

ENVIRONMENTAL SOCIALIZATION: A CASE STUDY ON FORMATIVE INFLUENCES

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**Title**

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The Supervisory Committee certifies that this *disquisition* complies with North Dakota State University's regulations and meets the accepted standards for the degree of

**MASTER OF SCIENCE**

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## **ABSTRACT**

Twenty-first century social-ecologic systems are in the midst of a complex adaptive cycle. There is growing evidence to suggest the existence of a psycho-social developmental process whereby a person becomes situated in an environmental worldview. This process of environmental socialization has received attention in peer-reviewed journals. A case study was developed to see if qualitative methods could yield deeper insight. Depth interviewing and grounded theory analysis were used to explore student's thoughts on formative influences deemed significant in the development of their own environmental perspective. The qualitative method used in the study was useful in probing the nuance, complexity, and significance of the student's environmental socialization. Natural resource managers, educators, philanthropists, moral leaders, and concerned citizens can benefit when social constructs of environmental sustainability are better understood.

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# INTRODUCTION

## Complexity of Social-Ecological Systems Science

John Muir's famous 1911 quote "when we try to pick out anything by itself, we find it hitched to everything else in the Universe," is a popular refrain among natural resource managers (Houghton: Boston, 1988). It is no less salient today, and accurately characterizes the current state of social science's contributions to ecosystem management. The nature of the relationship between humans and their physical environment continues to evolve, but not in a manner that is "purely physical, ecological, or social" (Chapin et al., 2009). The nature of the environmental challenges in the 21<sup>st</sup> century could be referred to as a 'wicked problem,' whereby the dimensional nature of any given problem has tangential implications for just about every other problem. John Muir was ahead of his time.

Keeping pace with these rapid changes is a monumental task, and scientists of all stripes have worked feverishly to present solutions. Unfortunately, many of these solutions are still sitting on the shelf for a variety of reasons that one could argue are mostly social by nature. A popular rangeland ecologist, Thad Box, summed it up well in a 2011 column published by the Society for Range Management when he wrote, "Using science to reach a societal goal is art. Neither science nor art can determine what a culture wants" (Box, 2011). It is a solid characterization. In that same column he shared another simple, yet enlightening quote: "Knowledge is knowing a tomato is a fruit. Wisdom is not putting it in a fruit salad."

The biotic sciences have already figured out the answers to many of today's environmental problems, and the social sciences are equally feverish in their efforts to unravel these wicked problems. Taking another line from Thad Box's column, which he borrowed from Gregory Bateson's 1971 book titled *Steps to an Ecology of the Mind*, "The ideas in a civilization are (like all other variables) interlinked... We are not outside the ecology for which we plan—we



are always and inevitably part of it. Herein lies the charm and the terror of ecology—that the ideas of this science are irreversibly becoming part of our own ecosocial system” (Bateson, 1971; Box, 2011). Taking this notion a step further, “The person-environment relationship is bidirectional: just as human behavior affects the well-being of the environment, changes in the environment affect human well-being” (Davis et al., 2011). Accepting the notion of a bi-directional ecosocial relationship is merely the tip of the iceberg for the social sciences. This concept can provide a launch pad for deeper inquiry, but the specific direction of inquiry is as limitless as the human mind.

The frame of reference necessary for empirical understanding of social-ecological systems in the 21<sup>st</sup> century looks like the American frontier of the 1850s. Pioneering social science researchers have attempted to frame the discourse with similar goals in mind, often reporting that “although behavior modification and or development remain the primary goals of many programs and interventions, a clear understanding of how best to achieve these ends is still developing” (Duerden and Witt, 2010). The literature tells a tale of turf battles between and within research disciplines. It tells of paradigmatic frameworks whose basic assumptions evolve faster than the research community’s ability to validate them.

The most common field of inquiry into the social problem focuses on the concept that “individual behaviors can ameliorate or exacerbate environmental problems” (Mobley et al., 2010). Inquiry aimed at understanding what motivates environmentally friendly behavior dominates the field; however, “there is still disagreement regarding the extent to which behaviors can be predicted from attitudes and concern” (Mobley et al., 2010).

# LITERATURE REVIEW

## Defining Environmental Socialization

Effective social science research requires careful and deliberate characterization of the subject matter. Defining what is meant by *environmental socialization* is a critical step in establishing context in this paper. It is prudent to begin with colloquial definitions of the terms ‘environmental’ and ‘socialization’ as it relates to this paper. Merriam-Webster’s dictionary provides the following definition for environmental:

<p><b>Environmental (adjective)</b></p> <p>1: the circumstances, objects, or conditions by which one is surrounded</p> <p>2:(a) : the complex of physical, chemical, and biotic factors (such as climate, soil, and living things) that act upon an organism or an ecological community and ultimately determine its form and survival</p> <p>2:(b) : the aggregate of social and cultural conditions that influence the life of an individual or community</p> <p>3 : the position or characteristic position of a linguistic element in a sequence</p> <p>4 : a computer interface from which various tasks can be performed</p>
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Figure 1. Environmental definition

The Merriam Webster definitions 2a and 2b are most useful for this paper, but it must be noted that while 2a regards physical and biotic factors, 2b describes social and cultural factors. The juxtaposition demonstrates the variability of the term in our modern parlance. Generally speaking ‘biotic’ and ‘social’ are terms with distinctly different meanings.

Other social scientists have recognized the need for clarification. In the preface to a 2002 psychology textbook, *Handbook of Environmental Psychology*, authors Robert Bechtel and Arzah Ts’erts’man write, “To many people, the term ‘environment’ relates only to ecological

concepts. We use the term in a much broader and more inclusive sense. When we interact with others, each one of us should strive to make this difference clear” (Bechtel and Ts’erts’man, 2002). However, this ‘broader and more inclusive sense’ is not clarified much further in their preface other than to say “...chapters relating to the ecological aspects of the environment” (Bechtel and Ts’erts’man, 2002).

The concluding paragraph in their preface to the *Handbook of Environmental Psychology*, hints at the correlated use of the terminology with phrases such as “...to solve the problem of survival on this planet” and “...aimed directly at the attitudes, beliefs, and behaviors that are that are destroying our environment and putting our lives in jeopardy” (Bechtel and Ts’erts’man, 2002). By comparison to Merriam Webster’s definition, it appears that Bechtel and Ts’erts’man prefer the use that the dictionary classifies in parts 1, 2a, and 2b. While they note the importance of making the use of the terminology clear, the authors do not provide a distinct line of demarcation between ecological and environmental. This contradiction underscores an inherent challenge for research on environmental socialization: etymology.

In a subsequent chapter of their handbook titled, *Ecological Psychology*, author Allan Wicker situates Ecological Psychology as being “within the psychological discipline and within American society” (Wicker, 2002; Bechtel and Ts’erts’man, 2002). Wicker goes on to characterize ecological psychology’s important contributions to environmental psychology as the “...identification of a natural environmental unit, the behavior setting, and the formulation of a theory of behavior setting functioning” (Wicker, 2002).

Just a few years prior to publication of the *Handbook*, Gary Evans, then President of the Environmental Psychology Division of the International Association of Applied Psychology (IIAP) addressed the topic in the IIAP’s 1996 fall newsletter. His article, appearing in the section “Current Trends in Environmental Psychology” and titled *Environmental Psychology as a Field*

*within Psychology* referenced the continuance of a “strong commitment within environmental psychology to try to study human-environment relationships within the full contextual framework in which they occur” (Evans, 1996). Interestingly, as a premonition to the rest of this literature review, he goes on to mention, “...researchers in environmental psychology continue to struggle with how to do this in a manner that yields reasonable guidance about important causal variables” (Evans, 1996).

Taken together with the aforementioned ‘textbook’ definitions, for the purpose of this paper, the term *environmental* is meant to describe the “human-environment relationship” in the context of a “natural environment unit” (Wicker, 2002).

Whereas the term ‘environmental’ requires careful consideration in regard to environmental socialization, the use of ‘socialization’ describes more homogenized concept within the field of developmental psychology. This concept is more fully characterized in section 2.4.2, but a basic definition is still warranted at this juncture.

**Socialization:**

1: (a): the process beginning during childhood by which individuals acquire the values, habits, and attitudes of a society

1: (b): social interaction with others

1: (c): exposure of a young domestic animal (such as a kitten or puppy) to a variety of people, animals, and situations to minimize fear and aggression and promote friendliness

2: the action or process of making something (such as an industry) socialistic :  
conversion to collective or governmental ownership and control

*Figure 2.* Socialization definition

The Merriam Webster dictionary defines socialization as a process beginning during childhood by which individuals acquire the values, habits, and attitudes of a society, or a process

describing the evolution of a something into a form of government. Again, the common definitions are not entirely helpful. They each seem to point out terminology that, without context, can have very different meanings. For the purposes of this paper, the broad definitions of socialization 1(a) and 1(b) provide sufficient characterization. Environmental Socialization, in the context of this research paper, means the **developmental process whereby a person acquires the values, habits, and attitudes that characterize one’s own relationship to the natural world.**

***Disciplinary alignment.***

Research into environmental socialization generally falls into two disciplines: sociology and psychology. According to the American Heritage Dictionary, 5<sup>th</sup> Edition:

*“Sociology is the study of human social behavior, especially the study of the origins, organization, institutions, and development of human society.”*

*“Psychology is the science that deals with mental processes and behavior.”*

These definitions do not necessarily provide a clear school of thought to view environmental socialization. They do give the impression of a macro vs. micro perspective, with sociology being a wider view of society, and psychology as a view of individuals within that society. Based on these definitions, environmental socialization, characterized as a process, would align more appropriately with psychology. However, these definitions required additional interpretation of an implied meaning. Implied meanings do play a role in the social sciences, but not without empirical backing. A view of the prevailing peer-reviewed journals provides further insight.

The majority of published articles are found in two journals: *Environment and Behavior* (sociology), and *The Journal of Environmental Psychology*. True to form with Muir’s ‘universal

inextricability' concept, there is considerable overlap between the two. Let us begin with an examination of each journal's specific mission statement.

*“Environment and Behavior (EAB) examines **relationships between human behavior and the natural and built environment.** Research topics include environmental experiences (e.g., restorativeness, place attachment/identity, environmental perception/cognition); environmental outcomes (e.g., pro-environmental behaviors such as recycling; health-supportive environments; design preferences); and processes linking environments and behaviors that support or thwart human well-being”* (<http://journals.sagepub.com.ezproxy.lib.ndsu.nodak.edu/home/eab>).

