CLOSER TO THE GROUND: ENVIRONMENTAL SOCIOLOGY OF CHILDREN

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The negative impacts of human behavior on the natural environment are increasingly apparent, and while environmental education offers the hope that teaching and engaging young people will lead them on alternative paths in their interactions with the natural world that worthy goal has not come to fruition. Our environmentally significant behaviors as a society only continue to worsen. I suggest not only that we have not taken the time to understand children and their own child-centered understanding of the world, but more importantly that it is this very understanding that will reshape how we think about environmental education. To do this, I present an environmental sociology of children.

I orient this project within the tradition of American Pragmatism, allowing multiple methods and operationalized theories to be applied in tandem. I address
three primary questions using both qualitative and quantitative methodologies, with a sample of 191 kids at a Title I public Montessori school in Northern Indiana.

- What does “nature” mean to children aged 3 – 11?
- What are these children’s attitudes towards nature?
- What do environmental identities in kids, aged 7 – 11, look like?

Key findings include:

- Constructions of nature were often close to home, immediate, and experiential.
- These kids hold strong pro-environmental attitudes, but how they make sense of these attitudes vary in meaningful ways.
- Those kids with strong environmental identities made sense of their own and other people's interactions with the natural world in two primary and often overlapping ways – giving moral standing to the natural world and/or applying the theory of evolution to make sense of human interaction with the natural world.

These findings point to the need to recognize the legitimacy of child-centered ways of knowing as pathways to engage youth and underscore the need for greater consideration and intentionality in the development of a nuanced pedagogy of human/nature interaction in environmental education. I conclude the dissertation with suggestions for improving environmental education.
For Dessie and Cole – “Dream a better dream; then work to make it real.”
CONTENTS

Figures ........................................................................................................................................ vi
Tables ......................................................................................................................................... vii
Acknowledgments .................................................................................................................. viii

Chapter 1: Introducing an environmental sociology of children ............................................. 1
  1.1 Introduction .......................................................................................................................... 1
    1.1.1 Research questions ......................................................................................................... 3
  1.2 Linking environmental sociology and the new sociology of children ............................ 3
    1.2.1 Orienting strategies ....................................................................................................... 5
  1.3 Motivation, study site, and participants ........................................................................…… 9
    1.3.1 Study site ....................................................................................................................... 11
    1.3.2 Participants .................................................................................................................... 12
  1.4 Dissertation organization ................................................................................................... 14

Chapter 2: Theoretical orientation and methodological foundation ................................... 15
  2.1 Linking theory and method ............................................................................................... 15
  2.2 Pragmatism ....................................................................................................................... 19
  2.3 Symbolic interaction and the construction of nature/society ............................................ 23
    2.3.1 Participant observation ................................................................................................. 25
    2.3.2 Nature drawing and story-telling task .......................................................................... 27
  2.4 Social structure and personality ....................................................................................... 30
    2.4.1 Attitude theory and the natural environment ............................................................... 32
    2.4.2 Surveys and semi-structured interviews ................................................................... 35
  2.5 Identity ................................................................................................................................ 38
    2.5.1 Environmental identities ............................................................................................. 40
    2.5.2 Measuring environmental identities .......................................................................... 41
  2.6 An environmental sociology of children ........................................................................... 43
  2.7 Parent surveys .................................................................................................................... 44

Chapter 3: Constructing nature: Kids’ cultural-cognitive boundary work ......................... 46
  3.1 The stories we tell about nature ....................................................................................... 46
  3.2 Literature review: Constructing and negotiating nature’s boundaries ......................... 47
    3.2.1 Boundary work ............................................................................................................ 49
    3.2.2 Symbolic boundaries and nature .............................................................................. 51
3.3 Methods................................................................................................................................. 53
  3.3.1 Analysis............................................................................................................................... 54
3.4 Results..................................................................................................................................... 57
  3.4.1 Geographic symbolic boundaries......................................................................................... 59
  3.4.2 Nature dangerous............................................................................................................... 63
  3.4.3 Cultural/cognitive boundaries around objects/others......................................................... 65
    3.4.3a People and ’others’........................................................................................................ 65
  3.4.4 Mediated images of nature.................................................................................................. 71
  3.4.5 Variability in symbolic boundaries: Linking culture and structure in boundary negotiation................................................................................................................................. 73
3.5 Discussion: Constructing ”the most complicated word in the English language”................................. 75

Chapter 4: ”Plants and people make the world nice.” Children’s attitudes towards the natural world........................................................................................................................................................................... 79
4.1 Introduction.............................................................................................................................. 79
4.2 Literature review: Attitudes towards nature............................................................................. 82
  4.2.1 The new ecological paradigm........................................................................................... 83
  4.2.2 Environmental identities................................................................................................... 85
4.3 Methods..................................................................................................................................... 86
  4.3.1 A modified NEP............................................................................................................... 86
  4.3.2 Measuring environmental identities.................................................................................. 87
4.4 Results: Kids’ attitudes towards nature - the importance of diversity, identity, and reasoning ........................................................................................................................................................................... 87
  4.4.1 Variability in NEP responses............................................................................................ 90
  4.4.2 Self in nature...................................................................................................................... 93
  4.4.3 From ecocentric to anthropocentric attitudes..................................................................... 95
  4.4.4 Qualitative analysis......................................................................................................... 98
    4.4.4a Theme 1: Rights of nature............................................................................................ 99
    4.4.4b Theme 2: Utility of nature.......................................................................................... 99
    4.4.4c Theme 3: Evolution......................................................................................................101
4.5 Discussion: Diversity, identity, and reasons shape NEP responses ................................102

Chapter 5: Children’s environmental identities: Interpretations of self, other, and attitudes..........................................................................................................................................................................107
5.1 Making sense of self and nature..............................................................................................107
5.2 Literature review: Attitudes with reason.................................................................................111
  5.2.1 Environmental identity: Constructions of self and other..............................................113
5.3 Methods.....................................................................................................................................118
  5.3.1 Self in nature scale...........................................................................................................118
  5.3.2 A modified NEP..............................................................................................................120
5.4 Results.....................................................................................................................................124
  5.4.1 Rights of nature: Affording nature moral standing.........................................................124
FIGURES

Figure 2.1: Theory and method relationship .......................................................... 18
Figure 2.2: Nature work ......................................................................................... 26
Figure 2.3: Self in nature scale .............................................................................. 42
Figure 3.1: Cultural/cognitive boundaries .............................................................. 50
Figure 3.2: Coding example of nature drawing task ............................................. 55
Figure 3.3: Prototypical nature items .................................................................... 58
Figure 3.4: Nature scary ....................................................................................... 58
Figure 3.5: Outside the fence ................................................................................ 61
Figure 3.6: The pet store ...................................................................................... 62
Figure 3.7: Scary bear ......................................................................................... 64
Figure 3.8: Stinging bees ..................................................................................... 64
Figure 3.9: The tire swing..................................................................................... 66
Figure 3.10: Node clusters ................................................................................... 67
Figure 3.11: In the Kalahari ................................................................................. 68
Figure 3.12: At the beach ..................................................................................... 69
Figure 3.13: Peaceful in Mexico .......................................................................... 69
Figure 4.1: NEP distribution ................................................................................ 93
Figure 5.1: Human/nature orientations shape attitudes ........................................ 112
Figure 5.2: Environmental identities shape attitudes .......................................... 117
Figure 5.3: Environmental identities shape human/nature orientations, shape attitudes ................................................................. 135
TABLES

Table 1.1: Socio-demographics of sample population.................................................. 13
Table 2.1: Modified NEP and Likert scale................................................................. 36
Table 3.1: Coding scheme for nature drawing tasks................................................... 56
Table 3.2: TV exposure by family SES...................................................................... 74
Table 4.1: NEP responses ..................................................................................... 88
Table 4.2: Self in nature responses .......................................................................... 89
Table 4.3: NEP regression analysis........................................................................... 96
Table 5.1: Distribution of selves in nature............................................................... 119
Table 5.3: Reasons behind attitudes .................................................................... 122
Table 5.4: Identities, reasons, and attitudes........................................................ 131
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CHAPTER 1: 
INTRODUCING AN ENVIRONMENTAL SOCIOLOGY OF CHILDREN

1.1 Introduction

Human induced changes to the natural environment are apparent, and the need to recalibrate the current environmental and climatological trajectory is urgent (IPCC 2014). Addressing these human/environment issues means that we need to understand reciprocal relationships between the two. To do this, we must examine the ecological impacts of modern society and also the socio-cultural drivers of environmentally significant human behaviors. As a sociological social-psychologist, I understand those human behaviors as driven by cultural and internal processes, including identities and environmental attitudes, as well as individual understandings and interactions with larger cultural constructs of ‘nature’ and ‘the environment.’ These cultural and social psychological factors are the focus of this dissertation.

Recognizing that the next generation will be facing a vastly different environmental future than the previous, there is an increasing emphasis on the importance of environmental education for young people in the hopes that future
generations will behave in more environmentally sustainable ways.\(^1\) An emphasis on environmental education began in the 1960’s. When Rachel Carson published *Silent Spring* in 1962, the impact was enormous – igniting the environmental movement of the 1960’s, increasing support and programming in environmental education, and spurring the ban on the pesticide DDT in the United States (Mittelstaedt, Sanker, and VanderVeer 1999; Staniforth 2013). Yet, human behaviors impacting the natural environment have only worsened. Problems such as climate change seem even more daunting than previous environmental crises. Saylan and Blumstein (2011) boldly state that because of the worsening conditions of our shared global environment environmental education has failed to do what it set out to do – cultivate a more environmentally aware and sustainable society.

I contend that social-psychological and socio-cultural research with children is a crucial missing component from environmental education research and programming. Focusing on education as an interactive endeavor in the community, we must not only use education to change content knowledge but rather education must promote reflective and critical understandings of the world. To do this, it is imperative to first ask kids\(^2\) what and how they think about the natural environment and their human place in that system. In this dissertation, I lay the ground work for that sociologically focused research and propose an environmental sociology of

\(^{1}\) As just one example, NSF SEES, a large funding solicitation, explicitly focuses on education as one of the key areas for addressing issues in sustainability. [http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504707](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504707)

\(^{2}\) My use of the word “kid” and “kids” follows in line with the work of Corsaro (2003). If one of the goals of sociological research with children is to give them a voice then it must also be that we recognize their own ways of speaking and understanding themselves, and rarely do kids refer to themselves as children.
children as a necessary component for efforts to improve environmental education outcomes.

1.1.1 Research Questions

Three central questions, with sub-questions, focus my work here. Some of these questions I entered the project with, others arose as I worked with the kids. I was moved to expand the project based on the kids’ expressed understandings of both self and nature. These questions are:

1) What are kids’ constructs of nature? What is nature to them? What items are included in that construct? In particular, are humans included? Where does nature occur? Is it close to home or far away? How do interactions with adults at school support or negate those child created and maintained constructs?

2) What are kids’ attitudes towards nature? What is the relationship between expressed environmental attitudes and socio-demographic groupings of these kids? Do environmental identities, expressed by the kids, influence their stated attitudes?

3) What role do environmental identities play in how kids think and reason about human interaction with the natural world? What are the connections between moral reasoning towards nature and views of the self? And similarly, what are the connections between evolutionary reasoning and views of the self?

1.2 Linking Environmental Sociology and the New Sociology of Children

*Environmental sociology is the study of community in the largest possible sense.* People, other animals, land, water, air – all of these are closely interconnected. Together they form a kind of solidarity, what we have come to call ecology. As in any community, there are also conflicts in the midst of the interconnections. Environmental
sociology studies this largest of communities with an eye to understanding the origins of, and proposing solutions to, all-too-real social and biophysical conflicts. (Bell 2012:2)

Research in environmental sociology tends to focus on adults. Here, I focus on some of the same topics that have been addressed with adults – constructions of nature, environmental attitudes, and environmental identities – to research with children.

Kids maintain a unique culture from adults, and researchers focusing on the New Sociology of Childhood and the Geography of Children have shown that these unique understandings of things such as place and friendships are worthwhile and rich areas that the social sciences have mostly ignored (Corsaro 2003; Aitken 1994, 2001). In this dissertation, I focus on child centered meanings and constructs of nature, recognizing their culture, attitudes, and identities as legitimate avenues of inquiry for research.

My findings from this dissertation have application to how we think about and implement environmental education. Previous work demonstrates that uncovering kids’ unique understandings can improve educational outcomes (Kendrick and McKay 2004). Currently, however, there has been little work exploring kids’ culture in relationship to the natural environment and limited application of this sociological research to environmental education.
1.2.1 Orienting Strategies

Many philosophers maintain that at the root of our modern day environmental problems lies the artificial, Western delineation between humans and the natural environment (Braun and Castree 1998; Katz and Light 1996; Latour and Venn 2002). This false boundary is the foundation for debates over nature vs. nurture (or culture) and creates a false dichotomy between two non-distinct entities. It is traced back in philosophy to Descartes and Cartesian dualisms, separating mind and body, or idea and matter.

The Philosophical tradition of American Pragmatism begins with the central premise of rejecting Cartesian dualisms, and provides the broad orienting strategy of this dissertation. Numerous scholars have noted the usefulness of the Pragmatic orientation when addressing issues of human/environmental interaction because of the foundational rejection of dichotomizing humans and nature (e.g., Braun and Castree 1998; Jerolmack and Tavory 2014; Latour 2007; Weigert 1997). Weigert (1991 and 1997), following in the tradition of the American Pragmatist George Herbert Mead, suggests that we recognize the ecological meaning in our actions. We must extend our comprehension of interactionist theories to include the longer time and larger spatial scales of the natural world, thereby including nature as a reactor to our human actions. Other scholars, such as Norton (2005), note that nature conservation itself must move beyond simply setting nature aside whilst ignoring human/cultural values. French social theorist, Bruno Latour, now labeled a French Pragmatist, argues that the American Pragmatic tradition is the best suited for
addressing environmental issues and should no longer be ignored by philosophers (2004). All of these scholars argue that we must approach the world holistically, rejecting the nature/culture divide to create a realizable sustainable future. While Pragmatism provides the interpretative lens, theories and methods from sociological social psychology and cultural studies provide the actionable research tested here.

I worked with 191 students aged 3-11 at Wiley, a public primary school in Northern Indiana. The population is racially and socio-economically diverse. The research methods I used were selected specifically from the pragmatic perspective – linking multiple theories and methods to uncover meaning created by the kids. Those methods include: participant observation, a constructionist drawing and storytelling task, semi-structured interviews, survey data, and the collection of an identity measure.

These data were collected to address three foundational topics for the environmental sociology of children – constructions of nature, attitudes towards nature, and understanding children’s environmental self.

