things that I don't necessarily agree with? That was pretty hard for me. When I left there I had 4 classes left to finish my degree and I was seriously considering dropping out of the program. That, I was not expecting at all.

Interview Participant 20

The twentieth interviewee was a female undergraduate Education major in her early twenties. She listed gardening and vacationing as childhood experiences. The terms "nature and environment" produced images of leaves and animals in her mind. She did not define the term environmentalist but wrote that she was not one. She was not sure what to think about global warming. Following her study abroad experience she wrote that it was important to preserve the land and use its resources wisely. She learned that U.S. people were living in a wasteful manner. She was interested in controlling consumerism and our responsibilities as global citizens.

Int. # 20	PV	NEP	AC	AR	PEN	PS	ECCB/I	
A	4.63	4.14	4.50	2.50	1.25	1.33	1.20	
B	4.27	4.86	6.00	4.50	4.25	4.00	4.00	
+/-	(-.36)	+.72	+1.50	+2.00	+3.00	+2.67	+2.80	

NEP =	A. Limits to resources	B. Anti-Anthropocentric	C. Fragility of Nature	D. Reject Human Exemptionalism	E. Possibility of Eco-Crisis
1 Pre-program	3.67	4.67	3.67	5.00	3.50
2 Post-program	3.00	6.33	4.33	5.67	5.00
Resistance From	Not responsible	Pro-Anthropocentric	Growth is good	Exemptions exist	Human Progress
DSP	2.50	1.00	3.00	2.25	4.00

Her overall NEP score increased .72. There were strong increases in anti-anthropocentrism and the possibility of an eco-crisis. The low population and lush terrain of Costa Rica appear to have influenced her belief that there is urgency associated with the need to limit our resource use. During our phone interview she stated:

> Before I went on the trip, I really didn't do much hiking or rafting, not that much stuff outside. Not that I didn't go outside, but not those kinds of things. I think I just realized how much I really enjoyed it. I was also surprised by the fact that a lot of my viewpoints really changed about stuff and I was thinking, "How could I have really thought that beforehand and been so silly to think.

Summary

It is interesting to note that in at least three interviews the overall NEP measure would not indicate deep learning concerning environmental issues was occurring but interview data reveals transformative reflection, evaluation, and reformation of foundational issues. For example, the data provided for interviewee 11 reveals transformative learning that is so powerful he cannot express it in words to his friends and family but the overall NEP score actually decreased. Interviewee 19 was seriously considering reorganizing her entire career focus but her NEP score was unchanged. These interviews demonstrate the need to follow up surveys with interviews.

APPENDIX H: Costa Rican Environmentalism

Viewed through Insights from Strauss (1997)

The history of Costa Rican environmentalism provides an opportunity to evaluate the utility of the expanded framework (Figure 2.3). It also provides clear evidence that national identity can be molded to support pro-environmental goals. Strauss (1997) identified four conditions that were important in bringing about extrapersonal change. These were (1) positive social discourse; (2) linking ideas to strong emotions; (3) repeated presentations; and (4) social institutions, practices, and people that facilitate change. Strauss also identified three conditions that bring about intrapersonal change. There were (1) repeated presentations of the action; (2) positive feelings associated with the action; and (3) a cognitive connection with self-image or identity. When most of these conditions are in alignment, change occurs. When most of these conditions are not met, people pay only lip-service to proposed change (Spiro 1984; Strauss 1997).

The first condition for extrapersonal change was positive social discourse. In the early history of Conservation in Costa Rica, Mario Boza, a key Costa Rican leader in conservation, wrote articles concerning national parks that appealed to the patriotism of his readers. He made sure that every member of the Legislative Assembly received a copy. His promotion of national parks as key places to protect national history and heritage linked conservation to national identity and was a key step in creating a conservation movement of national significance (Evans 1999).

Secondly, environmental education in Costa Rica linked conservation to strong emotions. As head of the National Park Department in 1970, Boza stated: “A series of environmental problems like deforestation, poaching, erosion and pollution seriously threaten the conservation

of the cultural and natural heritage of the nation" (Evans 1999:75). Conservation in Costa Rica was also linked to religion. Doña Karen Figueres, the president's wife stated: "Helping people become conscious of what God has given us, of what brotherhood means...and of our responsibility as stewards of the land was so essential to me" (76). Patriotism and religion were intentionally linked to conservation. Mario Boza explained, "The goal was to merge historical, scenic, and natural values so that no one could object, making it easy to sell the public on the idea of conservation" (79).