*“The *Journal of Environmental Psychology* serves individuals in a wide range of disciplines who have an interest in the scientific study of the **transactions and interrelationships between people and their physical surroundings** (including built and natural environments, the use and abuse of nature and natural resources, and sustainability-related behavior). Research topics include perception and evaluation of buildings and natural landscapes, cognitive mapping, spatial cognition and wayfinding, ecological consequences of human actions, psychological and behavioral aspects of people and nature, and theories of place, place attachment, and place identity”* (<https://www.journals.elsevier.com/journal-of-environmental-psychology>).

### **Foundational Literature from Environmental Sociology**

For centuries seekers of truth in the field sociology relied on the Socratic method. The method employed a system of disproving competing hypotheses through rote discourse among peers. The ‘Dialectic Method’ as its known uses, “a contradiction of ideas that serves as the determining factor in their interaction; comprising three stages of development: a thesis, giving

rise to its reaction; an antithesis, which contradicts or negates the thesis; and the tension between the two being resolved by means of a synthesis” (Kaufmann, 1965).

This approach would come under fire in the late 1970s when “it began to appear that, in order to make sense of the world, it was necessary to rethink the traditional Durkheimian norm of sociological purity, i.e., that social facts can be explained *only* by linking them to other *social* facts” (Catton and Dunlap, 1978). Additionally, a turf battle was brewing in the sciences. As society awakened to the newly visible environmental problems, the scientists who emerged as opinion leaders, Rachel Carson, Barry Commoner, Paul Ehrlich, and Garrett Hardin, were biologists, not sociologists (Catton and Dunlap, 1978). Publications such as *Silent Spring*, *Walden*, and *Sand County Almanac*, were successful at grabbing the public’s attention, “...but these were not considered academic works” (Mobley et al, 2010).

Prior to the 1970s sociological interest was minor and consisted primarily of research on natural resources by rural sociologists and on the built environment by urban sociologists (Dunlap, 2000). The 1970s would usher in a new era for both environmental problems, and social scientists. According to Dunlap, some sociologists began to look beyond the societal attention on environmental problems such as pollution and resource constraints and began to examine these problems in light of the underlying relationships between societies and their environment (Dunlap, 2000). However, throughout the 1970s, mainstream sociology in America remained fixated on the social impacts of environmental degradation and resource scarcity, and not “...the impacts of society on the environment” (Dunlap, 2000).

### ***The human exceptionalist paradigm.***

In 1978 *The American Sociologist* published a journal article titled “Environmental Sociology: A New Paradigm” (Catton and Dunlap, 1978). The missive, authored by prominent Washington State University sociologists William R. Catton, Jr. and Riley E. Dunlap, would

send shockwaves through their research community by proposing a new paradigm of research into social-ecological systems science. “In this paper we shall to try to account for the development of environmental sociology by showing how it represents an attempt to understand recent societal changes that are difficult to comprehend from traditional sociological perspectives” (Catton and Dunlap, 1978). They would propose a paradigm shift, challenging old sets of assumptions and methods, and proposing a new set of tools for social research.

Catton and Dunlap posited the belief that research on the relations between environmentalism and sociology were hindered by an anthropocentric and cultural bias that disallowed a full understanding of the ecosocial connection. The authors called this bias the “Human Exceptionalism Paradigm (HEP).” (Catton and Dunlap, 1978) According to them, in light of the environmental crisis, the set of assumptions that grounded the prevailing theoretical framework was no longer valid. The flawed assumptions, they argued, were based on a notion that society’s cultural superiority, adaptability, and ingenuity were sufficient traits to address environmental problems. The paper criticized their peers for their acceptance of this worldview whereby “due to our acceptance of the Human Exceptionalist Paradigm (HEP), our disciples have focused on humans to the neglect of habitat; consideration of our social environment has crowded out consideration of our physical circumstances” (Catton and Dunlap, 1978). They go on to say this worldview was “no doubt fostered by prevalence of the doctrine of progress in Western culture, where academic sociology was spawned and nurtured.” (Catton and Dunlap, 1978).

To replace the HEP, Catton and Dunlap (1978) proposed a New Environmental Paradigm (NEP) in environmental thinking that would give higher consideration to the biotic world by accepting its intrinsic value to life. The NEP is comprised of three distinct assumptions from which sociologists would view the social-environmental relationship: interdependent



involvement in a biotic community, intricate linkages of cause and effect leading to unintended consequences, and limitations imposed on a society due to the finite nature of the world.

Furthermore, the article provided the primary description of this emergent discipline by stating “The core of environmental sociology is, in fact, the study of interactions between environment and society” (Cattan and Dunlap, 1978).

Table 1

*Major Assumptions of the HEP and NEP (Cattan and Dunlap 1978)*

Human Exceptionalist Paradigm	New Environmental Paradigm
<p>Humans are unique among the earth’s creatures, for they have culture.            Culture can vary almost infinitely and can change much more rapidly than biological traits.            Thus, many human differences are socially induced rather than inborn, they can be socially altered, and inconvenient differences can be eliminated.            Thus, also, cultural accumulation means that progress can continue without limit, making all social problems ultimately soluble.</p>	<p>Human beings are but one species among the many that are interdependently involved in the biotic communities that shape our daily life.            Intricate linkages of cause and effect and feedback in the web of nature produce many unintended consequences from purposive human action.            The world is finite, so there are potent physical and biological limits constraining economic growth, social progress, and other societal phenomena.</p>

***A new environmental paradigm.***

Cattan and Dunlap’s (1978) proposal was met with mixed results. The notion of limits to growth was not well-received in a society that was just emerging from the resource-constrained malaise of the late 70s. In 1982 Ronald Reagan’s *New Dawn* ushered in a new era of cowboy capitalism, reminiscent of a frontier mentality whereby the environment was something to be tamed by humans. The proposed New Environmental Paradigm was largely theoretical and challenged the moral disposition of those who believed in human exceptionalism. In 2002 Riley Dunlap authored a humble article about the evolution of environmental sociology in which he admitted, among other shortcomings of the proposed paradigm shift, that “...limited success was

achieved in bringing the major factions of the field together into a cohesive intellectual community” (Dunlap, 2002).

*Use of NEP in subsequent literature.*

At the core of the NEP was the notion that “The persistence of any society is threatened when its dominant social paradigm (DSP) no longer offers valid guidance for survival. Today’s industrial society is threatened, not by external enemies, but by the uncritical acceptance of an outmoded DSP that cannot be sustained in the environment of the future” (Pirages and Ehrlich, 1974; Dunlap, 2008).

A central theoretical construct to the NEP was the assumption that societal adaptation to environmental issues was a function of the level of concern held by individuals (Dunlap and Van Liere, 1978). Sociological interest around this time focused on the environmental movement as the premier vehicle for change. “In the past decade this movement has succeeded in arousing widespread public concern with resource consumption and polluting behavior and has stimulated passage of environmental legislation and establishment of environmental agencies at all levels of government (Albrecht 1976; Dunlap and Catton, 1979).

Paul Stern wrote in 1993 “the lack of a social-psychological model for environmentalism led to research on environment attitudes and environmentalism that was less than cumulative” (Stern, 1993). Much of the research has focused on predicting environmentally responsible behavior (ERB) by examining areas such as value orientations and environmental concern (Stern 1993, Stern et al, 1998), environmental perception and social risk-taking (Bogner et al. 2000), and the social context of environmental behaviors (Olli, et al. 2001).

Although there have been many studies on the predictors of ERB, there remain disagreements about its validity (Mobley, et al. 2010). In 2001, Norwegian researchers reported that “[previous] studies have therefore concluded that the environmental attitude-behavior

correspondence is tenuous,” citing several studies by prominent sociologists (Ollie et al, 2001). A full decade later, authors of peer-reviewed studies were still reporting on the weakness of the conceptual framework. “Contrasting, ambiguous, or unconfirmed results have been found between some environmental variables and environmental action” (Lee, 2011). A study by Katherine Mobley confirmed that reading three books (Silent Spring, Sand County Almanac, and Walden) are positively correlated to environmentally responsible behavior (Mobley, et al. 2010).

***Critique of the NEP and suitability for environmental socialization.***

The theoretical constructs of the NEP shed light on a larger mechanism for societal adaption in the social-ecological system. However, it has failed to enlighten the process of socialization in this regard. It seems plausible that ecosocial researchers’ acceptance of the NEP may have gone too far in minimizing the human role of social-ecological systems. In the past 40 years ecosystems science has uncovered, with a great degree of accuracy, magnificent complexities that govern the biotic world. By comparison, the social sciences still seem immature in their ability to empirically describe the great complexity of eco-social relations.

This deficiency may be related to the bias of the NEP, whereby it argues that our social systems are out of touch with the reality of our ecological systems. While this may be true, it is also possible that our social sciences are out of touch with the reality of our social circumstances in the social-ecological equation.

While environmental-social scientists have, in recent history, eschewed mankind’s anthropocentric approaches to natural resource management, it appears economic and political forces have outgrown the notion of earth-first research. The cause could be an inherent theoretical bias towards environmental protection or conservation that causes researchers to look for answers in the wrong places. The research then becomes value-dependent, i.e., it only looks

to correlate positive environmental values rather than examining the entire breadth of variability in human's ecosocial perspectives.

Although there are many studies related to the field of environmental socialization, most are focused on quantitative analyses to correlate various factors. Existing research has quantified the breadth of variables that contribute to an ecosocial position. However, as mentioned previously, these studies leave much to be desired. Also, in the polarized realm of environmental politics, quantitative studies may provide too much structure to accurately capture ecosocial views. There are few qualitative studies on formative influences, but these can help inform and guide the research process.

### **Foundational Literature from Environmental Psychology**

#### ***Developmental science.***

While sociology re-examined social-ecological systems science with the New Environmental Paradigm in the late 70s, social psychology experienced a paradigm shift that redefined the research community's conceptions of ecology and environment. In 1977, social psychologist Urie Bronfenbrenner proposed a similar sounding but conceptually nuanced *Ecology of Human Development*. Although, as the title might suggest, this framework was not specific to natural ecosystems. Bronfenbrenner highlighted this nuance in the book's opening chapter as "...a somewhat unorthodox concept of environment" (Bronfenbrenner, 1977). He would go on to say:

*"The ecological environment is conceived as a set of nested structures, each inside the next, like a set of Russian dolls. At the innermost level is the immediate setting containing the developing person. This can be the home, the classroom, or as often happens for research purposes-the laboratory or the testing room."*

It would appear the natural world did not have a prominent role in this theory. However, certain concepts within his theory come maddeningly close to describing environmental socialization. Especially when he spoke of blueprints for development. He described the existence of a blueprint within each society or subculture that characterized "...the organization of every setting" (Bronfenbrenner, 1977). In this parlance an ecology is not specific to the natural world.