The questions on the kids’ cultural constructions of nature are informed by literature in cultural sociology and other cultural studies fields where researchers understand nature itself is a social construct – that is we create ideas about nature and interact with it based on our shared cultural meanings. Our constructs of nature have very real manifestations in environmental changes in the world. As Weigert (1997) stated, “meaning is culturally constructed, personally experiential and
behaviorally natural” (171). What is nature and where we place it influences how we interact with it (Cronon 1996a & b). I rely on the seminal work of Mary Douglas (1966) as well as more recent work by scholars such as Nippert-Eng (2010) in focusing on the symbolic boundaries of nature, marked around items, geographies, and on the body. I focus, in chapter three, on where kids imagine those boundaries and how interactions with adults may restructure the boundaries in children’s cultural constructions of nature.

I then focus on the kids’ attitudes towards nature. Attitude theory posits a relationship between social structures and attitude formation (Maio et al. 2003), and yet there is limited socio-demographic variability in previous research on children’s environmental attitudes (Evans et al. 2007). The data here, presented in chapter four, addresses this shortcoming in previous research.

I rely on the foundational work by Dunlap and Van Liere (1978) as well as more up-to-date revisions of the New Ecological Paradigm Attitude Scale, the most often used environmental attitude scale available (Dunlap et al. 2000). This scale was modified and validated in 2007 for work with children (Manoli, Johnson, and Dunlap 2007). Kopnina (2011) argues that when working with children it is important to include qualitative data on the meanings behind attitudes. I follow in this line of critique and include qualitative and quantitative data to reveal the kids’ attitudes and the relationship between those attitudes to socio-structural variability in childhoods. Highlighted in chapter four is how children in this study demonstrate
unique ways of making sense of how humans should behave in relationship to the
natural world.

Questions about children's environmental identities are the focus of a third
needed focus area for an environmental sociology of children. Other than research
by Kahn (e.g., 2003) there is no work on children's environmental identities. I rely
first on the work of Stets and Biga (2003) arguing that to better understand people's
environmentally significant behaviors we must uncover how they think of their self
in relation to the natural world. The environmental identity is a central person level
identity, and I argue that as such, it is likely tightly related to moral identity
processes (Hitlin 2003). In chapter five I demonstrate that an environmental
identity plays a fundamental role in how kids make sense of their environmental
attitudes and their overall views of how people should interact with the natural
world.

In chapter six, I propose how the research results for this environmental
sociology of children can be applied to environmental education. Using the
Pragmatic orientation for the entire piece, I focus on Dewey and Mead's proposals
for child centered, child agentic, reflective avenues of learning (Dewey 1933; Mead
1910). Recognizing the kids' understandings of self and nature has application to
approaching environmental education itself from a constructivist perspective –
valuing and building on the constructs the kids already hold. This proposal of how
environmental sociology of children can be applied similarly follows a Pragmatic
maxim, the role of social science research for the betterment of an evolving, democratic society (Faegin and Vera 2001).

1.3 Motivation, Study Site, and Participants

I have been interested for quite some time in thinking about how kids construct and connect to the natural environment. For two summers, I ran a neighborhood ecology program for at-risk youth (Mikels-Carrasco 2010). That program focused on engaging young people in ecological issues in their neighborhood and then bringing them to the local university to connect those fun outdoor activities with career possibilities in the natural sciences. This program’s success connected me to NDeRC (Notre Dame extended Research Community), a group funded by a National Science Foundation GK-12 grant that was working on teacher training and research in the sciences. In 2009, I was awarded a two-year graduate fellowship with NDeRC. As part of my fellowship, I was asked to organize an environmental education teacher training workshop with a local teacher/collaborator.

I immediately knew that I wanted to work with my daughter’s teacher at the time, Kathe Streeter. I knew that Kathe was committed to environmental education and getting her students outside for learning experiences in early childhood. I also knew that we shared a common interest in “place-based” environmental education –
that is environmental education that teaches about the immediate environmental experience that kids can have in their backyards, school grounds, and local communities. It is an approach to environmental education that links nature and culture, often connecting environmental history with human history in a particular geographic area (Sobel 2004). The collaboration worked well and we organized and facilitated a very successful teacher training seminar two summers in a row.

A second component of NDeRC’s fellowship was to work with teachers on a research project. I had just completed two summers of organizing the neighborhood ecology program and Kathe had done previous work in her classroom on connecting kids to both nature and food. We were both looking to expand on these previous experiences and this was the perfect opportunity for Kathe and me. We were interested in similar questions: her on how school interventions may change attitudes towards the natural environment and I on how the kids construct the idea of nature and the intersections of those constructions with identity formation. With the financial support of NDeRC and the logistic support of Kathe’s school principal, we were able to recruit teachers to involve their classrooms at Wiley and to research these questions with a large sample of young kids.
1.3.1 Study Site

Wiley sits in a predominantly African-American, low-income neighborhood in a small city in the Upper Midwest. Only a few years before the study, Wiley was converted to a public Montessori magnet school. Wiley is a district first, magnet second school. This means that district students are admitted and those living outside the district - magnet students - enter a lottery system to gain enrollment into Wiley.

Like other Montessori schools, Wiley has mixed age classrooms. Early childhood (EC) classrooms have a combination of equal numbers of Kindergarteners, pre-school four-year-olds, and pre-school three-year-olds. Lower elementary (LE) classrooms have a similar distribution of first, second, and third grade students. The fourth grade classroom at Wiley contains only fourth graders. According to the school’s principal, students are randomly assigned into classes while striving for equitable distributions of males/females and district/magnet students in each class. Each classroom has a total of about 24 students.

There are a number of other features of Wiley that are important for this research. Wiley had just moved to a new building the year the study was done. Kids in the Early Childhood classrooms all had doors leading directly to a small garden space outside. Some teachers used these spaces more than others. In other work, Kathe and I explored how exposure to these garden areas and the outdoors influenced the kids’ attitudes towards the natural world over the course of the school year (Streeter and Mikels-Carrasco 2012).
Additionally, Montessori education has a unique focus on science in early education. There are a number of science concepts that are presented in Montessori curriculum at a very young age. Kids entering first, second, and third grade are presented with “The Five Great Lessons” at the beginning of every school year. These lessons include: Coming of the Universe and the Earth, Coming of Life, Coming of Human Beings, Communication in Signs, and The Story of Numbers. This is part of the curriculum using Marie Montessori’s method. The terminology is broadly interpreted and private Montessori schools often use religious understandings of these lessons. However, because Wiley is a public school, teachers there use central physical, biological, and social scientific theories and concepts (e.g., the big bang, Darwinian evolution, and social science theories of how cultures create and use meaning) to teach these lessons. (Refer to Appendix 1 for procedures used to recruit teachers and collect parental consent for the children’s participation.)

1.3.2 Participants

One hundred and ninety-one students at Wiley took part in this project. Table 1.1 details the racial and socio-economic breakdown of the study sample. Qualification for free/reduced price lunch or family paid lunch was used as a proxy measure for socio-economic class.
Table 1.1 describes percentage of the sample from the district, magnet, or the data on that is missing and within those descriptors the percentage of study participants on free/reduced or family paid lunch by racial categorization. For example, 21% of magnet students were white and on free/reduced lunch; 38% of all magnet students were on free reduced lunch, while 84% of all district students in the study were on free/reduced lunch. Males and females are split nearly evenly throughout the grades.

PreK-3 = 11, PreK-4 = 10, Kindergartners = 58, first = 32, second = 29, third = 36, fourth = 15

Wiley’s principal and the corporation’s Director of Research provided socio-demographic data, including race, gender, lunch status, and district/magnet. All data was coded and stored for full protection of human subjects in research following procedures outlined in both the University and School District IRB protocols.
1.4 Dissertation Organization

In the next chapter, I layout the orienting philosophical foundation for this project, the social science theories used throughout, and the methods that arise from those theories. In chapter three, I uncover the kids’ constructions of nature. I particularly focus on when interactions in the classroom, in the school yard, and interactions referred to at home may work to constrain or support the kids’ own ideas of what nature is. I then move to a more quantitative analysis in chapter four and demonstrate the kids’ attitudes towards nature and how those break down by socio-demographic variability in childhoods. In chapter five, I move back to the qualitative work and uncover how the kids’ expressed environmental identities shape how they reason about human relationships to the natural world. In each of the empirical chapters, I review the methods used for the substantive research presented. Finally, in chapter six, I bring all of the results together and propose how this environmental sociology of children may be applied to environmental education.
CHAPTER 2: THEORETICAL ORIENTATION AND METHODOLOGICAL FOUNDATIONS

2.1 Linking theory and method

In proposing an environmental sociology of children I combine multiple theories from sociology, specifically from the areas of sociological social psychology and cultural sociology. In this chapter, I present the theoretical basis and methods used to address the research questions in this dissertation project. I link those theories and methods under the philosophical foundations of American Pragmatism. I recognize that the choice of any framework will result in methodological consequences (Stryker and Vyran 2003:16), which is why in this chapter I demonstrate the links between my philosophical orientation, theories applied, and methods used in this research.
Mixed methods of social science research are warranted by a Deweyan pragmatism. Dewey rejected traditional epistemological foundations... and moved the dialogue regarding knowledge and reality to the area of meanings-action connection... It is perfectly logical for researchers to select and use differing methods, mixing them as they see the need, and to seek to apply their findings to a reality that is at once plural and unknown. (Maxcy 2003:59)

Work in environmental sociology tends to fall into two primary areas of research: constructivist questions about what nature even means, including the human place within that construction, and research on the structurally constrained attitudes that individuals hold towards the natural environment (Bell 2012). The former approach looks at culturally constructed meanings of ‘nature’ and its complement, ‘society,’ while the latter leaves ‘the natural environment’ as an object outside of culture and questions how societal structures influence how individuals think and act towards the environment as an object. Those who work within either framework often attempt to uncover issues of constructed meaning and attitudes toward nature⁴ to understand individual and societal environmentally significant behaviors.

Researchers in sociological social psychology often stay within their frameworks, either focusing on the importance of structure in understanding social psychological questions or the role of individual and cultural meaning in interactions. In this dissertation, I answer Stolte, Fine, and Cook’s (2001) call for greater integration of theories in sociological social psychology. I use both

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⁴ I will use the terms nature, natural environment, and sometimes simply environment interchangeably. Recognizing that these terms, particularly nature, are overused and under defined – I use them to refer to that which is not human built, but when working with children it does not make sense to pose questions about the human built and non-built world.
cultural/constructivist and structural approaches alongside the New Sociology of Children (Corsaro 2003) to uncover an environmental sociology of children. A theoretically and methodologically integrative approach is important because, as yet, there is little environmental sociology focusing explicitly on children. This paucity of research hampers both sociological theory and the sound application of sociological research to the improvement of environmental education. Education geared toward children must be informed by research with children.

Figure 2.1 represents the theoretical and methodological orientations of the entire project, all linked under the orienting philosophy of pragmatism (Light 1996). I next turn to a discussion of pragmatism, and how the central premises of this philosophy are used to integrate theories, methods, and interpretation of the data for the Environmental Sociology of Children proposed here.
Figure 2.1: Theory and Method relationships for an Environmental Sociology of Children.
2.2 Pragmatism

“Pragmatism...is a philosophy rooted in common sense and dedicated to the transformation of culture, to the resolution of the conflicts that divide us” (Sleeper 1986:8-9). Environmental theorists and researchers from a variety of disciplines, including: cultural geography, sociology, anthropology of science, and environmental history, have noted that pragmatism provides one of the most useful philosophical orientations for addressing human/environmental issues (Demeritt 1998; Latour 1998 & 2008; Light and Katz 1996; Weigert 1994 & 1997). Four central premises make pragmatism a useful orienting philosophy for social science research into human-environmental interaction, and my proposal of an environmental sociology of children.

The first is that pragmatism rejects Cartesian dualisms (Bernstein 2010). Importantly, for purposes here, the divide between nature and society is a false dichotomy, culturally constructed, and yet pervasive throughout much of the history of Western thought (Cronon 1996a & b; Glacken 1967; Haraway 1991; Merchant 1996). Latour demonstrates this false dichotomy in his discussion of imbroglios, or entanglements of nature and culture (1993, 2010). When we, as a society, say that nature and culture are separate, we end up with hybrids that we are not able to categorize and therefore struggle to deal with. For example, climate change may be one of the largest and most threatening of these imbroglios. The earth’s entire climate system - a geo-chemical cycle that has evolved in such a way as to make life on earth even possible - is changing rapidly due to the emission outputs created
from making the stuff that we use and ‘need’ every day. Thinking of the reciprocal interactions between the climate system and human industrial development, it is impossible to conceive of nature as separate from society – rather the two become intractable and workable solutions must focus on the entirety of the human/environment/climate system.

I seek to uncover how kids deal with this culturally constructed dichotomy. One of the primary ways that this dichotomy is learned is through the methods and data used when teaching science (Orr 2004). If, as theorists claim, this separation of humans from the rest of nature is one of the most pervasive myths of Western culture (Braun and Castree 1998; Haraway 2000), then young kids who have had less exposure to these cultural narratives may not hold such a strong dichotomy.

The second reason the pragmatic orientation is relevant here is the emphasis on the processual nature of reality (Bernstein 2010; Peirce 1878). Children themselves are negotiating, constructing, and making sense of their world by integrating previous knowledge with incoming information from school, peers, family, and the surrounding environment (Dewey 1933). This process of formation of self, identity, society, and even nature is not static. However, it does have a historical moment and, for the purposes of this study, I address the historical present.

This recognition of the processual nature of reality has consequences for how data is analyzed and when/how theories are applied. It requires the recognition that research itself is a processual interactive undertaking between the researcher,
communities, and data itself. Timmermans and Tavory (2012) demonstrate that abduction may be a better way to direct qualitative research than the often used approach of induction. They base this on the writings of American pragmatist Charles Peirce and state: “...abduction refers to an inferential creative process of producing new hypotheses and theories based on surprising research evidence” (170), and while abduction is at times viewed as an approach to grounded theory, the key difference is that abduction recognizes the *a priori* interaction of existing theories as a backdrop to interpretation, not simply that the theory will arise from the analysis of data (Timmerman and Tavory 2012). I particularly use this approach when I think about how kids construct nature, allowing the data to direct me to the relevant theories to make sense of what I found. I also rely on this approach when I propose a pragmatic moral environmental identity in the conclusions.

Recognizing the social world as a process forces consideration of children because they are recognized as the future of society. Similarly, nature itself cannot be treated as a static object, but is also an agent of change through time, interacting with and shaping cultural constructions (Cronon 1983, 1991). The focus here is to uncover the cultural world of children and their meanings used to make sense of the natural world. Such an approach is a means to uncover the constructions at this moment in time during their personal development in a constantly changing society.

Third, pragmatism allows for plurality in motivation. Pragmatists recognize meaning is in the reaction regardless of *a priori* motivation. In tandem, pragmatism seeks to promote a democratic society with a foundation in Darwinian evolution.
(Mead 1934). This allowance for plurality in meaning alongside humanistic goals of bettering society through the application of social science can be seen in the work of the founders of pragmatism, such as Mead and Dewey (e.g., Dewey 1937; Mead 1934; see also Feagin and Vera 2001). Meaning is created in the outcomes of action (Peirce 1878). For purposes here, that means that the application of the kids’ constructions and understandings are credible sources for improving environmental education outcomes. The use of pragmatic social science to promote a democratic global society offers hope to those concerned with our shared global environmental future (Light and Katz 1996).