Thirdly, the value of and need for conservation was repeatedly presented. This could be illustrated throughout Costa Rican history, but one clear example will suffice. Santa Rosa Park faced multiple scandals. At each event, the value of conservation was clearly explained as well as what would happen if pro-environmental action was not taken. This happen first in 1969 when 40 families occupied Playa Naranjo and again in 1969, when a rancher moved fences onto park property with the support of the president of Legislative Assembly. Presentations were made though newspapers, letters, and even personal appeals. The fences were moved and the issue resolved. There were scandals in 1970, 1972, 1982, 1984, 1986 and 1994. In each case, the value and need for national conservation was reiterated on a variety of platforms until the immediate crisis was resolved. The repeated presentation of the value of conservation was necessary for the gradual formation of a pro-environmental national consciousness (Evans 1999).

Fourthly, social institutions were developed in support of conservation practice. This development was not automatic or without setback but social institutions were legally established and given responsibility for the care of Costa Rican natural resources. Key legal battles were won in 1942, 1955, and 1961 providing the legal framework for the first national reserve to be established in 1965 at Cabo Blanco on the southernmost end of the Nicoya Peninsula in

northwestern Costa Rica. Previous to the establishment of this preserve, Olof Wessberg raised money for its protection and made over twenty trips to San José to see government officials. In 1969, the Forestry Law was established. Next, the Poás Volcano Park and the Santa Rosa National Park were established. Manuel Antonio National Park on the Pacific Coast was established in 1972. Rincón de la Vieja National Park and Guayabo National Monument were established in 1973 and Barra Honda National Park in 1974. As conservation was linked to national identity, conservation gradually became a legal, institutional part of Costa Rican life. By 1980, the Costa Rican government was ready to sponsor a week-long wildlife symposium. The symposium led to revisions in the Wildlife Conservation Law in 1983, 1990, and 1992. The new policy gave legal grounds for stronger hunting regulation and protecting endangered species (Evans 1999).

Costa Rica experienced extrapersonal change because its people wanted and supported conservation. They identified with the pro-environmental movement. This occurred through three steps toward intrapersonal change. The first condition for interpersonal change was that visible practices and people facilitated or demanded pro-environmental behavior. In Costa Rica, multiple individuals made strong personal commitments to carry out pro-environmental actions.

> Important figures in Costa Rican conservation history emerged in the 1960s and 1970s. Biologists like Luis Fournier, Sergio Salas, Gary Stiles, W. L. Ramírez and Alexander Bonilla all represent part of the result of Costa Rica's scientific legacy. Other advocated conservation and changes in policies by becoming involved in government agencies. Scientists like Mario Boza, Rodrigo Zeledón, Carlos Quesada, Alvaro Ugalde, Rolando Mendoza, and Tobías Ocampo are among those who represent Costa Rica's emphasis on science. (Evans 1999:31)

While Costa Rica was rich in people, it was economically challenged as a nation with a growing international debt. Finding adequate funding was required if change was to occur. Mario Boza spent enormous time and energy seeking funds outside of government sources. He held

successful meetings with the Conservation Foundation, the National Geographic Society, the Nature Conservancy, the Ford Foundation, IUCN, the World Wildlife Fund, the Nature Conservancy, the Sierra Club, and environmental organizations in Europe (Evans 1999).

The second condition for intrapersonal change was the development and acceptance of a pro-environmental cultural and personal identity. This began with Costa Rica's first two national parks, Poás Volcano and Santa Rosa. "Between 1971 and 1972, 70,000 people visited Poás Volcano and 15,000 visitors went to Santa Rosa"(Evans 1999:87). Boaz persuaded high schools to include national park information in their science curriculum, sponsored student trips to the parks, and encouraged the National Youth Movement to host weekend trips to parks. He worked with community development associations, local Rotary and Lions clubs, and Folk Dancing Clubs to become active supporters of the national parks. The two primary leaders within government during the formation period of the conservation movement in Costa Rica were Mario Boza and Alvaro Ugalde. They were members of rival political parties. This allowed both parties to strongly support conservation in their national campaigns, which reinforced the shared nature of this pro-environmental identity. When the Christian Unity Party was in power, Boza was the primary leader. When the National Liberation Party was in power, Ugalde was the leader.

The third condition for intrapersonal change was the linkage of strong positive emotions with conservation. This was accomplished in Costa Rica through linking conservation to national identity. The protection of forests in Costa Rica became synonymous with the protection of national heritage. It produced a sense of national pride in the conservation of biodiversity. The combination of these conditions positioned Costa Rica to become a world-class ecotourism destination with strong popular support behind its pro-environmental cultural identity.