In the intervening years other developmental psychologists have attempted to clarify and reorient the natural world in light of a social ecology. In 2010 one of these adaptations is described by Oishi Shigehero and Jesse Graham when they say that "socioecological psychologists study how natural and social habitats affect human mind and behavior, and how humans and behavior in turn affect natural and social habitats" (Oishi, 2010).

### ***Contemporary socialization in academia.***

Traditional developmental psychologists rely on a concept of socialization to understand an array of processes by which human beings learn to "...safely and harmoniously exist together as well as maintain their own well-being" (Grusec and Hastings, 2007). A popular textbook in developmental psychology, *Handbook of Socialization*, lead authors Joan Grusec and Paul Hastings provide a contemporary definition of socialization in the book's introduction:

- The way in which individuals are assisted in becoming members of one or more social groups.
- Involves a variety of outcomes, including the acquisition of rules, roles, standards, and values across the social, emotional, cognitive, and personal domains.
- Occurs through many paths such as discipline after deviation, modeling, proactive techniques, routines, rituals, and as a function of styles of interaction between the

agent of socialization and the and the individual participating in the socialization process.

Socialization cannot be adequately understood without a consideration of how biological and sociocultural factors interact in a complex and intertwined manner.

This conceptual definition is starkly lacking any reference to the natural world or a human's relationship with it. A perusal of the article titles as well as the subject index, together with a cursory review of the articles, did not reveal any specific themes or concepts about an ecosocial relationship. However, the elucidation of the socialization processes conceptualized in the book appear to be a minor adaptation away from providing a framework for environmental socialization. For example, the fact that outcomes of socialization are governed by a complex interplay and interaction that are further defined by the physical and psychological contexts in which it takes place (Grusec and Hastings, 2007). Concepts of interdependent dyadic relationships, cognitive processes, motivations, and behavioral outcomes could drive the development of theory, or the establishment of measures and tools for deeper inquiry on environmental socialization.

### ***Literature on Environmental Socialization***

Earlier literature has reported that gender and economic status are strong agents of socialization. Paul Stern reported that “our findings are consistent with the argument in feminist theory that women tend to see a world of inherent interconnections, whereas men tend to see a world of clearly separate subjects and objects” (Stern et al., 1993). This concept shall be taken at face value, and it is assumed that women are typically better caretakers of our planet and effects of environmental socialization are slightly diminished by this gender difference. Future research models should account for this. The same study reported that data regarding social class in relation to environmental attitudes was scarce.

Positive correlations have been identified on the subject of childhood play in wild environments as a precursor to ERB. Researchers found “memorable childhood play experiences in wild environments helped shape later adult interest in environmental activism” (Bixler et al., 2002).

A Canadian study published in 2008 examined the formative influences on young environmental leaders using qualitative research methods (Arnold et al., 2008). The data gathering focused on in-depth interviews that were designed to move beyond merely identifying the influential factors and “delve into the how and why the participants felt the influences were noteworthy” (Arnold et al., 2008). The authors developed criteria for participant selection that focused on youth who demonstrated positive environmental and leadership traits. Participants were recruited purposively by contacting several organizations working with young environmental leaders in Nova Scotia. In doing so, they were able to glean the best data from a smaller number of participants. Of the twelve participants selected for the study, three had been identified through a snowball sampling technique by asking participants to recommend other young people who met the criteria. The group made use of two pilot interviews to help them guide their research and modified the questions before the official study. True to the qualitative tradition, the authors recognized the importance of the participant’s sharing in the direction and flow of the interviews. At the end of each interview they asked participants to consider whether they felt their responses had accurately captured the important issues.

The study found that each of the 12 participants had a different set of influences and interactions that they deemed significant to their development as environmental leaders (Arnold et al., 2008). In addition, “all of the participants spoke about their parents as being influential in their involvement, although none indicated that their parents were the one transformational factor” (Arnold, et al., 2008). However, two common themes emerged: influential people and

influential experiences. All the participants described role models and time spent outdoors as being significant.

Arnold et al.'s (2008) study was theoretically informed by previous research of significant life experiences (SLE), which prompts participants to recount experiences from childhood and youth associated with proenvironmental attitudes and behavior. In my case study, however, the use of SLE will be retracted to examine an ecosocial perspective that is free from the behavior modifier.

Unlike Arnold et al.'s (2008) work, criteria for participant selection will seek to decouple the value dependency (pro-environmental) from its sample. On the contrary, the present case study will seek a more diverse range of ecosocial views and allow the participants to provide the value definitions.

Another study in the realm of environmental socialization uses a mixed methods approach to add to the body of knowledge. This study used a mixed methods approach that “involves the simultaneous collection and analysis of both quantitative and qualitative data,” but that “emphasis was given to the quantitative data and hypotheses and the qualitative data were used to gain additional insights” (Duerden and Witt, 2010). The qualitative portion of the study consisted of interview and observation data with a group of 46 youth travelling to Peru with a structured outdoor experience program. The data collection involved focus groups and dyadic interviews with youth participants and their parents. The Principal Investigator (PI) spent a significant amount of time with the group during their trip, and this invariably impacted the youth's experience. The study found that the direct experience more significantly affected learning outcomes. In addition, several youths reported that an autonomous experience with nature lead to more satisfying and connected experience.



The qualitative methods used in the study were successful in increasing the depth of knowledge in regard to the study's objectives (Duerden and Witt, 2010). However, certain improvements could be made to expand the applicability of the results. First, the sample was under-representative of a cross-scale of average people. The funding and parental support required of an eco-trip to Peru is quite likely a biased population due to economic and pre-existing environmental attitude factors. Second, having the PI along on the entire trip also presents a challenge for gathering unbiased research. Third, a theme emerges in the literature of youth formative experiences: autonomy. It seems likely that conducting interviews and observing focus groups where the participant's parents were present would impact their perceived ability to speak freely about their experiences.

While a large portion of the methodology used in Duerden and Witt's (2010) study is not applicable to my case study, some of his discoveries will help. His study found strong connections between direct experiences and learning outcomes. Although learning outcomes are not a prime variable of my case study, the importance of direct vs. indirect experiences are expected to remain a focal piece of the case study results. In this case, learning outcomes are an important variable but will be expressed differently. For the current case study, learning outcomes will take the form of an ecosocial perspective supplied by the participant.

## CASE STUDY

This case study utilizes a qualitative study method, which may prove effective for achieving research goals that are aimed at understanding meanings, contexts, influences, and processes in a given phenomenon (Maxwell, 2005). This case study employed a flexible research design; rather than beginning with a formulaic research design, a conceptual framework guided the research. The conceptual framework can be described as “a system of concepts, assumptions, expectations, key beliefs, and theories that support and inform research” (Maxwell, 2005). One aspect of qualitative research design is the use of sensitizing concepts to provide a general sense of reference and suggest directions along which to look (Taylor and Bogden, 1998). Utilizing a sensitizing concept can give a researcher a lens through which to view his data, and the ability to identify relevant data as it arises during data collection. Regarding environmental socialization, a good sensitizing concept is provided by Jean Piaget’s Theory of Cognitive Development.

### **Environmental Socialization and Piaget’s Theory of Cognitive Development**

As Maxwell and Taylor and Bogdan stated, qualitative studies may borrow from others to develop the conceptual framework of their research design (Maxwell, 2005; Taylor and Bogdan, 1998). In this particular case study, childhood development theory provides an adequate starting point to evaluate the process of environmental socialization. The case study relies heavily on Jean Piaget’s Theory of Cognitive Development as a lens from which to view and analyze the data (Piaget, 1936). Pioneered by Jean Piaget in his paper *Origins of Intelligence in the Child*, the theory is premised on the idea that it is more important to understand how children think rather than what they know (Piaget, 1936; Berger, 1995). Education theory in general has evolved since Piaget but considering this case study’s goal of learning more about how a person becomes socialized to the environment Piaget’s theory is a good fit. Piaget outlined four distinct periods of cognitive development to describe the various developmental characteristics of a child

along with the accompanying major gains during that period. The following narrative of the Theory of Cognitive Development provides a rudimentary explanation of his theory. It also includes the researcher's presumptions about potential implications of his theory in understanding more about the process of environmental socialization.

Piaget's (1936) theory looks at four different stages of cognitive development: Sensorimotor, Preoperational, Concrete Operational, and Formal Operational. All of the stages are in approximate years. The first stage, Sensorimotor, begins at birth and concludes around two years. In this stage, infants use senses and motor control abilities to understand the world (Piaget, 1936; Berger, 1995). There is no conceptual thought; an object is known only in terms of what an infant can do with it. During these times, the infant learns that an object still exists when it is out of sight and begins to think through mental actions as physical actions.

In years two to six a child experiences the preoperational stage, where he uses symbolic thinking, including language, to understand the world (Piaget, 1936; Berger, 1995). The child's thinking is typically egocentric, causing the child to understand only one perspective. During this stage, the imagination flourishes, and language becomes a significant means of self-expression and influence from others. Children gradually begin to de-center, that is, become less egocentric, and begin to understand and coordinate multiple points of view (Piaget, 1936; Berger, 1995). But there is still a notion of exception in the child's psychological development. A child in this age group is highly imaginative, and still tends to think in terms of the world's effects on him. For instance, a child who scrapes his knee on the sidewalk may be more likely to think that the concrete assaulted him than that he actually scraped himself on the sidewalk. The child exhibits a lack of knowledge of the self, and thereby cannot be responsible for his actions. The result of the scrape with the sidewalk is not his responsibility, so he may not have learned how to avoid the consequence in the future.