Fourth, many of the original pragmatists recognized the power in studying and applying the philosophy to work with children (Dewey 1933; Mead [1999]). Recognizing that children represent society and the potential of the future of society, both Mead and Dewey often focused on children. Mead noted that it was through formal education that a reflective method of scientific inquiry could be fostered to support the betterment of society (Deegan 1990; Feagin and Vera 2001). This obvious link between research and application when working with children is one that I embrace in this project. It is why I believe that uncovering children’s narratives about their self, humanity, and nature can improve environmental education from a child-centered, constructionist standpoint.
2.3 Symbolic Interaction and the constructions of nature/society

Symbolic interaction (SI) is a social psychological theory rooted in the philosophical tradition of American Pragmatism. SI places meaning at the center for understanding human behavior (Stryker and Vyran 2003), and provides an immediate, interactional understanding of culture as created and reproduced through the use and exchange of symbols by individuals. Blumer (1969) coined the term symbolic interaction while working at the University of Chicago. It was in Chicago that Blumer was strongly influenced by his University of Chicago colleague, George Herbert Mead (Stryker and Vyran 2003).5

Blumer’s three central premises of SI include: humans act towards things based on meaning; meaning arises out of social interaction; meanings are modified in an interpretive process. All theories that stem from SI (e.g., self-concept, identity, affect control – Gecas 1982; Stryker 1987; MacKinnon 1994) use and elaborate on these three central premises. SI is considered the basis for all of sociological social psychology (Stryker and Vyran 2003).

The meaning of nature itself is culturally constructed and changes through time. Those who seek to uncover the meaning of nature from an interactionist perspective focus on how our ideas of what nature is, or what it ought to be, are learned in interaction and subsequently shape our interactions with the world around us (Cronon 1996a & b; Callicott and Nelson 1998; Nelson and Callicott 2008). Scholars demonstrate that the purely constructionist view of nature falls

5 Notably, Mead and Dewey also worked together while at the University of Chicago (Westbrook 1991).
short and many have moved our understanding of the natural environment from a purely constructed to a co-constructionist understanding of the interaction between modern Western society and ‘nature.’

Mead himself demonstrated the agency of nature in interaction (Jerolmack and Tavory 2014). Mead’s (1922) “Behavioristic Account of the Significant Symbol” is one of the first pragmatist pieces to explicitly explore this co-constructionist understanding, moving the idea of construction and interaction outside of simple human agency, but also to understand relationships with other biota. Other modern theorists have moved beyond the constructionist/realist debate for how we interact with the natural environment (e.g., Cohen 1989). Capek (2006) demonstrates that it is through interaction with changes in surrounding landscapes and changing biota that ideas of nature and the eco-self are (re)formulated. Other examples include Jerolmack (2007), demonstrating how the experience of nature is very real and immediate for Turkish pigeon handlers tending to pigeons on rooftops in Berlin, a place far removed from the Western narrative of ‘nature’ as pristine and separate from humans. Weigert (1997) proposes the need for a transverse symbolic interaction, placing both humans and nature as actors in interactions (this is in many ways similar to Latour’s (2005) proposal for Actor Network Theory).

These issues demonstrate how important it is to learn children’s understandings of the natural world – what nature is to them and where they find it – and the human place within that idea of nature. Such ideas form the basis for future interaction. Therefore, uncovering these at a young age – and recognizing a
more complete, inclusive, societal view of nature and our interaction with (in) it – is a necessary step for an environmental sociology of children. While Aitken explored meaning and the construction of place for children (1994 & 2001) and Corsaro’s (2003) work illustrated how ideas of friendship and play are uniquely constructed by children, there has been little work (though see Kong 2000) on how kids construct ideas of nature.

2.3.1 Participant Observation

I addressed my questions about children’s cultural constructions of nature by first observing kids at school. I began my research with twelve weeks of observation in two of the early childhood classrooms at Wiley. This involved passive as well as active participation-observation. I first familiarized myself with the two classrooms by sitting out of the way, in the corner, taking some notes, learning kids’ names, and interacting with them as they came to me. Entering the classroom first in a peripheral role (Corsaro 1981) gave me the ability to enter more fully once my presence in the classroom was routine and accepted. After a couple days, I began to do environmentally themed works\(^6\) with the kids (Figure 2.2). At times, I would initiate this – seeing a child who was not busy with something else, I would ask if they would like to do a certain work with me. It took no more than a day in each classroom for the kids to see that if they did a work with me, they would get special attention. I had students regularly coming to me to ask if I would do a work with

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\(^6\) Classroom projects are referred to as works in Montessori. These works are generally done alone, though children do sometimes do them together.
them. I concentrated on only doing works with themes related to animals, plants, seasons, living/non-living, and geological formations. I did this because these were the topics that I wanted to talk with the kids about. However, I did not elicit responses, but rather allowed the child to lead the conversation with their particular interests. Furthermore, I am not a trained Montessori instructor, and so it was not appropriate for me to do works which I am unfamiliar with or uncertain how to do with the kids.

Figure 2.2 Nature work (picture used with school and parent permission)
I conducted over 100 hours of observations in those two Early Childhood classrooms. While my focus was on observing the kids, I also made note of interactions with teachers and classroom aides. In interacting with the kids, I attempted to fill the 'least adult role' in research with children (Mandell 1988). This approach is based on Mead's philosophy of action. It recognizes that there are inherent status differences in all research, and challenges researchers to put aside assumptions of adult cognitive superiority when working with children. Like Corsaro (2003), the research focuses on the kids’ culture as complete and legitimate. Finally, also in line with Mead, the focus of the least adult role is to understand the kids from their perspective so that shared meaning can arise in the research process, rather than overlaying an adult interpretation on top of the child’s intended meaning (Mandell 1988). This goal of uncovering the children’s perspectives was what motivated the collection of the nature drawing tasks.

2.3.2 Nature drawing and story-telling task

I used a nature task – a drawing and story-telling task – as part of my research on children’s constructions of nature. This nature task was based on research in literacy education that used drawings as a way to reveal how children constructed ideas of literacy (Kendrick and McKay 2004). For the literacy research, the authors asked young children to draw pictures about reading and writing, stating that it could be a picture of something they do now involving reading or writing or something they may imagine doing in the future. Then the kids met individually with a researcher to talk about their picture. This approach was used to
reveal child centered opinions and views of literacy in their own terms and not constrained by the child’s linguistic developmental stage.

Drawing on this previous research, I used a similar drawing and oral description as a way to reveal constructs of nature. Art provides avenues for engagement with children in a medium that most of them enjoy and one that is not constrained by their level of literacy (Veale 2005). Productive methods – that is methods that the research participants themselves produce – “shift the task of selection, translation, and arrangement to the people we study, these methods allow us to see how people use the culture they have internalized, rather than forcing people to work within cultural constraints we [as researchers] create” (McDonnell 2014:20). In research with children, this is perhaps even more critical, as the culture they have internalized is likely more fragmentary and perhaps inventive. Furthermore, it is this process of early construction that I sought to uncover.

I provided the children with no prompts, other than to say, “Draw me a picture of nature.” When they were finished, I asked them to tell me about their drawing. This task was conducted with children in two Early Childhood classrooms (PreK-3, PreK-4, and K), one Lower Elementary classroom (1st – 3rd grade), and one fourth grade classroom.

In the early childhood classrooms where I had already spent a significant amount of time observing the kids, students joined me at a desk off to the side of the central work space for the task. There were one to three students at the desk with me at a time. They were each given a piece of paper, pencils and crayons, and then asked to “draw nature.” Some kids would ask, “Can I draw a bird? (Any number of
objects could be inserted here).” I would respond, “You can draw whatever you think is nature.” When they were finished, the kids individually spoke with me about what they drew. This involved the children identifying the objects in the picture, and me asking where the picture was, if they had been there, what they would do if they were there, along with other questions that arose as we talked about their drawings.

The method for the lower elementary classroom was very similar, except that three students at a time joined me in a project room across the hall from their classroom. In that room, each child had their own table and I moved from table to table to talk to them once they finished their drawing. In the fourth grade classroom, the teacher facilitated the task by handing out blank sheets of paper and asking the kids to “draw nature.” The fourth graders were then asked to write on the back the responses to two questions: 1. “Where would they find the picture you drew” and 2. “Would you like to go there?” The data from the drawing and story-telling task are used in Chapter Three to understand children’s constructions of nature. A total of 79 tasks are used in that analysis.

Using a grounded approach to data collection and analysis (Glaser and Strauss 1967) within the processual framework of pragmatism (Timmermans and Tavory 2012), I found that symbolic boundaries play a key role in the construction of nature revealed in the drawing tasks (Douglas 1966). Cultural and cognitive sociologists, following in line with Douglas’ seminal work on symbolic boundaries, have uncovered how cultural boundary constructions structure internal cognitive boundaries in a negotiated process between individuals and society (Zerubavel 1999). This work uncovers the construction of symbolic boundaries around self,
geographic places and objects/others in tandem, and is paramount to understanding the active construction of 'nature' for the kids in this study.

2.4 Social Structure and Personality

Uncovering constructions alone is not enough. Stryker (1980) made this critique of symbolic interaction, stating that while meaning is created in interaction, interaction is constrained by structural opportunity. Much of the work in environmental sociology comes from the social structure and personality theoretical orientation in sociological social psychology. This approach explicitly considers the role of social structure in constraining meaning making and subsequent actions (Kohn 1989). It is important to consider how socio-demographic diversity influences what children think about the natural world. My sample population is very diverse, particularly in comparison to much of the work in environmental sociology, and especially the few pieces that have looked at children (e.g., Manoli et al. 2007; Evans et al. 2007; Kopnina 2012).

Researchers in social structure and personality note the importance of the ever-present and constraining categories of society. Categories such as gender, class, and race that are pervasive through time (McLeod and Lively 2003). The structures of the most interest for my work are the structures of socio-economic class, with some attention to issues of race and gender. Kohn (1989) noted that social structure and personality might be the most sociological of all the social psychological theories because it begins with the structures of society and asks how these shape
psychological categories, such as attitudes towards different cultural/societal objects. Some of the central works in this area have demonstrated the importance of including diverse populations in any sample when trying to make a statement about how individuals and society operate.

Kohn and Schooler’s (1969) seminal work in this area demonstrated that the values of self-direction and conformity were related to different work environments, with lower-class males valuing conformity and higher class males valuing self-direction. These values then permeate the values applied to self and family. Lareau (2002, 2003) built on this work, and found differences in parenting style by upper-middle and lower-poor working parents, differences that lead to important class distinctions in how children relate to dominant social institutions outside the family. These differences, found across class and race, are also important for consideration in this study. I consider how attitudes towards the environment and explanations of those attitudes vary by the different groups represented.

Understanding individual development from a sociological social psychological perspective falls under this large orienting strategy of social structure and personality. Research on the life course considers how life experience and trajectory vary based on different socio-structural constraints (Corsaro and Fingerson 2003). While I do not specifically focus on life course development - my data after all is more of a snapshot than a time series needed for life course research - I do focus somewhat on variability in my findings based on the age of the research participants. Similar to Corsaro (2003), I am cognizant of the societal constraints on
access and opportunity for the kids in this study, while also recognizing their legitimate claims to making sense of the world from their own lived experience – not as cultural agents in formation, but as active cultural agents right now.

2.4.1 Attitude theory and the natural environment

Attitude theory postulates that we act toward a given object based on our attitudes towards that object, and attitudes themselves are understood as an affective appraisal of the given object (Maio et al. 2003). Some argue that by uncovering a suite of different attitudes, we may begin to uncover individual worldviews, which are understood as larger orienting strategies that shape behaviors across multiple situations (Olsen, Lodwick, and Dunlap 1992).

Attitude theory has a long history in environmental sociology and the New Ecological Paradigm – a measure of environmental attitudes – is one of the most commonly used measures in environmental social sciences more generally (Dunlap and Van Liere 1978). It is also a commonly used measure for evaluating the effectiveness of environmental education (e.g., Manoli et al. 2007).

Early researchers using the New Ecological Paradigm noted that views (what the authors termed “worldviews”) were shifting in large scale societal surveys from human exceptionalist views about nature to a new ecological paradigm. In the latter, Earth is thought of as a finite spaceship and resources needed to be conserved (Dunlap and Van Liere 1978). Some argued this change in viewpoint was possible
because of the space program, when humans were first able to look back at our home planet and see it as a small, finite piece of matter in the vastness of space (Olsen et al. 1992).

Consistent with other sociological research in social structure and personality, researchers found that attitudes towards the environment are correlated with other socio-structural categories. Those who hold hierarchical individualist ideologies, ideologies that legitimate social domination, also hold environmental ideologies of human domination. Those in this group tend to be white males sitting in privileged positions in society (i.e., the white-male hypothesis) (Kahan et al. 2007).

Other work has demonstrated the pervasiveness of political ideology in environmental attitudes, in particular climate change denial. Work by McCright and Dunlap (2011a & b) further supports the white-male hypothesis, as conservative white males, regardless of educational attainment, are among the most likely to deny evidence of climate change (McCright and Dunlap 2011a & b). Although research on environmental attitudes and use of the NEP in particular is useful and enduring in academic research, it was only recently that work on environmental attitudes and the NEP turned attention to environmental attitudes of children.

Manoli, Johnson, and Dunlap’s (2007) paper was the first to reformulate and test the NEP in young people. They created a 10 statement NEP, again using the Likert scale for participants. They created a scale that can be treated as a single factor analysis for overall endorsement of pro-ecological attitudes. Manoli and co-
authors found a strong endorsement of pro-ecological attitudes in the samples of the kids they worked with while creating and validating the NEP with kids. Kopnina (2011) noted that while this application to children is incredibly useful, using the NEP with children must include qualitative data for uncovering the varying interpretation of meaning by younger and more culturally diverse populations than the NEP was created for.