In this stage the child derives pleasure from playing outdoors and imagines fictitious “worlds” that set the stage for his playtime activities. The researcher will train his eyes on the data to see whether these imaginary worlds are a precursor to a desired environment during adulthood. For instance, the child may derive pleasure by fishing or swimming in a lake, but in the beginning of the Preoperational stage he is likely not developed enough to understand the concept that “dirty” water is not okay for fishing or swimming (Piaget, 1936; Berger, 1995). At the upper levels of the Preoperational stage the child begins to connect the dots and may be capable of understanding that a fish cannot live without clean water. His personal discovery of a bird’s nest may reveal unhatched eggs, which are certain to pique the child’s curiosity. He may accidentally or purposefully break the shell of the egg and come to the realization that he has just killed the momma bird’s baby. It is also possible that while a developing person in this stage is interacting with a childhood pet it may plant the seeds of an affinity towards animals.

The next stage in Piaget’s Theory of Cognitive Development is the Concrete Operational (Piaget, 1936; Berger, 1995). According to this theory, at 7-11 years the child begins to understand and apply logical operations, or principles, to help interpret experiences objectively and rationally than intuitively. By applying logical abilities, children learn to understand the basic concepts of conservation, number, classification, and many other scientific ideas (Piaget, 1936; Berger, 1995).

During these years the child is experiencing his freedom, a formative experience that may have great bearing on his environmental socialization. Studies have been conducted that show a strong positive correlation between environmental attitudes and childhood play in wild environments such as woodlands or open fields (Bixler, et al., 2002). He is continuously grasping the notion of self, which has the potential to be a key factor in environmental

socialization. Before a child can relate to something outside the self, he must first grasp the idea of a “self.”

In the Concrete Operational stage the child will begin to see more influence exerted from peer groups than in the previous stages (Piaget, 1936; Berger, 1995). Notions of what is “cool” weigh more heavily on a child in this stage, and his value systems may be formed to an extent by these notions. At this stage, formal environmental education may also play a larger role in the child’s environmental socialization. For instance, during this stage a classroom presentation on marine wildlife may pique a child’s interest in a career as a marine biologist. Additionally, they are beginning to develop a sense of morals and values in this stage. Parents will likely play a role in the environmental socialization at this stage as well. If a child is taken on a camping trip or a visit to a natural science museum, the formative experience may be more influential than in earlier or later years due to the increasing ability to relate to the natural world, yet before larger social influences distract the child from this type of learning. This may also be the stage at which a youth becomes more of a social butterfly, interested in playing with friends, or a solitary young entomologist out catching real butterflies for further examination at home. The researcher presumes that this stage will warrant closer scrutiny, as the characteristics appear to hold value for the process of environmental socialization.

In the final stage, Formal Operational, the adolescent or adult is able to think about abstractions and hypothetical concepts (Piaget, 1936; Berger, 1995). This stage occurs from 12 years through adulthood. Ethics, politics, and social and moral issues become more interesting and evolving as the adolescent becomes able to take a broader and more theoretical approach to experience. At this stage the youth’s hormones are beginning to effect physical changes in their bodies; they begin to think differently about members of the opposite sex. Their psychological selves are extremely malleable, and they may be more prone to peer’s influences than classroom

experiences. This shall be observed closely during data analysis of this case study as sex and hormones can be major drivers of human behavior.

It is possible that at this stage a person's environmental socialization may branch into one of two avenues. They may either be driven more by social aspects of environmentalism or by the scientific or biotic elements of environmental education. This notion is also worthy of close observation. The case study will consider, in the age-old parlance, "which came first—the chicken or the egg?" Is a teenager engaging in ERB because of knowledge about the biotic world, or is he driven by a desire to relate to his ERB practicing peers? For example, a young man is sexually attracted to a classmate who is involved in a local environmental issue. He then also becomes involved in the issue, and in the meantime has altered the degree of his environmental socialization. On the other hand, did the teen have prior knowledge or values that led him to become involved in the issue and the ensuing ERB helped to foster the existing values? The outcome may be the same, but the connection between the underlying motivations is surely worth further scrutiny. It's also possible this presumption won't apply at all.

Piaget's Formal Operational stage does not end at adulthood but presumes that much of the cognitive development has taken place by this stage (Piaget, 1936; Berger, 1995). However, adults may still be highly prone to learning new things about their relationship to the environment. An adult may still be enraged by a local environmental issue or participate in ERB out of guilt or pressure from peers or political affiliations. They may be exposed to new information, which strikes a chord in them. This chord may be newly formed, or a latent element of prior environmental socialization.

While this overview and identification of potential connections is not empirical, it does hold value as a lens to examine the data. It is worth noting, however, that the world has likely changed since Piaget's 1930's-era theory. As society has advanced, the temporal nature of such

stages may have shifted. For this reason, the data may not square up in this case study, so the temporal role of socializing characteristics would need to be studied further, most likely using quantitative methods. The following section will discuss the more intricate details of the qualitative methodology used for the case study, such as the case study's population, data analysis, and ethical considerations.

## METHODS

This section will allow the readers to familiarize themselves with the finer details of the research design. The reader is introduced to the individuals who participated in the study—who they are, how they were recruited, and in some cases the relationship of the researcher to his participants. Additionally, this section will delve into the survey instrument, and several aspects of the data analysis. At the end of the section readers will find information on ethical issues such as informed consent, confidentiality, and how potential conflicts of interest were avoided.

### **Qualitative vs. Quantitative**

Due to presumptive qualities of complexity and nuance in the subject matter, as well as its main objective, it was determined early on that the case study would use a qualitative method. Qualitative studies are effective for achieving research goals that are aimed at understanding meanings, contexts, influences, and processes in a given phenomenon (Maxwell, 2005). These attributes are precisely the type of data the case study looks to unearth, and this qualitative inquiry is well suited to generate said data.

#### ***Selecting from within the method.***

Various qualitative data gathering methods were evaluated to determine the most effective method(s) for obtaining the type of data relevant to the topic. Those methods were participant observation, depth interviewing, and focus groups. Depth interviewing was chosen as the most fitting method and is discussed in more detail subsequently. However, it is useful to discuss the consideration of the methods that were rejected. It was determined that participant observation, often considered “the mainstay of qualitative methodology” would not be the proper method because not enough is known about particular settings where environmental socialization takes place (Taylor and Bogden, 1998).



Focus groups were considered for the ability to “let people spark off of one another, suggesting dimensions and nuances of the original problem that any one individual might not have thought of” (Rubin and Rubin, 2005). In addition, “group interviews seem most appropriate when the researcher... is not interested in private aspects of people’s lives” (Taylor and Bogden, 1998). While this may be an effective method of data collection, it was decided that elements of environmental socialization could in fact be found as a private aspect of people’s lives. This idea, along with logistical concerns, led to the conclusion that focus groups would not be the proper method.

### ***In-depth interviewing.***

It was determined that conducting in-depth interviews would be the best way to explore the nuance and complexity of environmental socialization. More specifically, the research questions are best answered using process questions in order to understand “what the process is that connects x and y” (Maxwell, 2005). Because in this study neither x nor y are known variables, a questionnaire was drafted whereby these must be both identified and probed simultaneously during an interview (see Figure 3). The questionnaire was constructed using Kathy Charmaz’s model of initial open-ended questions, intermediate questions, and ending questions (Charmaz, 2006). In addition, probing questions were used to explore the relationship between x and y variables once when they arose. Throughout the data collection process, the interview questionnaire itself was fine-tuned. This is a testament to the value of a flexible research design; as the instrument became field-tested, the researcher was able to adjust the questionnaire to reword questions that repeatedly confused his participants. The final copy of the questionnaire is found in Appendix A.

1. Are you active in outdoor activities? Please give examples.
2. Were you active in outdoor activities as a youth or teenager? Please explain (who, what, where, how often, etc.)
3. How may have these activities affected your perception of the natural world?
4. Did you grow up in a rural, urban or suburban area?
5. How might this location have influenced your views on the environment?
6. Considering your views on environmental issues, do you consider yourself to be well educated?
7. In terms of your relationship to the environment, including attitude (such as beliefs that environmental protections are important) or eco-friendly behaviors (such as recycling, reducing energy usage) do you feel you personally have a good understanding of this relationship? In other words, is something you've thought about before, or something you can confidently articulate?
8. What aspects of your relationship to the natural world (including mindset and/or behavior) to be most important or most significant to you?
9. Can you point to any specific experiences that have impacted your views and/or behaviors?
10. At what point in your life did these experiences occur (adolescent, teenage, or college years)?
11. Of these experiences, which do you feel had the most impact on the development of your current attitude or environmental behaviors? Would you consider it to be people, places, events, or something else?
12. How do your views compare to those in your peer group? Are these views and/or behaviors still influenced by your peer group?
13. Do you think that you're "eco-social perspective" is fully developed? Or do you think that you're still open changing your opinions, behaviors, etc?
14. At this point in your life, if you are open to change, where do you think the most likely or significant influences will come from?
15. Are certain aspects of your eco-social perspective more easily influenced while other aspects are more engrained?
16. Have you found it easy to answer these questions, or do your responses require some deep thinking? If yes, did this introspection uncover anything that surprised you?
17. Is there anything else that you'd like to share about the development of your eco-social perspective?
18. Do you think any questions should be added to this questionnaire for future interviews?

*Figure 3.* Interview questionnaire version 1

## **The Sample**

To give further context to the study many details about the group of participants should be explained. First and foremost, in the mind of the researcher, is to discuss his relationship to the group. The author had begun to outline the study prior to being hired as the sustainability coordinator at Minnesota State University Moorhead. His charge was to design, formalize, and operate the school's sustainability initiative. In a highly visible, student-centered position on campus, the researcher did not need to search far for potential survey participants. However, the researcher was aware that being in that position also carried potential ethical risks such as conflicts of interest, or of potential power roles that may compel students to participate. These concerns are one unique aspect for consideration as part of the broader consideration about protecting the rights and wellbeing of human research subjects. The details of how research participants were protected, as well as the potential effects on data collection, is discussed at the end of this section along with broader ethical considerations.

### ***Recruitment.***

Participant recruitment followed a convenience approach, and snowball methods were employed to engage additional participants. Students with an interest in environment, natural resource management, or sustainability were presumed to be more likely to provide the types of data relevant to study, though the study was not restricted to those students. In order to cast a wide net, there were no demographic, academic, or other parameters precluding students from participation. The study was open to all MSUM students, regardless of their major. There was a single exclusion put in place to protect survey participants, this is discussed in the section on ethics.

As previously mentioned, the researcher worked with students on a daily basis, and in various capacities. His cubicle was located inside the campus' Office of Campus Sustainability

(OCS), which was frequented by many students who liked to drop in to chat, or to inquire about upcoming events or explore other ways to get involved. Considering the context of that office, it often attracted students who enjoyed talking about sustainability. Some of those students were extended an invitation to participate in the study. Additionally, in his role at the school the researcher did a fair amount of guest lecturing to various classes. This was another way that participants were recruited. Nothing was offered as an incentive to participate, with the exception of two sections of guest lectures where the professor offered extra credit to those who participated. For more information see Table 1: Basic information about participants.

Due to the nature of this case study, the size of sample was not predetermined. The researcher however attempted to reach theoretical saturation. Theoretical saturation occurs when gathering fresh data no longer sparks new theoretical insights, nor reveals new properties of emerging theoretical categories (Charmaz, 2006). Ultimately, after interviewing ten (N=10) students, the type and amount of data was deemed sufficient. The pool of participants came from diverse backgrounds and academic majors, and each added a unique perspective. The following table will introduce readers to the pool of participants and where they were recruited from.

Table 2

*Basic Information about Participants\**

<b>Name</b>	<b>Sex</b>	<b>Home Region</b>	<b>Major</b>	<b>Recruitment</b>	<b>Age (approx.)</b>
John	Male	Upper Midwest	Sustainability	OCS	Late 20's
Anthony	Male	Midwest	Biology	OCS	Mid 20's
Alexa	Female	Canada	Education	Snowball	Early 20's
Erin	Female	Upper Midwest	Social Work	OCS	Late 20's
Lucy	Female	Upper Midwest	Art	OCS	Early 20's
Sara	Female	Upper Midwest	Sustainability	OCS	Late teens
Mary	Female	Upper Midwest	Criminal Justice	Guest Lecture	Late teens
Chris	Male	Midwest	Sustainability	Argentina	Early 20's
Luke	Male	Upper Midwest	Sustainability	Argentina	Early 20's
Travis	Male	Middle East Asia	Biology	OCS	Early 20s

\*Actual names replaced with aliases

Six of the ten participants were “drop-ins” at MSUM’s Office of Campus Sustainability (OCS), one participant was recruited through a guest lecture and received extra credit for her participation, one participant was recruited by a friend through the snowball method, and two of the participants were recruited from a field-study course (Argentina) in which the researcher was also a course instructor.

### ***Interviewing.***

Once a participant was recruited for the study, he or she was given a copy of the informed consent letter as well as the questionnaire. Each participant was then asked to take some time to reflect on the questions prior to the interview.

Interviews were conducted on the campus of Minnesota State University Moorhead commencing in March of 2013 and concluding in October of 2014. They were conducted during regular business hours inside the Office of Campus Sustainability at a large conference table. The Office of Campus Sustainability consisted of one large open room with double doors located on the first floor of MSUM’s Hagen Hall. The space was designed to house the Sustainability Coordinator, whose desk was in the far back corner, three student workstations lining the other wall, and the conference table in the center. During interview sessions the outer doors to the office were closed, along with a sign that notified people that an interview was in session and a request not to disturb. In one instance an interview was conducted in a group study room in the campus library because it was easier for that particular student to locate.

### **Data Gathering**

Interview data for the study were gathered in two forms during the course of the interview. The first was in the form of handwritten notes, although those notes were written more as an aid to the researcher to direct the interview. The second used audio recordings made with a

small digital recording device placed on the table between the interviewer and participants. The interview recordings ranged in length from forty-five to seventy-five minutes.

***Ethical considerations.***

After much reflection about the potential harms this study could have on its participants, it was concluded that there was little chance of the research violating their rights, safety, or welfare. However, it is possible that the line of questioning about formative experience could bring up uncomfortable childhood experiences. A researcher must use intuition to realize if or when the participant is becoming uncomfortable and stop the interview or redirect the conversation if the situation warrants it. There can also be ethical issues with recording an interview. Participants were read a notification of informed consent, and their consent to be recorded was verbally requested at the beginning of the interview (Appendix B). Another aspect of ethics was less obvious, but equally important. That was showing respect for the views of the conversational partner. Because environmental views are often tied to ethics and morality, people may be less likely to share openly if they think they are being judged. Despite these concerns, being aware of emotional topics, obtaining consent to record, and showing respect for interviewees will allow for a study that is both ethical and fruitful.

Additionally, since the researcher employed numerous students on campus, the researcher and MSUM's Institutional Review Board agreed that no students on the payroll be allowed to participate in the study.

***Researcher's relationship to students.***

At the outset of the study, the researcher was aware that prior encounters with the survey participants might affect the outcome. It was presumed that prior experiences with the participants would somehow affect the data, whether positively or negatively. On one hand, participants may embellish responses to gain respect or acceptance from the leader of the

sustainability initiative. On the other hand, a previous rapport may elicit more trust and openness from the participant. In the realm of depth interviewing, there is no hard and fast rule. However, the personality type of the researcher towards the students, whether they were interviewees or newly introduced, was always intended to create an open and non-judgmental space. The most important factor was remaining aware of the potential influences on the data and redirecting the conversation if necessary.

### ***Confidentiality.***

Participants were informed that their participation would remain anonymous. Interviews would be conducted in private, and the data was stored on a password-protected computer. The researcher knew the names of the participants, but aliases were created for reporting and discussion. While demographic data was not formally collected in this study, for the purpose of a coherent narrative, certain details about each participant must be shared.

### **Data Analysis**

To analyze the data uncovered in the study, each interview recording was transcribed and coded using grounded theory methods as presented by Kathy Charmaz in her book *Constructing Grounded Theory* (Charmaz, 2006). While the grounded theory method of analysis was originally established to posit new theory, the method provides a useful manner for making sense of the interview data presented in this case study. The main elements of that method of data analysis are transcription, coding, and identification of thematic content (Charmaz, 2006).

Analysis of the data loosely followed the constant comparative method, in which the researcher simultaneously codes and analyzes data in order to develop concepts (Taylor and Bogdan, 1998). While the interviews were conducted over an eighteen-month period, the majority of transcription did not occur until the end. Some researchers may choose to transcribe and code each interview one-by-one as they are completed. However, the first two interviews

were transcribed at the outset. This analysis was possible without formal transcripts because field notes were reviewed between interviews. This method is supported by Taylor and Bogdan with the concept that researchers are constantly theorizing and trying to make sense of their data (Taylor and Bogdan, 1998). “They keep track of emerging themes, reading through their notes and developing concepts and propositions as they begin to interpret their data” (Taylor and Bogdan, 1998).

### ***Transcription.***

Audio recordings were transcribed into complete narratives. There are many ways to transfer the spoken conversation into the written for analysis. In this case study, the researcher personally transcribed each of the ten interviews conducted for the study. Some qualitative researchers choose to have their interview data transcribed for them. While this may be convenient, transcribing the interviews personally forces the researcher to pay closer attention. This allows a better contextual understanding of the data.

The audio files from the interviews were converted and loaded into a music player that allowed the playback to be slowed. The author would listen to a line or two of dialogue, then use speech recognition software to recreate the conversation in a word processing document. Sometimes a single line of dialogue would have to be repeated several times. There was an extra advantage to this method. Instead of merely listening and typing, the author added another element of hearing his data. The act of listening once (or more), speaking the line back into the word processing software, and then double checking and editing for accuracy literally put his participant’s words in his mouth before he saw them on the page.

The interview recordings ranged in length from 45 to 75 minutes, took six hours to properly transcribe, and resulted in seven pages each of single-spaced dialogue. The effort spent on transcription proved to be highly valuable because it not only provided the written data, but



also contextual and conversational nuances. It was also very useful as a tool for the researcher to become intimately familiar with his data.

***Transcription level of precision.***

Noted authors in their field, Herbert and Irene Rubin speak of qualitative analysis as not merely providing numerical summaries, but used to discover variation, portray shades of meaning, and examine complexity (Rubin and Rubin, 2005). They also explain that there are different approaches to transcription. The most precise of researchers' transcripts are verbatim and include every minor detail of the conversation. For example, all of the ums, ahs, pauses, and grammatical errors are included. The precision used for transcription is dependent on the use and context of the data.

For this study the transcriptions were not highly precise. The transcripts did include, however, observations or summarizations in brackets where appropriate. These contextual aides are critical when discussing the findings for one of the primary objectives of the case study regarding the efficacy of the qualitative method. As an example, one line of bracketed transcript reads "participant expresses she feels like she's rambling, interviewer explains that it's part of the process." See Figure 2 for more examples of bracketed transcriptions. For the purposes of this case study, digressions such as those were not included in the final transcript. These instances relied on the judgment of the researcher and were listened to repeatedly before the decision was made to summarize. Another valuable aspect of transcribing one's own recordings is that the coding of the data can happen simultaneously with interviewing, whether intentional or not. A good qualitative researcher will recognize a notable quote when he or she encounters it

(Charmaz, 2006). Patterns begin to appear when the same or similar quotes emerge in subsequent interviews. This occurs before any formal analysis begins.

[Tells a story about seeing ecology from a basic experiential level vs. formal education] (Thinking, struggling with the idea) (Sounds of kids running by, both laughing)
---

Figure 4. Examples of bracketed or parenthetical phrases

### ***Coding of raw data.***

Once the transcriptions are complete, there are numerous ways to approach coding. The flexible research design allows for inductively selecting the proper style. This case study employed the grounded theory method (Charmaz, 2006). Coding for this case study began with an initial line-by-line examination of the data, looking first for active codes within the participant's words. From that point, and consistent with the logic of grounded theory, focused codes or general categories were assigned as they emerge in the data (Charmaz, 2006). Those categories were then analyzed further for emergence of thematic content. According to Maxwell (2006), some themes overlap or relate conceptually and may be collapsed into under broader headings.

A popular qualitative analysis software program called NVivo was purchased under a semester license to assist with coding, organizing, and expressing data. The program was used for line-by-line coding and allowed highlighting and categorization. Nodes were created to collect pieces of data into the focused codes emerging in the data. The nodes, in turn, become the basis of focused codes that are later analyzed for their ability to correlate to other codes and support the emergence of thematic content.

## FINDINGS

The initial coding presented sixteen focused codes. Table 2 presents the focused codes derived from the data. The codes are listed in alphabetical order and do not denote any ordinal arrangement. Sixteen focused codes were noted in the first round of analysis; however, not all those codes were included for various reasons. Tables 2 and 3 demonstrate these codes.