Those critical of the NEP note that while documentation of movement to pro-environmental attitudes in large scale surveys may be promising, environmentally significant behaviors have actually worsened (Stets and Biga 2003). In response to this criticism, I use attitude theory under the broader pragmatic metatheory to highlight where more data is needed, how shortcomings can be addressed, and that attitude theory itself, though problematic in terms of linking to behavior, is nevertheless useful to pursue so long as it is not pursued in isolation of other data collection and analyses. In particular, I contend that attitudes are based on higher order processes such as the construction of the self and meaning making. Uncovering this relationship is achieved by using the NEP as a semi-structured interview instrument that simultaneously uncovers attitudes and the personal meaning behind those attitudes. I find that meanings used to make sense of attitudes are an identity level process, which is a higher order internal social psychological structure than are attitudes.
2.4.2 Surveys and Semi-structured interviews

To achieve my objectives in understanding children’s attitudes towards nature, I collected quantitative data by modifying the New Ecological Paradigm attitude scale for use with children (Manoli et al. 2007), alongside qualitative reasonings behind the survey responses. To assure that the survey statements were developmentally appropriate for the younger population represented here, and that the survey was significantly shorter for logistical purposes of implementing the survey during the school day, I consulted with a developmental psychologist to shorten and modify Manoli and colleagues’ (2007) NEP survey. Rather than statements like strongly agree or disagree, a thumb sign was used for the children to interpret the meaning of the Likert scale used for the NEP survey. This allowed for a five point, rather than a seven point, Likert scale. The NEP statements and example thumb signs are illustrated in Table 2.1. Two simple test statements were given to be sure that the children understood the use of the thumb in responding to the NEP statements. They were: “ice cream is tasty for kids to eat” and “crayons are tasty for kids to eat.”
## TABLE 2.1

MODIFIED NEP AND LIKERT SCALE

<table>
<thead>
<tr>
<th>Likert</th>
<th>Always True</th>
<th>Mostly True</th>
<th>Half true, half not true</th>
<th>Mostly not True</th>
<th>Never True</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) People are supposed to be in charge of nature.</td>
<td>Modified from, “People are supposed to rule over nature.”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) People are supposed to take care of nature.</td>
<td>Added for clarification of how kids interpreted question 1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) People can do whatever they want to nature.</td>
<td>Added for clarification of how kids interpreted question 1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Plants and animals have as much right as people to live.</td>
<td>Same wording as Manoli, Johnson, and Dunlap (2007)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) People are part of nature.</td>
<td>Modified from, “People still must obey the laws of nature.”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) Some people are treating nature badly.</td>
<td>Modified from, “People are treating nature badly.”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Kindergartners were surveyed in the early childhood classrooms. In those rooms, teachers administered the survey to each kindergartener individually, while conducting the end of year assessments. Teachers were given instructions on exactly what to say and how to explain the representational thumbs up/down Likert scale. Upon completion, teachers marked on each child’s survey whether they were paying attention and understood the survey. Surveys were omitted from analysis if it was indicated that the child did not understand or was not paying attention to the survey (I had to drop eight surveys from the analysis for these reasons).

I conducted the rest of the lower elementary surveys with each student individually. On a pre-determined day, I came to each classroom and the students joined me one at a time in adjoining project rooms to complete the survey. The same instructions and two test statements were used to ensure that the students understood how to complete the survey. I read the statements aloud and circled the thumb sign that the students gave after each statement. I made sure that it was clear to the kids that this was fun and not like the rest of school, where there is often a right or wrong answer. Rather, I just wanted to know what they thought and why, telling them that any answer was ‘right.’ After each thumb response, I asked the students for further explanation, usually by saying inquisitively, “and why is that?” I then jotted down their responses on each individual survey. These semi-structured...
interviews with 97 students provided additional qualitative data that I used to uncover the reasoning behind kids’ pro-environmental attitudes.

The fourth grade classroom teacher handed out the surveys to all the students at the same time. Fourth graders were given the modified NEP with the same wording as the survey given to the younger students. However, they were given a traditional five-point Likert scale (that was explained to them) rather than the thumb signs used with the younger children. After explaining how the Likert scale worked, the teacher read the statements aloud while the students followed along and circled their answers individually. The NEP survey data is used to understand children’s environmental attitudes, the focus in Chapter Four. The qualitative responses are the focus of Chapter Five – “Environment and Self in Children.” A total of 170 kids in kindergarten through fourth grade participated in the surveys. Ninety-seven of those children completed the survey and the semi-structured interviews with me.

2.5 Identity

After focusing on the more constructionist questions of what nature is and the objectivist questions seeking to uncover the kids’ attitudes towards nature, I focused on a middle ground. Identity theory recognizes the active negotiation of meaning in interaction, while also recognizing that interactions are structurally constrained. I sought to uncover how kids made sense of their self in relation to the
natural world and the influence these ideas of self have on how they think and reason about human interaction with nature.

Sociology has a long history of theorizing on the self; defining it, categorizing it, dividing it into measurable, operational parts. This curiosity with the self began with the Pragmatists and is “one of the greatest discoveries in the history of the social sciences” (Joas 2000:2). The Pragmatic Self arises out of social interaction (Miller 1973). Through social interaction one reflects, comes to understand, and recreates society and culture, again and again. This social self allows for modification and change through time.

Identity researchers note that how we think of our self shapes how we act. We look to act in ways that confirm the identities that we hold. From Owen and Samblanet (2006): “The central quality that distinguishes self from identity is that the self is a process and organization born of self-reflection whereas identity can be seen as a tool (or in some cases perhaps a stratagem) by which individuals or groups categorize themselves and present themselves to the world” (227). An identity implies others, and links the holder to some groups and distinguishes her from other groups (Michener and Delamater 1999).

The meanings of identities and our conceptions of ourselves are created and conferred through social interaction, but our actions and identities are constrained by structural opportunity and access to act – this is why identity theory provides the middle ground to link social structure and personality and symbolic interaction and
other constructionist theories. Identity theory originates from the structuralist approach to symbolic interaction, first formulated by Stryker (1980).

The idea of the self as a socially created and meaningful object is central in SI and comes from the foundational work of Mead on the I and the Me. Identity theorists provided an operationalization of one component of this self. We hold multiple identities and because meaning is in action, we act in ways that confer the identity that we hold salient at any one time. When we are unable to act in ways that confirm an identity, we feel negative emotions. These feelings causes us to either change our behavior or to change our identity (Burke 2006).

2.5.1 Environmental identities

Understanding the self has application across multiple topic areas in the social sciences. It was only recently that concern for understanding the self in relationship to the natural environment became an area of recognition, though with relatively little empirical research in sociology to date on the environmental self. Stets and Biga (2003) noted that the link to environmental behavior may best be found in the formation of environmental identities. They formulated a ten question bi-polar survey that sought to uncover the degree to which individuals viewed their self as being part of the natural environment or separate from the natural environment. In their work, Stets and Biga (2003) note, as do all structural SI researchers, that these identities are constrained by structural opportunity and access to act in ways that confirm or disconfirm the identity at hand.
Researchers in psychology have focused extensively on the role that environmental identity, or conceptions of the self and nature, plays in predicting environmental behavior. For purposes here, I reformulated a psychological measure, the nature in self scale (Schultz 2007; Schultz, Shriver et al. 2004). To better reflect my sociological perspective, I asked the kids to look at the series of Venn diagrams and tell me how much they thought their self was part of nature. This, in combination with the qualitative data, provides the necessary data for thinking about the construction of environmental identities in young children. The research here points to an understanding of self and environment as a personal level identity linked to other personal level identity processes, such as values and morality (Hitlin 2003).

2.5.2 Measuring environmental identities

After the kids responded to the NEP survey statements, the first grade through fourth grade participants were presented with Schultz and colleagues’ (2004 & 2007) Inclusion of Nature in Self Scale. Participants were shown seven overlapping Venn diagrams and asked, “How much are you part of nature?” (Figure 2.3). For the first, second, and third graders, the diagram was color coded for clarity. Self was shaded yellow, nature was blue, and where the two circles overlapped was shaded green. This scale was not given to the Kindergarteners as it was deemed too conceptually advanced for that age group.
Like with the NEP questions, I followed up on this exercise with semi-structured interviews with the first, second, and third graders, asking them why they chose to place their self as more or less part of nature. The fourth graders were just asked to circle their response on their individual surveys. A total of 112 students responded to the scale. I used the quantitative data from this measure in regression analyses of environmental attitudes presented in chapter four. I then used the responses to the Venn diagrams to uncover how perceptions of self in nature shape how children reason about their attitudes towards the natural world, which is presented in chapter five.
2.6 An Environmental Sociology of Childhood

Using a Deweyan (1902) understanding of children, as both active negotiators of information as well as actors within social systems that constrain their freedom of construction, I analyzed the data without assuming children are either empty receptacles or purely independent agents. Corsaro’s (2003) work provides more recent evidence of the importance of including children as cultural agents in their own right for sociological understanding. By focusing on kids’ culture in preschool, Corsaro (2003) uncovered how they bring in messages from adult culture and modify those messages to construct meaning in their own cultural milieu. Sociology has tended to ignore children, including work on the environment, and I contend it is time to include them in our environmental sociology.

I seek to uncover how children conceive of the natural world, their attitudes towards it, and the relationship between their self and nature. Uncovering these narratives, not as ideas in formation, but as real constructions and beliefs about and towards the natural world gives them validity. It forces us, as in previous work on competing rationalities (Espeland 1998), to accept that these narratives are valid, powerful, and legitimate for those who hold them. In the conclusion of this dissertation, I ask how uncovering these child centered narratives of nature can improve environmental educational outcomes from a (co)constructionist, child centered approach.

The kids at Wiley all demonstrated enthusiasm and eagerness to participate in all parts of the study – requesting to “be next” when I was doing the interviews.
and drawing tasks, wanting me to work with them in the classrooms, and play with
them on the playground. Overall, I followed Thorne’s (1993), Mandell’s (1988), and
Aitken’s (2001) lead, and worked with the kids on their level. I did not try to fill the
role of teacher or another adult in the classroom, though obviously this is how many
students saw me. Rather, I was playful (within the confines of behavioral
expectations in the classroom) and did not attempt to correct behaviors (unless
truly egregious) (Mandell 1988). There were a couple times in one of the early
childhood classrooms when the aide was gone that the teacher really needed to
leave the room and I was left as the adult in charge. This happened two or three
times. Generally, this did not change what was going on. In a Montessori classroom,
kids are usually working independently, and so I was just there to be sure no one
got too rambunctious. Overall, this multi-method approach with its foundation in
pragmatic philosophy yielded a rich set of data that forms the foundation of the
environmental sociology of children that I develop in the chapters that follow.

2.7 Parent Surveys

Finally, because I recognize that school is not the only cultural agent and
constraining factor on children’s lives, I sent home parent surveys to supplement
the pictorial, survey, interview, and observational data. Because television was often
referred to during observations, the home surveys provide a bit more information
on types of programming that the children in the population watch and how these
different programs may influence constructions of nature. However, this data is
limited due to a low response rate, particularly from district parents, and the likelihood of socially desirable responses on a survey that was sent between school and home. A total of 98 home surveys were returned and collected by the teachers. The primary problem is that more than half of these 98 surveys were from early childhood families and there were no surveys returned by fourth grade families despite multiple attempts to collect the data. However, the home surveys do help to enrich the analyses of factors shaping the kids’ environmental identities and attitudes.

Overall, these multiple theories and methods linked together under a Pragmatic orientation provide rich insight into the environmental sociology of children. I next turn to the substantive chapters of this dissertation.
3.1 The stories we tell about nature

While sitting in a board room discussing environmental sustainability and schools with a group of sustainability-minded individuals, the woman next to me asked about my work. When I told her that I do research on environmental sociology of children she was very interested and wanted to know more. I told her about the “nature task” portion of the work, asking kids what nature is to them. She responded with a question: “Do the kids just draw things around here, or do they really know about nature?” She then gave examples of this nature she was referring to as she asked, “Do they know about wolves and whales?” I responded that the kids drew a lot of different things, from squirrels to whales, but that nature is a complicated word and people of all ages mean different things when they say it.

For the woman in the board room the word nature elicits images of the ‘pristine wilderness’ unspoiled by humans, where non-humans roam freely and ‘wildly.’ In this very Western and particularly American depiction, humans are not nature (Cronon 1996a & b). When we dichotomize nature from humans, the
response to “what is nature?” often implies the response to the question, “who are we?” (Braun and Castree 1998). But, whether or not humans are included as nature, and where we think nature exists, are part of the story we tell about what and where nature is.

An environmental sociology of children requires that cultural ideas about nature itself not be taken for granted, but rather that research with children should reveal what this word, nature, means to them. Analyzing the kids’ responses to “what is nature?” encouraged me to consider how boundaries around nature are taught (both implicitly and explicitly) to – and negotiated by – children. I found that symbolic boundaries – from those around objects/others to the geographic to the bodily – were key to how children make sense of nature. By concentrating on kids, I demonstrate the negotiation of symbolic boundaries in formation.

3.2 Literature Review: Constructing and negotiating nature’s boundaries

Symbolic boundaries help us to make sense of the world, to classify experience based on our shared cultural milieu. Some items are central to a construct, others defy the boundaries that cultures create (Nippert-Eng 2010; Smith and Davidson 2006). These boundaries demarcate ‘us’ and ‘them’ and define who/what is ‘other’ (Edgell, Gerties, and Hartmann 2006; Lamont and Fournier 1992; Douglas 1970). Culturally defined boundaries are internalized as cognitive classifications within individuals (Zerubavel 1999).

Socialization is a process by which culturally accepted meanings are implicitly and explicitly taught, manipulated, and accepted or modified, allowing for
cultural continuity through time (Denzin 1979). Without this learned, taken for
grantedness of social reality, we are lost in a world that we cannot make sense of – a
world that we cannot successfully navigate (Schutz 1976). Yet, cultural
constructions are highly complicated, contradictory, and fragmentary (DiMaggio
1997). While meaning is central to our interactions with the world around us (James
1902), it is fluid, changing, and interactive (Nippert-Eng 2010). It is passed down
through cultural history, cognitively composed within individuals, and constantly
subject to change (both individually and on larger social scales) as new
understandings arise (Queiroz and Merrell 2006).

While enculturation seems self-evident, kids are also active negotiators of the
world around them (Aitken 1994; Corsaro 2003). The new sociology of children and
cultural geography of children demonstrate that kids receive cultural messages of
meaning, manipulate them, and make sense of them alongside their own
phenomenological experience of the world around them (Aitken 1994; Corsaro
2003; Holloway and Valentine 2000 & 2004). In my work, I allowed for the kids to
be active agents in their own constructs alongside the understanding that cultures
are passed down. I focus on how the kids construct and negotiate the boundaries
around nature, while also demonstrating the implicit messages that adults in the
school setting offer to kids about nature (both what it is and affective appraisals of
it).
3.2.1 Boundary Work

Constructions are cultural structures that link objects/others and meaning in classifications surrounded by symbolic boundaries (Douglas 1968). Symbolic boundaries are marked around objects/others, geographically, and on the body. Mary Douglas’s seminal work demonstrated the cultural aspect of cognitive classification (Douglas 1966). Douglas demonstrated that the body itself is used as a marker for symbolic boundaries. In this way, “bodily control is an expression of self-control” (Douglas 1996:74), and enculturation involves teaching children how to use their body in ways that are consonant with values of what is clean (us) and what is dirty (other) for the given society (Douglas 1966). Though the world we live in is a continuum, we separate items into discrete categories, carving out “islands of meaning” (Zerubavel 1996:422). We do this through the cognitive task of lumping some items and splitting others (Zerubavel 1996), a cognitive expansion of Douglas’ sacred and profane. We are taught who ‘we’ are and who is ‘other,’ to separate ‘business’ from ‘pleasure,’ and ‘normal’ from ‘perverse’ (Zerubavel 1996:421). These cognitions are a reflection of the classification structures that society uses and enculturates its members into, creating boundaries that are culturally expressed and cognitively classified (Zerubavel 1999).

This image, from Nippert-Eng (2010:279) provides a visual representation of the idea of symbolic boundaries (Figure 3.1). Boundaries around culturally constructed objects/others, places, and the body come up against one another and some borders between those boundaries are more porous than others. There are areas of hybridity between bounded constructs, where boundaries are not clear and
objects are considered members of both constructs. Take the example of a pet, it is both an animal and likely classified as a natural object/other and also domesticated and living in a home, a geographically demarcated area for people and culture.

The concept of boundary work has been applied to multiple cultural study areas. Boundary work has been used to make sense of our ideas of home and work (Nippert-Eng 2008), or the identities we hold (Lamont and Molnar 2002 – see for a review of how boundary work has been applied to multiple issues in sociology and the social sciences more generally). Physical geographic boundaries at the local level (e.g., fences) create physical and cognitive classifications of ‘us’ and ‘other’ (Newman and Paasi 1998). Douglas (1966) demonstrated how cultures use the body to mark what is clean and what is dirty. Rules surrounding body maintenance and hygiene are used to enact societal rules about purity and danger. Miner (1956) demonstrates how culturally relative these ideas are when he dissects the “Body Rituals of the Nacirema” (American backwards). By exoticizing our own practices,
Miner is able to turn the critical lens on our own body rituals as ways of defining what is pure and what is profane.

Understanding the cultural/cognitive symbolic boundaries around nature requires consideration of the multiple domains upon which boundaries are defined - the geographic, the classification of objects and others, as well as bodily boundary negotiation. The work here focuses on these three avenues of symbolic boundary construction with children as a process of both active negotiation by kids with cultural symbols as well as an enculturation process by which adults implicitly reinforce already accepted symbolic boundaries.

3.2.2 Symbolic Boundaries and Nature

In this chapter, I focus on the symbolic boundaries demarcating nature. The construction of nature is not demarcated by neat boundaries. Contradictions abound and items often move freely across the symbolic boundaries. Smith and Davidson (2006) demonstrate that the porousness around nature leads to personal psychological phobias of items that do not ‘stay put.’ After all, phobias are almost always of ‘natural’ items that intrude into ‘our (human, not natural) space’ (e.g., spiders, bats, etc.). These objects/others cross the line between us (humans) and them (nature) and often ‘invoke disgust’ “because they are indicative of nature itself transgressing the very basis of the symbolic order for which modern society and self-identity are founded” (Smith and Davidson 2006:48). Items that fit neatly into
nature and then transgress, and enter into the human world, challenge where
nature is supposed to exist as separate from humans.

Prototypicality (from culture and cognition – DiMaggio 1997) or centrality
(from cultural studies – Nippert-Eng 2008) helps to explain why some
objects/others and geographic places seem to be shared by most people in their
constructs of nature. For example, it would seem hard to imagine that a mollusk was
not considered part of nature, but currently in the Great Lakes region, Zebra Mussels
are causing extensive problems. These creatures are now deemed out of place, as
invasives, with calls for their eradication. Or, as a second example, that visiting
Yellowstone would be a trip into nature, but walking into the backyard is not an
experience of ‘nature.’ Items that sit on the border are where disagreement occurs.

The construction of nature is perhaps one of the most contradictory in
Western thought. Wilderness is a place of peace and tranquility, a place to ‘get away
from it all’ and also a place where scary things live that we need to keep away from
(Cronon 1996). Cultural messages suggest, nature is great, so long as it doesn’t sting
or bite, come into your home, and you don’t get a rash. In nearly all stories told
about nature in the West it is not us, it is ‘other’ (Smith and Davidson 2006), the
archetypal other into which any one or thing that is not ‘us’ can be placed (Smith
and Davidson 2006).

The variety of the responses from the children to my question “what is
nature?” reveals the messiness – the developmental as well as the active negotiation
of the symbols used to denote and often demarcate nature – of the construction and
symbolic boundaries of nature in children aged 3 to 11. I here utilize the geographic,
object/other, and bodily boundary work to explore the experience and construction of nature for the kids in this study. Subtle messages on nature’s boundaries come from multiple sources, including teachers, TV, video games, peer, and parental input. Kids incorporate these messages with their lived experience in their own yards, neighborhoods, and other places they visit to try to make sense of this thing, nature, “the most complicated word in the human language” (Williams 1985:219).

3.3 Methods

As presented in chapter two, I created a “Nature Task” based on research in literacy and education that elicited drawings from kids as a way to reveal how children constructed ideas of literacy (Kendrick and McKay 2004). Similarly, I used drawing and oral description as a way to reveal constructs of nature. This approach uncovered early constructions of what nature is and what items are most salient to different children. I conducted the task with two classrooms of early childhood students, one classroom of lower elementary, and a fourth grade classroom participated in the task with the instructions from their teacher. The kids were asked to “draw a picture of nature” with no other prompts. They then told me about their picture and I wrote down their descriptions. In the fourth grade classroom, after drawing their pictures, the students turned their sheets of paper over and answered two questions on the back – where would they find the picture and would they like to go there. I collected a total of 79 pictures with individual qualitative descriptions.
Other data presented in this chapter includes my twelve weeks of observational data in two of the early childhood classrooms. Again, as presented in chapter two, I passively observed and also actively engaged with the kids on nature themed Montessori works in the classrooms. Over 100 hours of classroom and playground observations comprise the observational data presented here.

3.3.1 Analysis

I used the qualitative data analysis program NVIVO for a grounded approach to coding the pictures and descriptions, using the data to shape and direct how codes were modified and made into meaningful units for analysis. It was in this process that boundaries arose as my theoretical framework; this framework was not assumed from the outset of the research.

In coding, I first concentrated on individual items: did the picture contain a tree, any animals (including the inclusion or not of human animals), images from TV or the child’s imagination? I next grouped items into larger themes, particularly concentrating on if humans were or were not present. It then became apparent that whether or not the picture was somewhere specific (e.g., the child’s backyard) or somewhere general (e.g., a field or woods) was of interest. Because the fourth grade class created their images last, it was this grounded approach that alerted me to the need to ask them where they would find their pictures. Using this information, I could reconstruct the kids’ geographic boundaries around nature.

Using items in the pictures (such as types of animals) or the location where the child placed the picture, I coded the images as exotic, close and general, or close
and specific. Finally, using word searches in the NVivo software to find which items occurred most frequently in the kids' images and text, I discovered prototypical items in the kids' constructions of nature. I then used these items to analyze the occurrence of more common and less common images and the geographic location of nature based on grade level and other socio-demographic variables. Figure 3.2 demonstrates the coding of two images.

Figure 3.2 Coding example of nature drawing tasks

Furthermore, I used NVIVO to code and search the observational data from the classrooms, particularly focusing on when items viewed as 'nature' were discussed and how these items were discussed. Finally, analysis of descriptive statistics, using Stata, provides a glimpse into how the home experience may influence variability in the constructs.
I focused on objects/others and within that I particularly focused on when and which people were included. I looked at where nature was geographically placed, the expressed sentiments towards it (e.g., did the child say the image was something scary, a fun place, etc.). Though they occurred less frequently, I coded when children referred to mediated images of nature or items from their imagination.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Example Items</th>
<th>Notes/Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objects/Others</strong></td>
<td><em>Plants: trees, grass, flowers</em></td>
<td>Many of these were the prototypical items found in the majority of the drawings.</td>
</tr>
<tr>
<td></td>
<td><em>Sun/Sky</em></td>
<td>Objects/others clarified if the image was close to home or somewhere exotic.</td>
</tr>
<tr>
<td></td>
<td><em>Animals: bears, squirrels, bunnies, birds, dolphins, monkeys, etc.</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>People: Known to child, general person, self, human built</em></td>
<td></td>
</tr>
<tr>
<td><strong>Geographic placement</strong></td>
<td><em>Backyard, park in neighborhood, school grounds</em></td>
<td>Close and Specific</td>
</tr>
<tr>
<td></td>
<td><em>Woods, park not specifically named, field</em></td>
<td>Close and General</td>
</tr>
<tr>
<td></td>
<td><em>Rainforest, desert, the ocean, a foreign country</em></td>
<td>Exotic</td>
</tr>
<tr>
<td></td>
<td><em>Zoo/Aquarium, Pet store</em></td>
<td>Nature contained</td>
</tr>
<tr>
<td><strong>Affect/sentiment</strong></td>
<td><em>Scary, mean animals</em></td>
<td>Negative affect towards construct</td>
</tr>
<tr>
<td></td>
<td><em>Peaceful, playing</em></td>
<td>Positive affect towards construct</td>
</tr>
<tr>
<td></td>
<td><em>Want to visit</em></td>
<td>Yes/No</td>
</tr>
<tr>
<td><strong>Mediated</strong></td>
<td><em>Video games, e.g., Angry Birds</em></td>
<td>I lumped these together as mediated images of nature.</td>
</tr>
<tr>
<td></td>
<td><em>TV/Movies, e.g., The Cat in the Hat Knows a lot about that</em></td>
<td></td>
</tr>
<tr>
<td><strong>Imagination</strong></td>
<td><em>Monsters, fairies, stories about activities that could not have happened</em></td>
<td>I lumped these under imagination.</td>
</tr>
</tbody>
</table>
3.4 Results

The framework of boundary work, understanding cultural constructs as symbolic/cognitive boundaries, focuses my interpretation of the findings here. I argue that similarities and differences in the drawings represent boundaries, boundary hybridity, and meaning centrality (prototypicality from cognition). Drawing on both the picture data and observational data, I uncover the processes of construction and boundary work with young kids.

Objects that occurred often in the pictures included: trees, the sky, and birds. These are prototypical items that readily fall under the cultural construction of nature. Figure 3.3 is a word cloud of the 25 most commonly occurring items in the Nature Tasks. The items represented by larger letters occurred most frequently and likely fit neatly into the symbolic boundaries around nature, they are central/prototypical. Smaller lettered items represent items that occurred less frequently and likely exist on the boundaries of the construct of nature. Interestingly, people occurred moderately frequently. Further analysis demonstrates that the inclusion of people breaks down by socio-demographic variables, particularly age. This item may be more central in young children’s constructions of nature, but shifts to a hybrid item or excluded altogether as personal cognitive constructions are reformulated to fit with accepted cultural constructions of nature.
The drawings are nearly unified in their depiction of nature as something aesthetically pleasing. Even those that in their qualitative description said the items or scene were dangerous generally drew what would be considered a ‘friendly’ or pleasant looking image. As just one example, in figure 3.4 we see a rather friendly looking creature and a tree. When asked about it, Ryan, a Kindergartner, said: “A black fox is going to eat a tree.” I then asked what people would do if they were there and he said, “Maybe try to get back in the car because the fox will attack them.”
3.4.1 Geographic symbolic boundaries

After working with only a fraction of the kids, it became clear that where kids located nature was important and was linked to the inclusion/exclusion of objects/others. Sixty-five of the drawing tasks could be coded as either a depiction of nature that was close (i.e., in Northern Indiana) and generalized (meaning they would describe it as ‘the woods’ or ‘a field’) (n = 25), close and specific (pictures would be described as occurring ‘in my backyard’ or ‘at the park down the street’) (n = 19) or exotic (i.e., far from Northern Indiana) (n = 19).

Geographic symbolic boundaries shape the children’s construction of nature. If nature is close, geographically inclusive of where the kids themselves live, then it was less likely to be deemed dangerous, more likely to contain humans, and the child was more likely to either already visit the place they depicted or express the desire to go there. But, if the geographic location of nature included a symbolic boundary that did not include the immediate lived experience of the child (e.g., exotic and far away), they were more likely to say it was dangerous, that it did not contain people, and/or that they would not want to go there. This overlapping of geographic boundaries with boundaries around objects/others in nature demonstrates the Western narrative discussed previously, the creation of the wilderness myth, where humans do not roam. When nature is far away, as required by the Wilderness myth, it does not contain humans (a key component of the wilderness myth) (Cronon 1996a & b).
It is important to acknowledge that kids lived experiences with the natural world is constrained by adult authority. Adults demarcate for kids where they are allowed to go and often where it is ‘safe’ and where it is not. The drawing task by Andrew (Figure 3.5), a vivacious, high tempered kindergartener, demonstrates this adult constraint on the creation of symbolic geographic boundaries. His image shows a tree, deer, and fawn as well as a blue sky and yellow sun. The picture was drawn with such obvious care and enthusiasm, the deer and fawn look out at you smiling from the page. When I asked Andrew about what he drew, he told me it was the woods on the other side of his backyard fence. I asked him more about the woods and he said that he would really like to go into them to “pet the animals,” but that his mom does not allow him to go on the other side of the fence. This forces Andrew to look at ‘nature’ from inside his fenced backyard. His desire to explore is stifled because of adult constraints, and perhaps the conceptions of danger. This instills ideas of nature as places to fear and to be careful of. The fence itself sets up a physical boundary between Andrew’s lived experience and the nature that he wishes to experience (Newman and Paasi 1998). The fence is both a physical and symbolic marker between where Alex can play and where he is not allowed to go, the latter of which he labeled ‘nature.’
Physical boundaries work to ‘other’ nature and items contained within the construct. Placing nature within a physical space constructed by humans, instead of a space outside of where humans go, is another way this is done. Seven kids drew nature in a place contained by human design. For three of them, the picture they drew was at a zoo or aquarium. One kindergarten boy, Matthew, drew a shark chasing a fish and said that he wanted to see a shark like this when his dad took him to an aquarium during the coming summer. He also said he would not like to see a shark in the ocean. Another four-year-old boy’s picture looks like a series of circles and scribbles, but when asked to describe it, Walter said he “was drawing like an animal and it was so cute at the zoo, sliding down slide and then got bump on my head. Saw giraffe at zoo and ate some flies, so that’s how made animal - it’s cute and made a worm. So, do you like it?” Allie, a preschool four-year-old, depicted a human on a boat in the river at the zoo feeding the fish. (This demonstrates a mixture of her imagination and actual experience of the town’s zoo, where the picture took place. There is indeed a small river with fish that can be fed at the zoo, but there are no boats on that river).
Three other kids drew pictures that do not immediately appear to be depictions of zoos or other places where animals are contained, but when asked, “have you ever seen something like this?” the kids responded they had, at the zoo. Nick, a kindergartener, drew an elephant and said it was in Africa, but he then added that he wanted to ride an elephant at the state fair. The seventh “nature contained” image was of a bunny at the pet store (Figure 3.6). This idea of nature, to be purchased, was not common. Furthermore, I am not sure from my conversation with Shelly, one of the quietest in her class, whether she wanted to buy the bunny to bring home or simply to free it from the cage.

These images of nature as existing in a human created and contained place or, in the case of Andrew, in a place that is physically marked, geographically demarcates nature as something that we might visit, but not live in. Furthermore, when nature is contained in a human created environment, it is something that humans can exert a fair amount of control over.