### Active Codes

Table 3

*Active Codes, Frequency, and Examples Extracted from Data*

<b>Title of active code</b>	<b>Number of references coded</b>	<b>Example of supporting phrases in the data</b>
Childhood places	16	Having access to the park was a big deal.
Degradation	7	All that trash piled up in a day, it took several people, just not caring
Developing sensitivity	8	Having those places to play made me more sensitive to the environment
Direct vs. Indirect	17	I prefer the hands-on, but both are necessary
Family influences	32	Gardening with my family, that was huge
Firmness of beliefs	15	It's just naturally instilled in me
Land Use Changes	8	I hated it so much, that was our field
Morality	8	Those values were there but at that point they really started to blossom for me
Nature as a resource	3	When you watch something start from a seed and there's a sense of wow, I grew that

Table 4

*Active Codes Not Used*

<b>Title of active code</b>	<b>Reason for not including</b>
Conflict	Single reference
Contradicting statements	Lack of definition
Ease of reflection	Interesting, but not a socializing factor
Education	Lack of nuance or complexity
Future influences	Used for contrasting purposes in analysis
Mind-altering chemicals	Unclear role as formative influence
Music	Underwhelming as an influence

Consistent with the Grounded Theory method of qualitative analysis (Charmaz, 2006), several potential themes and subthemes emerged from the data. As presumed at the outset, many of the extracted themes and subthemes are interconnected, bearing resemblance to the complexity of the natural world. The correlation of themes will be explored further in the discussion section.

**Central Theme: Developing a Sensitivity to the Natural World**

While the data suggested many themes worthy of further exploration, the scope of the case study will be limited to three main themes. Findings are presented as narratives extracted from the interview transcripts with minimal discussion interspersed as necessary.

The most significant theme to emerge in the case study was the role of childhood places. This theme is referred to as developing sensitivity to the natural world. It appeared to be constructed of two distinct subthemes: 1) great places to be a kid, and 2) degradation or loss of outdoor childhood places. Additionally, findings are reported on the value of qualitative study for providing insight on agents of environmental socialization. The main theme and its

supporting subthemes work together to give a deeper insight into the role, significance, and characteristics of various factors that contributed to the development of the eco-social perspectives of the students who participated in the study.

***Subtheme: great places to be a kid.***

Each of the participants spoke of how they maintain an enjoyment of the outdoors (although many also noted that they do not have as much time to enjoy the outdoors as they would like). They all reported that they grew up either in the country, the suburbs, the urban/rural fringe, or in a small town; none reported growing up in a big city. Most participants also spoke of having relatively easy and frequent access to outdoor places to play and spending a great deal of time playing outside with family or friends. Participants spoke fondly of these places, the memories made, and being aware of the condition of those places at the time. A few of them spoke strongly about how the places had been degraded over time and the effect this had on them.

In the following narratives participants described their favorite outdoors locations. Proximity to these places appeared to be a significant factor. It is reasonable to see how easy access to these places resulted in an increased amount of time spent outdoors. Additionally, it wasn't just the frequency or amount of time spent in these spaces that attribute them as an eco-socializing factor. It was also a place for childhood exploration. While not all of the participants described a sense of freedom, most spoke reverently about the types of activities that took place there. Many described in rich detail the sense of freedom they experienced and of these natural places as a backdrop where a child's curiosity and exploration are encouraged.

Participants were each asked a similar form of the following questions. While some of the answers were direct responses to the questions asked, most of the participants delved into the details about their childhood places without being prompted. This level of unprompted,

descriptive data lends credence to the value of the qualitative study. As such, these responses are perceived to signal the importance of the role of childhood places in the development of a person's eco-social perspective.

*Interviewer: "Did you spend a lot of time outdoors as a youth or teenager? Did you grow up in the city or on a farm? How may have this affected your perception of the natural world?"*

Alexa:

We spent a lot of time outside. I'm from a small town about 10 km outside a large city. It used to be just a street with nine houses, surrounded by fields. There was another street with a few houses a kilometer away, but there were no other kids in our neighborhood. So it was just my brother and I going on adventures. We'd play in the ditch, run through the fields and play, or just chill in the field. Puddle jumping in the spring. If we went for a long walk down our street it was more like being in a park. I think spending more time outside as a youth has made me appreciate the outdoors more and made me more sensitive to the environment.

For Alexa, as with most of the participants, it was clear that growing up surrounded by fields was a strong socializing factor. She spoke of fond memories playing with her brother and recalled specific childhood activities that occurred there. She also spoke of how she still enjoys splashing in the puddles during the spring. Although she is now an adult, she giggled when she reported, "I might have been busted [for jumping in puddles] just recently."

Erin:

I grew up in the country, on a farm about 20 miles from town. I spent a lot of time in the summer gardening with my grandma. I enjoyed seeing something start from a seed and grow into something bigger. There was a sense of accomplishment knowing I cared for that, I grew that myself, and now we can eat it. Growing up there had a lot to do with [my current perception of

the outdoors]. When you grow up on a farm the environment is your income, so you have to treat it right in order to get your bread.

Chris:

I grew up in suburbia so there were quite a few parks. We had a lot of lakes in our town; we rode our bikes around them a lot when we were kids. My family was into camping, and my dad was a hunter. We also lived near a big nature preserve. It was about five miles from my house so I'd go there with school, with my friends, or just on my own. When I was younger we'd go there for my sister's birthday parties. Our parents would take us there and just turn us loose on the trails. Sometimes we'd go off the trails and make jumps back in the woods. As a teenager I'd go there with my buddies and we'd just hike around on the trails. It's definitely something that made me want to go hiking everywhere. Go off the trail in places and explore. I still like to go on the trails around here and I think that had something to do with the fact that I used to go on the trails when I was younger. I think growing up near that park reserve helped. Maybe not as much as if I had grown up in the countryside but having access to the park was a big deal.

Mary:

I grew up in a small town. There were plenty of parks and we went there a lot. We didn't have Internet access at home, or much technology, we just had to go outside to entertain ourselves. Our parents would send us out to play with the neighborhood kids. There was a river about a five-minute walk from our house, but our parents told us not to go there. We went there anyway. It was more fun than the park because you could explore and be curious. We played around on the logs and just explored. Living in a small town, it was a safe place to play. We couldn't get into too much trouble at the river so we went there even though we weren't supposed to. I feel like it did have an impact on me. Now, if you don't go outside you'd be more isolated, you might be socially awkward.

What's interesting in Mary's narrative about playing outside was the contrast she made with today's youth. Upon reflection on her time outdoors with the neighborhood kids, she identified it a strong socializing factor. Not directly in terms of environmental socialization, but simply learning how to interact with others with the outdoors as a backdrop.

Luke:

I grew up in town but every weekend we were doing something outdoors. We went hunting, fishing and camping a lot. Sometimes my friends would come with us. My aunt had a lake place, so we spent a lot of time there. There were a lot of outdoor activities as a kid. It was just what my family did, so for me it was normal. Yeah, I would definitely say that formed who I am today.

Luke's story differs in some ways from the other participants. He spoke of many outdoors activities with his friends and family, but unlike the others, he was immersed in a variety of outdoor activities. For him, being involved in a variety of outdoor activities and locations "was just normal."

John:

I'd say I grew up in a suburban area. When I was a kid we were always playing outside. We were biking around, playing baseball, and playing football. Just hanging out with the neighborhood kids. And depending on my early teens, I was probably still doing the same thing. But in the late teens I had a car and freedom. But yeah definitely as an early teen we were just always outside running around. We just wanted to have fun. I think spending a lot of time outdoors got me appreciate it more. I think I appreciate the green space more since I grew up in a more spread out suburban area with parks and trees. There's less chatter and more spaces for relaxation or exploration.



Lucy:

I grew up in a rural area, about 15 miles outside of a very small town. We just had to make our own fun. We lived by a creek so we were always playing in that. We had a couple gardens too. My dad always had outdoor work projects for us to do. He was into camping a lot and into just being outside. He would just sleep outside at night time. He would even set up a hammock in the yard so we could sleep outside too. We went on camping trips to Itasca, and he made an old bus into a camper so we drive and then camp. My dad was really cool and since he was always really into being outside, I just grew up around it and really influenced me. It instilled an initial appreciation for the earth, for being outside, and all the things that come with that.

Sara:

For the first 12 years of my life I lived in the country. We had 16 acres with a swamp in the back. We played outside a lot. We had downed trees for firewood and we mowed the lawn a lot. My mom gardened with us, and my dad taught us how to shoot guns and took us fishing a lot. There was a lake about two miles from us where we'd all go fishing. There was lots of wildlife and we even saw a moose. I still have that desire to travel through the woods, go hike. I was so glad to have been able to grow up in the country for those many years, and to have those experiences. Now I know what I want in my life. If I didn't have those experiences, I might not know what I'm missing.

Chris:

I grew up in an area that was on the border between the city and the country. Very close to the outdoors, if I wanted to go out and play it was right there. There is a big spot, a few acres of land and trees, and if that's where I wanted to go play, that was our spot. As I got older, I got more into it. About 30 minutes from my house there was a big mountain range. It was great for

recreation, I would go out there with my friends we would barbecue we would go hiking we would go running we spent a lot of time out there. My family wasn't as big into it as I was, but every other week we got to go somewhere together like to the forest. I don't think I would have the same appreciation for nature if I had grown up in the city. Most of my great memories as a kid were outside so I probably wouldn't appreciate it as much. I feel like being outside in nature as a kid made me appreciate it, but I wouldn't say that that's what made me conscious about it.

Anthony:

I grew up in a small town about 10 minutes outside of a mid-size city. There's not much to the town, just a few houses and farms near it, semi-rural. We had chickens in our backyard, a garden, and other good stuff. Being in a small town we rode our bikes almost the entire day, everywhere. We were outside all day every day. There were still neighbors next door to us, but we had a cornfield in our backyard. We'd run through it, we'd run around and catch lightning bugs. They were all over in the cornfield. It was a really good space, especially in the fall after they clear out the field. It would become this big open space where we could do whatever really. It was just having that freedom and that space, the same way with the yard. Growing up there made me more comfortable in the outdoors. I don't want to be in the basement. I want to be outside. Having all that grass, trees, and a natural landscape helped me to learn how to get through that anxiety that comes from being surrounded by everything is so controlled.

While listening to the interviews it was apparent that the participant's experiences helped to plant a seed. Many of them explicitly remarked "having access to that park was a big deal" or "[it] definitely made me more sensitive to the environment." They spoke of their sense of exploration and curiosity being nurtured in those outdoor environments. The freedom, ease of access, and backdrop of natural wonders became a strong socializing factor. It's possible that it shaped not only their environmental ethos, but their personalities as well.