This idea of control over nature, and its oft demonstrated counterpart - humans’ lack of control over nature - implies that nature may be something that we
should fear. This is what Smith and Davidson (2006) find in their work on phobias.

Phobias are often of things that defy our boundaries – e.g., spiders come into our houses. When objects/others defy our boundaries they are often deemed scary or dangerous, because they demonstrate that humans may have less control over nature than many of our Western stories would lead us to believe. There were a handful of times in this research that nature was deemed dangerous because it posed a threat to humans.

3.4.2 Nature Dangerous

For those who said nature was dangerous (or at least an item within the construct was deemed dangerous) 5 of the 6 also placed nature in an exotic place – not close to home or a lived experience. The geographic boundary demarcated nature as far away and so less threatening. Nature was deemed dangerous because the animals there would hurt you. For example, Elizabeth included a picture of the ocean and said she would want to go there only if all the animals were taken out of the water first. A preschooler, Timothy, showed a scary bear in the night that would eat you (Figure 3.7). When nature was dangerous, the kids did not want to go there.

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9 Obviously the geographic range of bears did at one time include Indiana, but this is not particularly the case anymore – though black bear populations are on the rebound further North in Michigan.
One child did mention danger in a depiction of nature that was both close to home and generalized, a garden (Figure 3.8). When asked if he would like to go there, Zack, a first grader, said: “Yeah, would go, but only if bee don’t sting me. If they sting me I won’t go.”
This idea that nature is dangerous is pervasive and part of the contradiction in our narratives about nature (Cronon 1996b; Merchant 1996). It is an often associated element of the idea that nature is ‘other.’ Again, unintentionally (or not), adults at times demonstrate to children that nature is indeed something to fear. For example, we have all seen a full grown adult scream at the sight of a spider or mouse – objects that encroach on our symbolic boundaries.

3.4.3 Cultural/Cognitive boundaries around objects/others

The construction of nature does not just involve the marking of nature on symbolic geographic boundaries, but also involves deciding which items are in and which are out of the construct. Of particular interest to me was when humans were included, as this is perhaps the most arbitrary part of our construct of nature. The research here reveals the negotiation of the oft proposed duality between humans and nature (Latour 1993; Smith and Davidson 2006) in children.

3.4.3a People and ‘others’

As stated, when nature is depicted as something close to home (a scene or creatures that live in Northern Indiana) people were more likely to be included, particularly if the picture was of a specific scene from the child’s lived experience (e.g., backyards, neighborhood park, school playground). I was able to code 65 of the nature tasks as containing humans, human-built, known humans, and/or no-humans (the reason this number is lower than the total amount of codeable nature
tasks, is that if the drawing contained depictions of TV, video games, or purely imaginative, I did not code them on this dimension). Of those 65 tasks, 66% did not contain any humans or human built objects, 18% contained humans that the child knew, either themselves or a friend or relative, and another 18% included a human more generally, one that they did not state to explicitly know.

Marissa’s picture (Figure 3.9) depicts “birds flying, wind, grass, tree with sticks coming out with tire swing and me in it and a sun.” When I asked where the image was, she replied, “In [my] backyard, have lots and lots of play sets, a trampoline, tire swing and climbing tree” and that she likes to go there every day after school to play.

Figure 3.9 The tire swing

The inclusion of people decreased by grade level. Of the 24 images that contained people, 50% of them were drawn by Early Childhood students, 33% were by lower elementary students, and 17% were by fourth graders. And, in all but four of the images that contained humans, the picture depicted nature as geographically close. As kids age, and are exposed to messages separating humans from the rest of
nature more and more frequently, they begin to dichotomize humans from nature. Though kids in this study were in a Montessori setting, where science and culture are placed together in terms of subject matter in the classroom, they are nevertheless continually subjected to the dichotomizing messages of society. As they age they begin to incorporate that cultural message into their own constructions of nature.

A node cluster analysis reveals the relationship between where nature is placed, the inclusion of people, and whether kids want to go there (Figure 3.10). The node cluster analysis in NVivo demonstrates how codes (or nodes) associated with one another, that is, which ones are likely to occur together. When nature is close and specific it is very likely to contain people, and it is when nature becomes exotic that kids in this study are less likely to want to go.

![Nodes clustered by coding similarity](image)

Figure 3.10 Node clusters
There were four children that depicted nature as somewhere other than Northern Indiana and included people. Of those, Camilla, one of the Preschool four-year-olds, said her picture was of friends riding horseback in the Kalahari (Figure 3.11). Camilla’s family is from that area in Africa, and talking with her teacher confirmed that Camilla herself has visited family that still lives in the region.

Mary, a preschooler, drew herself at the beach by the ocean. After checking with the teacher, I found out that a trip to the seaside is a regular family vacation for Mary. She included images of lived experience on vacation – e.g., the beach and a sandcastle – but also included items from her imagination. Mary depicted herself on the beach playing ball with a friendly monster (Figure 3.12). For both of these girls, their geographic boundaries of experience were farther reaching than perhaps many kids their age.
Martin, from the lower elementary class, drew himself on a swing in “the middle of nowhere” – a place that he said is nice and peaceful. “I’m right here playing on [the] swing set in beautiful daylight, blue sky, nice warm sun that is keeping us alive.” He then said, “I know where it is – it’s in Mexico!” (Figure 3.13).
I was unable to find out if he had actually been to Mexico, but based on his response, the idea that the image was in Mexico seemed to happen spontaneously while Martin was talking to me. What unites these three images is that nature is far away, contains humans, and it is idealized. It is a place they like to or want to go to. It is surrounded by positive feelings of love, play, and tranquility, respectively.

These processes of constructing symbolic boundaries, both around items and geographically produce avenues for othering (Smith and Davidson 2006). There were times that the adults in these children’s lives implicitly instilled the idea that humans are not the same as other animals, separating them from the natural environment. When Julie, an energetic and noisy four-year-old, was working on plant and animal classification with her teacher, the teacher asked if there were animals in the classroom. Julie said there were not any animals in the room. The teacher responded by pointing at the gerbils and salamander and asking: “What’s that?” The teacher did not, however, ever refer to the human animals in the room. The teacher was encouraging the student to consider natural items, but not including humans implicitly separates us as non-animals and therefore, perhaps, not nature.

A sub-context for how objects/others are demarcated as part of nature is based on Douglas’ work (1966) on the symbolic representation of cultural boundaries demarcated on the body. Marking what is okay to interact with vs. what is ‘dirty’ and therefore bad, is another way that nature becomes a catch all category for ‘others.’ Children were constantly admonished for even being on the grass and were never allowed to pick up something off the ground. Being told “put that down,
it’s dirty” (this was usually in reference to when kids picked the mulch up off the ground). Safety issues are the primary reason here. However, after several broken arms on the school’s new playground, the rule then became that kids could only run on the grass, and not on the areas around the equipment. This sort of adult-constrained interaction with the world is, of course, at times necessary as we consider our children’s safety. For example, you would not let your toddler explore the road. But, the adult imposed constraints shape ideas of what is dirty and dangerous. Douglas (1966 & 2013) demonstrates how the body itself is used to mark cultural symbolic boundaries. Here, hands, which are to remain clean, cannot touch the ground, which is dirty. But, I never heard the kids being admonished for sitting on the ground, demonstrating that one’s bottom, which is dirty, can touch the ground. Things that kids then often identified as nature in their drawings, dirt, grass, and bugs, are marked as dirty. This marks a boundary construction, demarcated on the child’s body between us (humans, who are clean) and nature (as other, which is dirty).

3.4.4 Mediated images of nature

Media and images from imaginations occurred in about ten of the tasks. In the observations of the classroom’s kids often mentioned TV shows as a way to make sense of things they were learning about the environment, including lessons on plants and animals. In particular, discussion and reference to *The Cat in the Hat*
Knows A Lot About That and Wild Kratts\textsuperscript{10} occurred frequently. On the habitat map (Figure 2.2) there was a platypus to place on the continent of Australia. This often elicited reference to the Disney show, Phineas and Ferb, where two brothers have a pet platypus that is actually a secret agent. Five of the construction tasks also included references to either TV shows or video games. Three specifically referred to the show, The Cat in the Hat Knows A Lot About That. Two boys in the lower elementary classroom primarily drew depictions of the video game, Angry Birds, where cartoonish birds are launched off a slingshot to knock over different structures created by pigs that are the ‘bad guys.’ This sort of mediated image of nature, though not pervasive in the tasks, may nevertheless exert influence over how nature is constructed, where it is experienced, and what items demarcate it. Furthermore, media exposure in this group varies by socio-demographic variables and links to variability found in the tasks.

\textsuperscript{10} Both of these programs are on PBS Kids. The Cat in the Hat knows A Lot About That, depicts the two children from the original Dr. Seuss book, going on adventures with the cat in the hat and learning about plants, animals, seasons, space, etc. Wild Kratts is a show about two brothers, the Kratt Brothers – who produced the show Zaboomafo (PBS Kids) and Be the Creature (National Geographic) – that go on adventures using creature power suits allowing them to behave like the animals to rescue creatures from the villains, a chef that uses exotic animals in his recipes, an inventor that uses live animals to make robots, and a designer that uses live animals as fashion items. The catch phrase when a creature is rescued is to say, “They are living free and in the wild!” Both of these programs use cartoon imagery to teach factual information about the natural environment.
3.4.5 Variability in symbolic boundaries: Linking culture and structure in boundary negotiation

    Magnet kids – who tended to be more affluent and white than their district peers – were more likely to draw nature as somewhere other than Northern Indiana. Preliminarily, I propose that there may be an influence from TV and mediated sources of nature influencing where nature is placed as well as a possible influence of perceptions of access. The home surveys revealed socio-economic variability in what shows the kids were watching. Treated as a preliminary analysis, the home surveys reveal that kids across the different socio-demographic groups represented do not significantly vary in their amount of time outside, or in the amount of time spent watching TV. Magnet kids and kids on family paid lunch were more likely than district kids and/or kids on free/reduced lunch to be watching PBS kids’ shows, many of which focus on the natural environment, and/or shows that were explicitly about the natural environment. District kids and kids on free/reduced lunch were more likely to watch things on Disney, reality TV, or other programming not explicitly focused on the environment (Table 3.2).
TABLE 3.2
TV EXPOSURE BY FAMILY SES

<table>
<thead>
<tr>
<th>Shows reported by lunch status (n = 98)</th>
<th>Family Paid Lunch</th>
<th>Free/Reduced Lunch</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBS shows listed</td>
<td>23.5%</td>
<td>12.2%</td>
</tr>
<tr>
<td>No PBS shows listed</td>
<td>24.5%</td>
<td>38.8%</td>
</tr>
<tr>
<td>Nature shows listed</td>
<td>25.5%</td>
<td>16.3%</td>
</tr>
<tr>
<td>No nature shows listed</td>
<td>22.4%</td>
<td>34.7%</td>
</tr>
</tbody>
</table>

There may be an issue of exposure here. When kids watch programming about ‘nature’ that is not part of their lived experience they learn about items and things from the natural environment not in their region of the world. This then interacts with the possibility that kids from different socio-economic means have different perceptions of access to nature. If kids have family members or have themselves had the opportunity to visit some more ‘exotic’ locations – tropical countries, the mountains, etc. – then it is within their purview to consider that they have access to those places. The vast majority of the kids want to visit or go to the place they drew. People of different socio-economic standing are more or less likely to have themselves gone to places further from home and to know people who have traveled to places further from home. For kids with lower socio-economic means, access to nature requires that it be close to home.
Future research is needed to tease apart the effects of mediated and visceral experiences in addition to the perceptions of access on items constructed as nature. In particular, how these variables may influence the dichotomous constructions of humans and nature should be explored.

The home environment provides avenues for demonstrations of the world not directly experienced by children in Northern Indiana. While the programming watched may provide a broader range of items included in the construct of nature, there may also be mechanisms of othering that occur. If nature is no longer viewed as immediately experienced by humans, but rather somewhere far away, where humans are not conceived of as living or being, it becomes a place where ‘others’ live, but not humans.

3.5 Discussion: Constructing “the most complicated word in the English language”

When educators, researchers, parents, and kids talk about ‘nature,’ are we talking about the same thing? Analyzing how kids understand and construct nature reveals that likely we often are not. There were a myriad of times when the teachers, aides, and recess monitors created opportunities for the kids to consider the world around them and explore it. These opportunities included the interaction between the kids and classroom pets, the linking of nature and culture works in the
Montessori curriculum, as well as one aide that called items found on the ground ‘treasures’ and told the kids to put them in their pockets.\textsuperscript{11}

What I did not see, other than the teacher who called items on the ground, treasures, were the adults actively using teaching about nature or interaction with ‘natural’ items as moments to challenge the boundaries around nature, or moments that sought to affirm the boundaries the kids were creating.\textsuperscript{12} More often, adults affirmed dominant cultural narratives about nature by creating boundaries around nature that were contradictory to what many of the children drew. One day while I was observing in a lower elementary classroom, Amber, a very bright four-year-old, completed a work where images of animals were matched to the animal’s tracks. After she finished this work, the teacher joined her to see how she had done and to engage her and elicit her thoughts about the animals on the cards. The animals included primarily creatures that live (or lived in the past) in the Upper Midwest, including a raccoon, squirrel, bear, skunk, and a couple others. The teacher first asked Amber which animal she liked best, to which she excitedly responded, “Squirrel, because it is cute.” Next the teacher asked, which is your least favorite? Amber said, “Beaver, because it crashes down trees.” The teacher then asked,

\textsuperscript{11} This teacher revealed to me her annoyance that the kids were always admonished for picking things up off the ground; however, she was doing her student teaching and so was not present as often as the full time staff when I was doing these observations.

\textsuperscript{12} I should note that my daughter’s teacher, who was my collaborator on this project (at the same school, but whose room I did not observe for obvious reasons), has a nature sharing basket in her classroom. The teacher brought in a picture of herself and her sons on a bike trip and told the kids to look at the picture of the animal in the sharing basket. This is an obvious attempt to challenge the dichotomy of humans and nature and to breakdown the boundaries between us and nature.
“Which one is scariest?” Amber responded in a rather quiet voice that it was the bear, but when asked why she shrugged her shoulders, she said, “It’s just scary.”

Whether or not one of the animals on those cards is actually scary is a matter of opinion, but when the question is posed, ‘which one is scary,’ the child must choose one to be scary. The labeling of nature objects/others as scary by authority figures forces children to consider and often accept that nature is something to fear or stay away from.

Kids in this study (again aged 3 – 11) already hold complicated, and at times contradictory, constructs of ‘nature.’ They are regularly being exposed to contradictory boundaries and attitudes towards the natural world. Kids idealize nature, and are at times afraid of it. They see it as close to home, and as far away. They include humans and they don’t include humans. This variability is not surprising – cultural constructs are complicated and often times arbitrary. Relying on Mary Douglas’s seminal work on cultural/cognitive boundary construction in addition to the later researchers who have further elaborated on the use of boundaries in cultural constructs helps to make sense of the kids’ drawings, variability found, and interpretation of messages about nature given by significant others (e.g., teachers, parents, school aides). Boundary work illuminates how cultural categories become cognitive classifications, marked both on the body and geographically.

Our constructions of nature shape the behavioral causes of and reactions to environmental problems that we now face. If it is the meaning of nature itself that is the problem, then how can we possibly find solutions? These construction tasks
show that the kids are already grappling with this construct in often sophisticated ways. An environmental sociology of children and environmental education with children should first ask how kids construct this idea, based on the variability of not only age but also their lived experiences. Researchers and educators can then do a better job of accepting the constructs that kids themselves hold as valuable and legitimate, and as stepping stones on which to negotiate and build.

Kids have long been neglected in much of the work in sociology. My aim here is to demonstrate that the inclusion of kids in our research enriches our theorizing and provides solid avenues for application of sociological theory to the betterment of environmental education. It is not enough to talk to kids about prototypical ‘natural’ items as is often the case in environmental education. If the theorists are right and it is the idea of nature itself, as separate from humans, then that is part of the problem. This theoretical lens and focus demonstrates that it is often the implicit boundary work that teaches kids that humans are not nature, that nature is not right here, and that nature is ‘dirty’ and ‘other.’ Kids themselves do not necessarily hold these ideas. They must negotiate the meanings they are actively constructing through their own lived experience with the boundaries that are constructed around them by the adults in their lives. Kids’ views of nature are legitimate and valuable ways of constructing and understanding the world. These kids do know about nature, but it might not be the same nature that an adult assumes.
CHAPTER 4:

"PLANTS AND PEOPLE MAKE THE WORLD NICE." CHILDREN'S ATTITUDES TOWARDS THE NATURAL WORLD

4.1 Introduction

In the previous chapter, I presented how kids personally and experientially construct the idea of nature and the role of adults in supporting and constraining those constructs. In this chapter, I look at children's attitudes towards nature. Research on environmental attitudes in sociology dates back to 1978 when Dunlap and Van Liere first published their New Ecological Paradigm (NEP) attitude scale. They proposed that society as a whole was making a shift from a human centered orientation – the human exceptionalist paradigm – to a more connected paradigm, where humans are seen as embedded in surrounding ecosystems – the New Ecological Paradigm. Since then, the NEP has become the most widely used environmental attitude scale and has shaped the direction of environmental sociological research. To ground this work in the historical context of environmental sociology, I also follow in this line of research. However, to bridge an environmental
sociology of children with the previous work in environmental sociology, I had to make a number of modifications to collect NEP attitude data with the kids at Wiley.

While the NEP scale has been widely used, it has had less application in research with children. The scale was modified and validated in 2007 for work with children (Manoli et al. 2007). However, issues remain. One critique I have of the NEP is that the words ‘nature’ and ‘environment’ are not defined in the scale. It was not uncommon while I was conducting the NEP survey for kids to stop me and say – “What does nature mean, anyway?” This sophisticated question is not one that the NEP was created to address. Rather, like most attitude scales, it seeks to uncover affective responses towards a social object (Maio et al. 2003), while neglecting to consider how the object is culturally and individually constructed. I addressed this issue in the previous chapter, uncovering how kids construct the idea of nature.

Because the research here is with a young population of kids (aged 5 – 11), I significantly shortened the scale and the kids used the thumb sign (thumbs up, down, etc.) to give their responses on the Likert-scale. I conducted the survey using semi-structured interviews rather than a straightforward survey approach. This allowed me to uncover child centered meaning behind the NEP responses, something that researchers such as Kopnina (2011) have argued is necessary when working with children. I added a measure of environmental identity to the survey. This measure proves to be one of the most predictive in the regression models and is an easy addition for those wishing to collect data on environmental attitudes.
When the NEP is used with children, it is often applied to test the effectiveness of environmental education programming. The samples included often over represent white, middle-class kids (Kopnina 2012). My sample, on the other hand, is both racially and socio-economically diverse, allowing for a more thorough analysis of what environmental attitudes look like across different groupings of young kids.

The work here does not address the most persistent critique of the NEP – how and when the environmental attitudes it measures link to behavior. This is an important critique, but it is beyond the scope of my research. Rather, in proposing an environmental sociology of children, I focus on the social psychological and cultural-constructive variables important for uncovering and understanding how kids think about and understand the natural world and their relationship to it. In this chapter, I present the importance of including diverse populations to understand variability in children’s attitudes towards the natural world, the central role of personal environmental identities in predicting environmental attitudes, and the different avenues of meaning through which kids come to hold pro-environmental attitudes.
4.2 Literature Review – Attitudes towards nature

An attitude is an affective evaluation/response towards an object. Attitude theory posits that these appraisals shape our behaviors toward the object (Maio et al. 2003). The suites of attitudes we hold constitute our ideologies and even worldviews (Van Liere and Dunlap, 1980). Research on attitudes in sociology demonstrates that social structures influence attitude formation. For example, in their seminal work, Kohn and Schooler (1969) demonstrated the link between social class and attitudes towards the self, including the valuing of conformity to authority or the valuing of self-direction. These values were directly related to socio-economic structural positioning and access to work and educational opportunities.

Researchers studying environmental attitudes have found that similar socio-demographics influence one’s affective evaluation of environmental issues. Consistently, people in positions of privilege – often white men – tend to exhibit less concern regarding environmental issues (Kahan et al. 2007). This is termed the white-male effect. Upon closer scrutiny, Kahan and colleagues (2007) found that this effect is based on values towards the role of individuals in communities and ideas of hierarchical or egalitarian structuring of society. Hierarchical individualists “...find that environmental issues challenge their cultural identity by implying that hierarchy and individualism are substantially at fault for environmental problems” (Bell 2012:184). Egalitarian, solidarity-oriented individuals tend to exhibit the most concern over environmental issues. Other work finds that variability in access to
resources, often based on socio-demographic structures in society, has a direct impact on environmental concerns and attitudes (Engel and Pötschke 1998). Structural variability in access and meaning must be taken into account when measuring the environmental attitudes of children. Focus on one demographic grouping will not reveal the variability in attitudes that kids across different groupings hold.

4.2.1 The New Ecological Paradigm

The New Ecological Paradigm (NEP) is a commonly used environmental attitude scale (Bell 2012). Created in the 1970’s, the NEP uses large-scale population surveys over many years to document movement from a human exceptionalism paradigm - whereby humans are seen as dominant over ecosystems - to a new ecological paradigm. The New Ecological Paradigm sees humans as embedded in ecosystems and the fate of humans is not separate from the fate of other living beings (Van Liere and Dunlap 1980). These views are placed on a continuum from anthropocentric (human centered) attitudes to ecocentric (ecosystem centered) attitudes.

The NEP stands out as one of the most tested and thoroughly validated environmental attitude measures (Bell 2012). It is a 15 statement survey using a five or seven point Likert scale to measure the level of agreement with each of the statements (Dunlap et al. 2000). While it is not without shortcomings – e.g., links to behavior (Stern 2000; Stern, Dietz, and Guagnano 1995) and cross-cultural validity.
(Kopnina 2011) – the NEP is often used and has been reformulated to fit with new environmental challenges (Dunlap et al. 2000).

Manoli, Johnson, and Dunlap (2007) modified the NEP for work with children aged 10-12, shortening it to only ten statements. The new scale maintained the validity of the NEP while allowing researchers to measure the environmental attitudes of children. Like the original NEP, Manoli and colleagues’ scale forms a single factor analysis of the environmental worldviews of children (ranging from anthropocentric to ecocentric).

Attitude research with children is vital for a complete understanding of the development of environmental attitudes through the life course (Evans et al. 2007). However, Kopnina (2011) noted that while the NEP remains a useful measure and movement to validate the measure for work with children is very promising, there is the need to include qualitative analysis alongside the quantitative NEP scale. In particular, Kopnina (2011) found variation and confusion in the interpretation of a number of the NEP statements in a population of Dutch school children aged 10-12. Interpretation of the meaning of survey statements can lead to dubious results if an effort is not made to understand the varied meanings that the survey participants draw from to formulate their responses. Because of the age of my sample, and their socioeconomic diversity, I followed Kopnina’s recommendation of collecting qualitative data alongside the NEP scale in this research.
4.2.2 Environmental identities

Measuring attitudes uncovers affective responses towards an object. Identity is understood as how one views their self in relationship to an object, issue, or other. Environmental identity measures ask how an individual views their self in relationship to the natural environment (Stets and Biga 2003). Identities must be confirmed in interaction (Stryker and Burke 2000). For this reason, researchers propose that identity may be more tightly correlated with behavioral choices than attitudes (Burke and Reitzes 1991; Stets and Biga 2003), though identity is also constrained by opportunity and access to act (Stryker 1980). To date, there is relatively little work on children’s environmental identities (though see, Kahn 1997a, 1997b & 2003), although some argue it is access to the outdoors that promotes the cultivation of these identities (e.g., Chawla 1998 and 2009). I chose to include a simple measure of environmental identity that Schultz, Shriver, Tabnico and Khazian (2004) created and tested, the Inclusion of Nature in Self Scale (I term this the self in nature scale).\textsuperscript{13} This scale uses a series of Venn diagrams to ask participants how much they think their self is part of nature. I then used the identity scale as an independent variable alongside the socio-demographic data to understand variability in overall environmental attitudes.

\footnotesize{\textsuperscript{13} This wording is important. As a sociologist, not a psychologist, I view the self as arising out of and being embedded in larger structures. Therefore, self is part of nature, rather than nature being included in the self.}
4.3 Methods

One hundred and seventy kids from Wiley took part in this portion of the research. All participating students completed the modified NEP survey. Before students participated in the survey they were asked if they wanted to answer some questions about nature and told that there were no right or wrong answers. The first through fourth graders also responded to the self in nature scale.

4.3.1 A modified NEP

In chapter two I presented my methods for creating and administering the modified NEP for the young children at Wiley. Table 2.1 presents the statements, reworded to be developmentally appropriate and the thumb signs used for the Likert scale responses. Only kindergartners were surveyed in the early childhood classrooms, teachers collected that data while conducting their end of the year tests with their students. I collected all of the survey data from the participating lower elementary classrooms. It was also from the lower elementary aged kids that I collected the additional qualitative data. I asked 97 of the first, second, and third grade participants to explain their reasonings behind their NEP responses to me. I did this by simply asking them, “and why is that” after each statement and then writing down their responses. The fourth grade classroom survey was administered by the teacher in a group setting using a five-point Likert scale without the thumb signs.
4.3.2 Measuring environmental identity

I used Schultz and colleagues (2004) scale to measure children's environmental identity (Schultz et al. 2004), discussed in more detail in chapter two. Figure 2.3 demonstrates the overlapping Venn diagrams used to elicit participants perceptions of how much their self is part of the natural world. And, again, with the lower elementary kids I was also able to ask them why they chose a certain amount of overlap between their self and nature.

4.4 Results: Kids’ attitudes towards nature – the importance of diversity, identity, and reasoning

The frequency distribution of responses for each of the NEP survey statements is in Table 4.1. Responses are reverse coded for statements 2, 4, 5, and 6 so that all higher responses represent a more ecocentric attitude and lower responses represent a more anthropocentric attitude. (Similar reverse coding procedures can be found in Manoli et al. (2007)). Overall, the children in this study show predominantly ecocentric attitudes.
### TABLE 4.1

NEP RESPONSES

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) People are supposed to be in charge of nature</td>
<td>37.65</td>
<td>6.47</td>
<td>24.71</td>
<td>8.24</td>
<td>22.94</td>
</tr>
<tr>
<td>2) People are supposed to take care of nature</td>
<td>1.18</td>
<td>1.18</td>
<td>4.14</td>
<td>3.55</td>
<td>89.94</td>
</tr>
<tr>
<td>3) People can do whatever they want to nature</td>
<td>4.71</td>
<td>2.94</td>
<td>17.06</td>
<td>4.71</td>
<td>70.59</td>
</tr>
<tr>
<td>4) Plants and animals have as much right as people to live</td>
<td>8.24</td>
<td>0.59</td>
<td>21.18</td>
<td>7.06</td>
<td>62.94</td>
</tr>
<tr>
<td>5) People are part of nature</td>
<td>11.18</td>
<td>3.53</td>
<td>9.41</td>
<td>5.29</td>
<td>70.59</td>
</tr>
<tr>
<td>6) Some people are treating nature badly</td>
<td>14.20</td>
<td>4.73</td>
<td>21.30</td>
<td>6.51</td>
<td>53.25</td>
</tr>
</tbody>
</table>

Percentage response on the thumb-sign Likert scale for NEP survey statements – responding from 1 (the most anthropocentric) to 5 (the most ecocentric). n = 168.
The Self in Nature Venn diagrams revealed that the children in this population tend to see their self as being highly part of nature. Table 4.2 shows the percentage distribution of responses to the Venn diagrams presented.

**TABLE 4.2**

SELF IN NATURE RESPONSES

<table>
<thead>
<tr>
<th>% Responses</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>How much are you part of nature?</em></td>
<td>8.18</td>
<td>8.18</td>
<td>5.45</td>
<td>3.64</td>
<td>10.91</td>
<td>20.00</td>
<td>43.64</td>
</tr>
</tbody>
</table>

Percentage responses to Venn diagrams representing how much participants saw their self as being part of nature. 1 means self is not part of nature at all and 7 means self is completely part of nature. (n = 112)

I next focus on variability in responses to individual statements and use the qualitative data to reveal what this variability means.
4.4.1 Variability in NEP responses

The greatest spread in responses across the Likert scale was in statements one and six. The qualitative data reveals a more complicated understanding of the attitudinal statement, “People are supposed to be in charge of nature,” than an anthropocentric vs. ecocentric dichotomy would predict. These understandings of what it means to be in charge of nature may come from the structural position of being a child, e.g., often others are in charge of you, and this is not necessarily negative. They also may come from the diversity of the childhoods experienced by children growing up in different socio-demographic contexts. Children on free or reduced lunch (a proxy measure for SES) were more likely to say that people are supposed to be in charge of nature than their counterparts on family paid lunch (t (168) = 2.22, p<0.05).

Reasons behind why people are supposed to be in charge of nature often revealed rationale based on a care ethic, rather than an idea of domination and control. For example, Robert stated that people are in charge of nature, “because it messes up the environment if people don’t take care of it.” Similarly Michael, another third-grader, stated, “If you don’t take care of nature the environment could die.” This theme of being in charge of nature because it needs to be healthy, to survive or to be beautiful was very common in the children’s interview responses. Michelle said, people are supposed to be in charge of nature because, “if you didn’t, if people didn’t clean up, it would be all filthy and animals could get really hurt.” She then went on to tell me how she and her mom go to the park and pick up litter.
Some students stated that it was somewhat true and somewhat not true that people are supposed to be in charge of nature (a three on the Likert scale). As Velma noted, “You are not fully in charge. If it’s your yard you are, but if it’s the animals’ then [you] aren’t.” Similarly, David noted, “Like dogs. If you buy one, take care of it. So kind of [in charge]. Can’t take care of deer and stuff and lions.” For these kids, animals are nature and we are not responsible or in charge of all animals, just those that we ‘own.’ Another example of how people were supposed to be in charge of some things by taking care of them, but not others was Keegan’s response: “people are supposed to take care of animals and animals are supposed to take care of their families.”