*Subtheme: degradation or loss of childhood outdoor spaces.*

As the participants told their stories about childhood places, some, but not all, began to speak in no uncertain terms about the impacts of witnessing a deteriorated condition. Whether it was urban encroachment, commercial development, trash, pollution, or litter, they recalled conceptualizing at this young age that it was somehow wrong. What is noteworthy here was the budding sense of morality that accompanied present or changing condition of their childhood places. It was clear that the sense of loss or degradation had become a powerful socializing factor.

While the subtheme of great places to be a kid was distinctly correlated to developing a sensitivity or appreciation for the outdoors, the degradation or loss of those places demonstrated a clear connection to the development of a sense of right or wrong. In these cases, that budding morality became an impetus to take action.

In addition to speaking about the fields and open spaces in her childhood neighborhood, Alexa went on to speak, unprompted, about the personal effects from changes in land use. The wide-open spaces she cherished as a child were methodically being developed, and it impacted her. It was obvious to the researcher that witnessing that development played a key role in the formation of her eco-social perspective. She wasn't alone. The following narratives describe the phenomena in rich detail.

Alexa:

It was pretty much country but then they started developing the fields in front of our house. I was about eight years old when it started. It started slowly, but then it just took off. Now there are hundreds of houses and a multi-million dollar development in front of our house. It bothered me that we used to look out our window and see fields and sunsets; now it's just houses. I hated it so much; that was our field. [Open spaces] are something I want to be able to

have with my family when I'm older. I wish I still had that. Now when I go for a walk back home, I have neighbors. I don't want people there.

Her story paints a clear picture of the sense of loss she experienced, starting at age eight and continuing through the time of the interview. As described by other participants, it's not just the spaces themselves, but the characteristics of that space. The value in that privacy appears to be linked to the experience of freedom in these spaces. Sara's story also regards the loss of privacy. The length and terminology used to describe this aspect of her story are not identical to Alexa's, but the main principles do overlap.

Sara:

When I was 12 we had to move to town. Our yard was much smaller then. I felt like I couldn't go outside because people are watching you. You aren't just going to the woods to play. There are all these cants- you can't have a big garden, etc. We lost that big vast area of openness and with it that sense of not having anybody around you. It felt uncomfortable to be playing in an area where you could see people in their windows and they're looking outside. It was weird; it felt like our privacy had been destroyed. It didn't have that serene feeling, and I wasn't as comfortable playing in the city. My aunt and uncle, and grandpa had big properties where we could go and play. So, we still had access to fun places to go and play. It was different, but life on the farm still sticks with me.

In addition to the sense of loss regarding privacy, serenity, and freedom, Chris experienced something related. He had a similar experience of seeing his childhood places developed, but for him it was the budding of a sense of what should and should not be. Similar phenomena affected other participants as well, though not in exactly the same form. And for some, it was a call to action.

Chris:

We had a cabin off in the mountains a long way from anywhere and we used to go there with the family; all of the extended family. There really wasn't much out there, just a big mountain and a lot of trees. But then slowly civilization found its way to it. There were a few years when we didn't go. And after going back there were just houses everywhere. And roads; it wasn't the same. I started thinking this is not the way that was supposed to be. All my childhood memories were in this place, playing in the trees or going around that part of the woods. And now it is just houses. Having that cabin gave me the ability, or the option, to go out there when I needed to find peace and serenity. That's no longer there. There used to be all those special places there, where I could spend hours hanging with my friends and talking about all the silly things we did. And now they're gone; those places aren't there anymore. The landscape has changed. It resembled what it looked like before, but it wasn't the same anymore. It now looks more like an urban environment, and it feels like something was taken away from me. All of these experiences and having that option was just taken away from me. That loss is a powerful feeling, and it makes me want to do something to help it.

To the researcher, listening to Chris articulate the socializing factor so eloquently and descriptively was an 'aha' moment. It was precisely the type of data being sought. Grief and loss are an inescapable consequence of humanity, and evidently a major influence on the development of a person's environmental ethos. Not every participant was as descriptive as Chris, but the stories of degradation and loss still stuck with them and became critical to their environmental socialization. Mary recalled seeing the litter, and in her story we also see the budding of environmental morals.

Mary:

I also remember seeing a lot of garbage down [at the river spot near our house]. I thought this garbage shouldn't be here. That's what I thought as a kid. I thought to myself, "shouldn't someone be picking this up?" So it's something we did as kids. There was one kid who smoked down there. We saw the cigarette butts and we picked them up and put them on his porch. When I was nine we had to get up in front of the class and read off two words that we chose. My two words were "don't litter." That really stuck with me.

For Mary to pick up her peers' cigarette butts as a kid was a pretty bold move. She is not large in stature. Clearly, seeing this litter at her spot was a big deal. She thought somebody should do something, but that somebody turned out to be her. Seeing that litter with her own eyes was a powerful source in her environmental socialization. Arla also spoke of litter, and more specifically glass, as a significant contributor to her environmental socialization.

Arla:

When I was growing up, I saw a bunch of litter in the ditch by our farm. It made everything less presentable, less enjoyable, and less likable. There were beer cans, pop cans, and wrappers. I cut my foot on a glass bottle or aluminum can at the lake a couple times. It made me scared to go swimming. When my grandma and I went to plant a garden we were always running into things my grandpa had thrown out. It wasn't just one or two things it was a lot of stuff. There was glass, metal, and all sorts of stuff that hindered us from creating a garden. My grandpa was from a different generation; things just got thrown. That had an influence on me. Digging up all that trash made me think maybe we shouldn't be doing this.

With Arla the research revealed her budding morals as a result of digging up the trash while trying to plant the garden. In addition, sustaining cuts on her feet not only harmed her physically but made her afraid to swim. During the interview she returned to the subject of litter

on several occasions, and it became clear that, like others, witnessing degradation firsthand became a strong agent of environmental socialization.

## DISCUSSION

Although the case study brought insight into the phenomena of environmental socialization, it may have raised more questions than it answered. This section explores the correlations in greater detail and discusses the efficacy of qualitative research methods.

### **Dissimilarities**

While the case study's main focus was on the significant overarching influences, not every participant experienced these influences the same way. For instance, Erin talks about her time outdoors at the farm with her grandma, and how the outdoors was also her income; Chris spoke about food and the outdoors, and not knowing where his food was coming from. Another example is in the theme of big, open spaces. For Sara, going to the 'spot' was an act of rebellion; a self-driven freedom. For Chris, 'they just turned us loose' meaning his parents sanctioned his wildland play. While each story demonstrates the participants' experiencing a sense of freedom, one was sanctioned while the other was actually forbidden by parents. A subsequent study could further examine the significance of this socializing influence as a function of parental control.

### **Connections to Piaget's Theory of Cognitive Development**

The case study will now come full circle, analyzing the data in its more basic forms through the eyes of Piaget's Theory of Cognitive Development (Piaget, 1936; Berger, 1995). In the table on the next page, data is presented in tabular form for ease of review (Table 2). The leftmost column represents the thematic content that emerged during data analysis. The next column identifies what could be called the building blocks of each focused code. The terms in this column were extracted from the participant's narratives because of their significance to the main theme. This data represents not only nouns and verbs that are easily understood in basic form, but also includes more complex phenomena that are more descriptive of a notion, feeling, or concept.



Both types of data are analyzed further through the lens of Piaget’s Theory of Cognitive Development (Piaget, 1936; Berger, 1995) to determine if environmentally socializing factors can be explained in terms of childhood development. It must be noted, however, that as the development progresses the data become more complex and nuanced, and thereby more challenging to assess. This is the same for the focused codes. Some are simple and straightforward; others require deeper discussion to uncover meaning.

Table 5

*Focused Codes with Correlating Properties*

<b>Themes derived from data analysis</b>	<b>Correlated socializing factors</b>	<b>Cognitive Development Stage</b>	<b>Correlating stage characteristics</b>
Big, open spaces	Freedom Curiosity Discovery Privacy Peace/Serenity	Sensorimotor  Concrete Operational	Exploration Experimentation Disappearing egocentrism Broader perspective
Trails/logs/water features	Adventure Play	Preoperational  Formal Operational	Exploration Imagination Manipulation Problem Solving Creativity
“That was our spot”	Memories with friends and family Affinity Ownership	Concrete Operational	Socio-centric Reversibility
Seeing litter/pollution	Awakening morality Immediate, physical danger Stewardship	Concrete Operational  Formal Operational	Reasoning ability Reversibility Ability to use general principles
Urbanization/development	Sense of Loss Desire to preserve Solidified ethic towards preservation	Concrete Operational  Formal Operational	Reversibility Socio-centric Perspective Long-term planning General principles

## Cognitive Development and Environmental Socialization

The case study did prove effective in broadening an understanding of the process of individual's socialization to the environment. While Piaget's theory was not able to answer all of the researcher's questions, valuable insights were gained (Piaget 1936; Berger, 1995). Data were produced that, while interesting, did not provide adequate insight for this case study and shall be discussed. The data were listed as focused codes (see Table 2), along with a comparative list to characteristics and precise stages of development.

### *Developing sensitivity.*

Participants spoke in reverent detail about the areas they played as a child. A developing brain is highly influenced by the stimulus it is exposed to, and the outdoors proved to be a memorable and deterministic factor for their lives up to now (Berger, 1995; Piaget 1936). Developing this sensitivity embodies some basic socializing characteristics when viewed through the lens of Cognitive Development. Table 3 was extracted from Table 2 for ease of viewing.

Table 6

### *Comparing Data to Piaget's Theory: Big, Open Spaces*

<b>Theme derived from data analysis</b>	<b>Correlated socializing agents</b>	<b>Cognitive Development Stage</b>	<b>Correlating stage characteristics</b>
Big, open spaces	Freedom Curiosity Discovery Privacy Peace/Serenity	Sensorimotor  Concrete Operational	Exploration Experimentation Disappearing egocentrism Broader perspective

The data suggests an environmental socialization factor of having big, open spaces to play. To the participants, the defining characteristics included the freedom to indulge creativities and make new discoveries. For Sara, having to move from the farm into town brought her to a place that was not open enough. The socializing agents associated with big, open spaces, or the converse, can be relayed back two different stages of Piaget's theory (Berger, 1995; Piaget,

1936). In the Sensorimotor stage a child begins to explore the world around him, but curiosity drives him to discover.

The Concrete Operational stage is when a person’s worldview starts becoming decentralized (Berger, 1995; Piaget, 1936). Imagine the impact of what a child sees as its mind begins to open. When the mind is opened to find big, open spaces, this becomes part of his environmental socialization. This notion is supported by an existing quantitative study, published in 2002 in the journal *Environment and Behavior* that found, “memorable childhood play experiences in wild environments helped shape later adult interest in environmental activism” (Bixler et al., 2002).

- “Yeah, we’d run through it, we’d run around and catch lightning bugs they were all over in the cornfield. It was a really good space, especially in the fall after they clear out the field. It would become this big open space where we could do whatever really.” (Anthony)
- “Just being in the woods when you hear nothing but birds, crickets, and the trees crackling. That serenity. Peaceful.” (John)
- “We lost that big vast area of openness, and that sense of not having anybody around you. It felt uncomfortable to be playing in an area where you could see people in their windows, and they’re looking outside. It was weird, it felt like our privacy had been destroyed.” (Sara)

Table 7

*Attributes of Place*

Trails/logs/water features	Adventure Play	Preoperational Formal Operational	Exploration Imagination Problem Solving Creativity
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The type of places was a significant factor for the participants, and in Piaget’s Preoperational Stage, exploration is another defining factor (Berger, 1995; Piaget, 1936). In the Formal Operational, the trails, logs, and water features offer a medium for problem solving as one navigates the logs, streams, and trails. The same would go for hiking/biking trails.

- “We would go down there just to explore, and we played on the logs a lot. Even though we weren’t supposed to go, we didn’t listen.” Mary
- “They would just turn us loose and we’d go biking around on the paths.” Chris

Table 8

*Social Dimensions of Childhood Spaces*

“That was our spot”	Memories with friends and family Affinity Ownership	Concrete Operational	Socio-centric
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At this point the student’s narratives begin to move away from the more physical elements and into the social. In the Concrete Operational stage, the child’s mind becomes less egocentric and more social, incorporating more points of view. This would explain the entrenchment of social values associated with the childhood places (Berger, 1995; Piaget, 1936).

- “There was a big spot; a few acres of land and trees, and if that’s where I wanted to go play that was our spot. I would go out there with my friends we would barbecue we would go hiking we would go running we spent a lot of time out there. There were a few that were my really closest ones. The ones that I was really close with in that kind of life you get to spend a lot of time with. Those ones you get to bond with.”  
(Chris)

***Degradation or loss of childhood places.***

Table 9

*Observing Degradation*

Seeing litter/pollution	Awakening morality Immediate, physical danger Stewardship	Formal Operational	Ability to use general principles
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In this socialization agent the participants expressed frustration at the degraded condition of their favorite places. By this time in a child’s development they are able to understand general principles (Berger, 1995; Piaget, 1936). Based on the emotions, one of those general principals takes the shape of a value judgment or moral code. They are able to categorize right from wrong. Unfortunately, they may exercise this ability alongside the realization that a place they felt connected to has suffered an injustice.

Table 10

*Personal Impact from Development*

Urbanization/development	Sense of Loss Desire to preserve Solidified ethic towards preservation	Concrete Operational  Formal Operational	Reversibility Socio-centric Perspective Long-term planning General principles
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Much in the same vein as the previous socializing process the sense of loss was profound for the participants. In the Concrete Operational stage, the participants are aware that things can be put back the way they were, a concept Piaget refers to as Reversibility (Berger, 1995; Piaget, 1936). As described previously, in the Formal Operational stage the socializing agent stems from the adoption of general principles. A moral code is a general principal that drives their reaction, and thus defines the relationship to their special place.

## **Effectiveness of Qualitative Method**

The qualitative research method examined in this case study worked well to answer the main research question. The flexible research design, while frustrating at times, allowed the case study to deductively inform the framework. Data collection through in-depth interviews was a proper choice, and grounded theory analysis was a good way to see what the data was saying. Overall, though laborious and challenging, the results of the study met the needs of the researcher.

### ***Conceptual framework approach.***

The conceptual framework was an effective way to establish enough structure to keep the survey but could also be frustrating at times. There are several approaches to analyze, present, and discuss findings, and it is up to the researcher to choose the best fit for his data (Maxwell, 2005). This led to a time-consuming foray into trial and error. One of the more effective attributes was the sensitizing theory. It provided at least a basic framework from which to view the data, and ultimately was useful in understanding the emergent content.

### ***Data collection.***

Depth interviewing achieved what it was intended to. The ability to treat data collection as iterative and conversational gave the researcher the opportunity to let the participants speak in detail about the agents of environmental socialization. To an extent, there may have been too much data. At one point it became difficult to decide which data to use, and what would not be included. A more rigid survey design could have alleviated this issue but could have also undermined the inductive qualities of the method.

### ***Analysis and reporting.***

In Vivo coding was simple and easy to follow. After perusing the data, the emergent themes became quite obvious. The participants' choice of strong rhetoric to describe their experiences gave the researcher confidence the case study had achieved its purpose. The biggest

challenge of this method was in the presentation of findings. Deductive analysis can follow several paths, and the distinction between reporting findings and analyzing data was opaque.

***Limitations and challenges of qualitative method.***

This case study has shown, as is true with most qualitative studies, they are not able to generalize phenomena or test hypotheses. And they should not be expected to do so. The case study could not be replicated or reproduced with different variables. It was not designed to do so. The most challenging aspect of the qualitative method was sorting out all of the various tools in the toolbox. Since it is a relatively new method, at least a couple authors are still competing to establish their protocols as the prevailing framework (Charmaz, 2006; Rubin and Rubin, 2005). A novice researcher can be overwhelmed, but with a keen eye, patience, and the proper diligence qualitative studies are an effective tool at understanding meaning, nuance, and complexity in a given phenomenon.

## CONCLUSION

Modern environmental problems are not lacking in ecological solutions; rather as a society we lack the gumption to implement those solutions. Sociological researchers are aware of the complexity of our relationship to our environment but have not yet been able to establish theoretical frameworks to describe that relationship. Quantitative studies have been limited in their ability to uncover the nuance and complexity that exists between a person's attitude, intention, and behavior.

The scope of the environmental problems facing our society is too great to be limited to quantitative study, and the scientific community is slowly warming to the abilities of qualitative inquiry. As discovered in this paper, the methods are useful in opening the door to a deeper understanding of the relationship between humans and their environment. This study discovered that at a young age, outdoor environments play a significant role as stimuli for a developing brain. When the brain is developed under these conditions, young adults cultivate deep and meaningful relationships with the outdoors, establishing a basis for their environmental perspective. These revelations shed light into an otherwise dimly lit corner of natural resource management. The potential for a deeper understanding of the environmental socialization process is limitless and may provide the key to a more sustainable future.



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## APPENDIX A. FINAL INTERVIEW QUESTIONNAIRE

Are you currently an outdoorsy person? What role does that play in your perspective on the environment as a whole?

Did you spend a lot of time outdoors as a kid? Please explain (who, what, where, how often, etc.)

To what extent has family influenced your views?

Did you grow up in a rural, urban, or suburban area? Please tell me how that might have played a role in your ecosocial perspective.

Has popular culture (movies, music, celebrities, etc.) played any role?

Considering your views on environmental issues, are they based more on facts or experience?

Have you ever taken the time to reflect on your personal environmental ethics? Is it difficult to answer or articulate?

What's more important to you: enjoying the outdoors, working to protect the environment, or learning about the environment, etc.? And why?

Can you point to do any specific experiences that have impacted these views and/or behaviors?

At what point in your life did these experiences occur: adolescent, teenage, or college years?

Of these experiences, which do you feel had the most impact on the development of your current attitudes or environmental behaviors? Would you consider it to be people, places, events, or something else?

Do you feel that direct (visible, hands-on) experiences are more influential than indirect (knowledge-based) experiences?

How do your views compare to those in your peer group? Are these views and/or behaviors still influenced by your peer group?

Have mood altering substances played any role in your ecosocial development?

Do you think that your ecosocial perspective is still changing?

Have religious or spiritual influences affected your views? If so, how?

Are some of your views more likely to change? Are there any that won't change?

For those views that will change, where do you think the most likely or significant influences will come from?

Have you found it easy to answer these questions, or do your responses require some deep thinking? If yes, did this introspection uncover anything that surprised you?

Is there anything else that you would like to share about the development of your eco-social perspective?

Do you think any questions should be added to this questionnaire for future interviews?

## APPENDIX B. INFORMATION AND CONSENT LETTER

**MSUM Minnesota State University Moorhead**

Institutional Review Board  
Flora Frick Hall 153  
UPO Box 91  
1104 7<sup>th</sup> Ave South  
Moorhead, MN 56560  
217.477.2474

**NDSU North Dakota State University**

Department of Sociology  
Reineke Hall  
PO Box 6050  
Fargo, ND 58108-6050  
701.231.5846

### Depth Interviewing Research Consent to Record

Dear \_\_\_\_\_:

My name is Joseph Herbst. I am a graduate student at North Dakota State University, conducting thesis research to understand more about the development of students' perspectives on the natural world.

The method of inquiry is depth interviewing, and you will be asked a series of questions about life experiences or influences that may have an impact on how you relate to the natural world. This interview will be recorded as part of the study, and your consent will be requested verbally prior to commencement of the interview. This study is confidential. When the study is completed and published all audio or other identifying files will be permanently deleted. Your participation is entirely your choice, and you may change your mind or quit participating at any time. A copy of the interview questionnaire is attached to this letter and explains in greater detail what the study is about.

You have rights as a research participant. If you have questions about your rights or complaints about this research, you may talk to the researcher or contact the MSUM Institutional Review Board using the contact information listed above, or the NDSU Human Research Protection Program at 701.231.8908, [ndsu.irb@ndsu.edu](mailto:ndsu.irb@ndsu.edu), or by mail at: NDSU HRPP Office, NDSU Dept 4000, PO Box 6050, Fargo, ND 58108-6050.

Thank you for your taking part in this research. If you're interested in the results of the study please furnish me with your email address and I'll send a copy when it is ready for publication.

Joe Herbst  
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Minnesota State University Moorhead

1104 7<sup>th</sup> Avenue South, UPO #106  
Moorhead, MN 56560  
218.477.2280  
[Joe.Herbst@mnstate.edu](mailto:Joe.Herbst@mnstate.edu)