Some kids took a cautionary perspective on this question, noting that people need to control how much we are in charge of nature. Megan said, “They’re [humans] not supposed to take over it, but they are supposed to see nature and half way take care of it.” Finally, one of my favorite responses was from Seth, a scrawny second grader in glasses, who notes that while we are somewhat in charge, we are limited as people: “They [people] can't be in control of nature. Can’t make a tree grow. Can’t be a Jedi, just use the force. Can’t.”

Those kids who said that people were not in charge of nature usually said it was because “nature is the boss of itself” (Johnny). Carol noted, “They're not in charge because, I don’t think so. Kids can’t be in charge because can’t take care of themselves, so how [can] they take care of the nature?” Other kids noted that perhaps Mother Nature or God was in charge. As Benny said: “Because Mother
Nature is in charge of plants, animals, any living things. Not all people believe [that], but that's my opinion.” Along those same lines, the whole of nature was not viewed as belonging to people, and so they should not be in charge of it. Or simply, “people can't tell animals what to do,” as Phillip stated.

These unique reasons, revealed in the qualitative data, suggest a more nuanced interpretation of what it means for people to be in charge of nature. Both always true and never true often still represented ecocentric attitudes. It was for these reasons that I added two additional attitude statements to further explore what the participants meant when they said people were supposed to be in charge of nature.14 These statements were, “People are supposed to take care of nature” and “People can do whatever they want to nature.” I then recoded responses for “People are supposed to be in charge of nature” to an ecocentric attitude if the child also said that it was true that “people are supposed to take care of nature.”

With the new coding for “People are supposed to be in charge of nature” 61% of the respondents demonstrate an ecocentric view, while 0% represent an anthropocentric view on that statement. Nearly all the kids thought people were supposed to take care of nature, whether or not it was because they thought people were in charge or not.

With this recoding, I created a ProNEP composite variable that ranges from 6, representing the most anthropocentric attitudes to 30, representing the most

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14 I conducted this survey at both the beginning and the end of the year. Only the end of year data is presented here. However, I was able to catch this issue at the beginning of the year and add the two statements for the end of year surveys. See Streeter and Mikels-Carrasco (2012) for a comparison of the beginning and the end of year data.
ecocentric attitudes. Figure 4.1 is a histogram distribution of this composite ProNEP variable. Overall, the children in this study hold very strong pro-environmental attitudes.

![Figure 4.1 NEP distribution](image)

**Figure 4.1 NEP distribution**

4.4.2 Self in Nature

As presented in Table 4.2, children in this population tend to identify their self with nature. Samantha noted that she was “not completely part of nature, but most of you is from nature, like the oxygen you breathe comes from nature.” Annie said that she was part of nature “because nature is like, us.” Another student, Tiffany, noting the similarities said, “Because we breathe like animals and drink like
animals and we eat and if we weren't part of nature, we'd be like a school or something that can't breathe or move.” All of these examples demonstrate that kids who saw their self as part of nature did so because they understand that humans are animals, needing and doing some of the same things that other animals do. Furthermore, a lot of students who said they were part of nature simply said it was because they love it.

Students who viewed their self as around 50% part of nature often noted that they liked to be inside and did not see this as being part of nature. Tyler said he was halfway part of nature “because I play video games a lot.” Kids in this group, while often recognizing that humans breathe, eat, and sleep like other animals, noted that we also do things that are different from other animals and that these things, like playing video games, are not part of nature.

Participants who did not see their self as part of nature often did so based on a rejection that people are animals, or they stated that they did not like nature. William noted that “I don’t have a home in the woods, it's on a street” and so he could not be part of nature. Allie said, “Well, nature never welcomes me.”

The children used a variety of rationales to explain either strong or weak environmental identities. Most commonly, the majority of the kids did see their self at least somewhat being part of nature. A sample t-test reveals that students on free/reduced lunch viewed a higher percentage of their self as being part of nature, than did students on family paid lunch (t(108) = -2.03, p<0.05).
4.4.3 From ecocentric to anthropocentric attitudes

In addition to the class variability in responses to the statement, “People are supposed to be in charge of nature,” I found socio-demographic variability in response to the statement, “Some people are treating nature badly.” Those who are white, on family paid lunch, and/or are magnet students are more likely to think the latter statement was true (t-test results, respectively: t (167) = -2.46, p<0.05; t (167) = 2.01, p<0.05; t (137) = -2.23, p <0.05). However, this did not seem to come from different interpretations of the survey statement (as with the “in charge of” statement). Rather, some kids did not think nature was being treated badly while others did, and this difference broke down by class and race.

Using the composite ProNEP as the dependent variable, I ran a series of multiple regressions to test for variability in overall attitudes based on socio-demographics and environmental identity (Table 4.3).
TABLE 4.3

NEP REGRESSION ANALYSIS: PRO-NEP

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race – African American</td>
<td>-0.005 (0.983)</td>
<td>-0.013 (0.979)</td>
<td>-0.69 (0.941)</td>
<td>0.244 (0.853)</td>
</tr>
<tr>
<td>Race – white</td>
<td>1.215 (0.997)</td>
<td>1.068 (1.00)</td>
<td>0.462 (0.988)</td>
<td>0.748 (0.894)</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.321 (0.757)</td>
<td>-0.271 (0.755)</td>
<td>-0.603 (0.737)</td>
<td>-0.131 (0.674)</td>
</tr>
<tr>
<td>SES</td>
<td>1.528 (0.996)</td>
<td>1.182 (1.028)</td>
<td>1.96 (1.031)</td>
<td>1.064 (0.955)</td>
</tr>
<tr>
<td>Grade level</td>
<td>0.448 (0.352)</td>
<td>0.73 (0.355)</td>
<td>0.721 (0.32)</td>
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</tr>
<tr>
<td>District/Magnet</td>
<td></td>
<td></td>
<td></td>
<td>2.358 (0.891)</td>
</tr>
<tr>
<td>Nature in Self</td>
<td></td>
<td></td>
<td></td>
<td>2.317 (0.804)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>t(72) = 2.65**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>t(71) = 2.88**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.664 (0.159)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>t(71) = 4.18***</td>
</tr>
<tr>
<td>R²</td>
<td>0.042</td>
<td>0.062</td>
<td>0.145</td>
<td>0.314</td>
</tr>
<tr>
<td>F</td>
<td>(4, 74) = 0.8</td>
<td>(5, 73) = 0.97</td>
<td>(6, 72) = 2.04</td>
<td>(7, 71) = 4.64***</td>
</tr>
</tbody>
</table>

Beta coefficients with standard error in () * t-statistic significant at p<0.05, ** t-statistic significant at p<0.01, *** t-statistic significant at p<0.001

Nested multiple regression results - dependent variable = composite ProNEP (n = 78).\(^\text{15}\)

\(^\text{15}\) These models were run with data from students in grades 1\(^{\text{st}}\), 2\(^{\text{nd}}\), and 3\(^{\text{rd}}\) who I had all demographic data for and whose parents received and did not return the parental consent form.
I controlled for all socio-demographics collected; including grade level, gender (female = 1, male = 0), race (coded as dummy variables for white, African American, Latino/other), the proxy measures for socio-economic status (lunch free/reduced = 0, paid by family = 1 and district = 1, magnet = 0).\textsuperscript{16} The final model controls for all of the socio-demographic variables and includes the environmental identity measure as well.

The first two models, including race, gender, SES, and grade level were not significant. In model three, when the magnet/district distinction is included grade level is significant. The sample had a much higher number of magnet students at the lower grade levels than the upper grade levels, confounding analysis of this change. Model four shows the best fit, controlling for all socio-demographic variables and inclusion of the environmental identity measure ($R^2 = .314$, $F (7, 71) = 4.64$, $p < .001$). The sample t-tests and regression analysis demonstrate that children from different socio-demographic groupings, particularly different SES groupings, think differently about environmental attitudes. This was particularly true for the statement, “people are supposed to be in charge of nature.” Kids from lower SES were significantly more likely to say they agreed that people were supposed to be in charge of nature than were the kids in higher SES groupings. The regression analysis reveals that dependent variables for predicting environmental attitudes should

\textsuperscript{16} I argue that the status of students as district or magnet can be used as a socio-economic proxy for two reasons. Firstly, the school corporation that Wiley sits in offers extensive busing for its magnet schools, but at the time of the study there was no busing available for Wiley students outside of the immediate neighborhood district. This meant that those magnet students attending Wiley had to be driven to and from school, a significant burden for working families. Furthermore, 66\% of the sample population was on free/reduced lunch – of those 73\% were district students. However, with this data, I cannot rule out neighborhood effects.
include socio-demographics and environmental identities. Because identity is understood to be a higher order internal process, it is understood to be a significant factor in shaping other processes such as attitudes (Stets and Biga 2003). Exploring this link between identities and attitudes is the focus of the next chapter of this dissertation.

4.4.4 Qualitative analysis

While the variability in attitudes across the different demographic groupings is central to the findings here, my analysis of the qualitative data reveals another area of variability that purely quantitative attitude scales cannot capture. I found that kids with similar scores for the NEP scale overall primarily used three different types of reasoning to support their pro-environmental attitudes. These reasonings included a rights-of-nature orientation, an understanding of the utility of nature, and reasoning that used an evolutionary understanding of humans in nature.\(^\text{17}\) I use Angela, Tony, and Mark as exemplars of these three themes. All three children had strong environmental identities, proclaiming their self was 100% part of nature.

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\(^{17}\) Because Wiley is a Montessori school, all of the kids here were introduced to the theory of evolution by the first grade at the latest. In chapter 1, I discussed “The Five Great Lessons” used in Montessori education.
4.4.4a  Theme 1: Treating nature bad and other people bad: A rights-of-nature orientation towards the natural environment

Angela, a spirited and articulate child, demonstrated what I termed a Rights-of-nature orientation in her qualitative NEP responses, often noting that nature deserves the same treatment as people. She did not think that people could do whatever they wanted to nature “because they might stomp on small animals – bunnies and birds, and they’re not supposed to be killed.” When asked if plants and animals have as much right as people to live, Angela stated that they do “because people don’t want to die and animals don’t want to die.” Similarly she saw people as part of nature “because nature is alive. Because people want to be alive and animals want to be alive and everything wants to be alive and they don’t want to die.” Finally, she sees those that mistreat humans as being the same people who are treating nature badly: “It’s thugs; they be going around, walking on the street with pants hanging down and some people have guns.” Angela stands out in that nearly all her responses contained this rights-of-nature framework.

4.4.4b  Theme 2: Humans need oxygen and trees make oxygen: A utilitarian orientation towards nature

Many children supported their pro-environmental attitudes by recognizing that we need oxygen, water, and food to survive and these things come from nature. Utilitarian reasoning connects the importance of nature to human survival.
Tony thought it was half true and half not true that people are supposed to be in charge of nature, “because people need to help nature so can help the trees, plants, flowers without littering so can grow things. If didn’t have trees, we wouldn’t be able to breathe, would be nothing on earth. If you chop down a tree, you are just killing yourself.” Here he takes a global and immediately personal perspective, seeing that all life needs to be able to live for individual humans to live as well. He didn’t think people could do whatever they wanted to nature “because if [you] do whatever [you] want, like litter, [you’ll] just probably go to jail or kill the environment. “ He said that animals and plants have as much right as people to live, “because the animals are allowed to be free sort of like humans. But, animals get to run around and to be free, rather than just stay in one town, or jail. Because animals can’t go to jail.” For Tony, people are indeed part of nature “because the sun is part of nature and everything we eat, it’s made of sun.” He noted that some people are treating nature bad and that this is really a problem. “If people start treating nature bad, would be no trees, no animals, and no humans and people would just die. If people didn’t treat nature bad then would just – they wouldn’t go to jail because some people go if they litter. If cop sees someone litter, they have to go to jail.” It is noteworthy that Tony, like Angela, sees a parallel between people behaving poorly (in Tony’s case those who go to jail and in Angela’s ‘thugs’) and people who treat nature bad.
4.4.4c Theme 3: People are part of the animal kingdom: an evolutionary take on environmental attitudes

The kids who expressed pro-environmental attitudes from an evolutionary standpoint often noted that we evolved from other animals, and that humans are part of the animal kingdom. Mark’s responses are representative of this group. He thought that plants and animals have as much right as people to live “because they, people, are part of the animal kingdom. And, animals, like people, have brains, legs, learn to do things, but they [animals] don’t have school.” When I asked if people were part of nature he said, yes, “because [people are] part of the animal kingdom.” When asked if some people were treating nature badly, he said, yes, “Because they’re destroying nature, chopping down the trees, destroying things that make air to keep us living, bad way to kill yourself.” This response is similar to Tony’s above, that hurting nature also hurts humans.

These three themes demonstrate that kids can come to justify pro-environmental attitudes for different reasons (e.g., rights-of-nature, utility, or evolution). These reasons were not mutually exclusive and often overlapped within one child’s responses.
4.5 Discussion: Diversity, identity and reasons shape NEP responses

Overall participants in this portion of the study hold strong pro-environmental attitudes, but they make sense of these attitudes based on different types of reasoning. Kids from different socio-demographic groups vary in the individual as well as the composite NEP measures. This variation may stem from differences in the lived experiences of the kids (e.g., differences in parenting styles, access to parks, programming preferences, and family values towards the natural environment). For example, those children who think it is true that, “People should be in charge of nature,” justify this by understanding that when someone is in charge of something they are supposed to care for it. In her seminal work, Lareau (2002) demonstrated that parenting styles of the working/poor and upper/middle class parents varied dramatically. Upper/middle class parents focus on concerted cultivation and practice extensive reasoning with children. The working/poor parents in Lareau’s study practiced a natural growth parenting style, often using directives in talking to and disciplining their children. These differences in parenting style may lead to different ideas of what it means to be in charge of something. The upper/middle class children end up viewing themselves as independent agents that work with their parents, therefore the parental figures are not ‘in charge of them.’ While the working/poor children have strong authority figures that are in charge of them and take care of them. This explains the variation in response to the statement about people being in charge of nature by students in different SES groups. These varying interpretations of NEP statements challenge us
to consider multiple human/environmental conceptions as, at least at times, equally pro-environmental.

Why the students who are white and more affluent are more likely to think that, “Some people are treating nature badly” deserves further attention. The nature in self scale revealed that kids in lower SES groupings are more likely to think of themselves as being part of nature. Recall from the previous chapter that the district kids, usually representing lower SES, were more likely to include people in their constructions of nature. Their experiences in their own neighborhoods with real/non-digitally mediated experiences as their source of interaction to draw on, may create a less dichotomous understanding between their self and the natural environment (at least at the ages of the kids analyzed here). Also, from Lareau (2002), while lower-class parents often fill the role of strong authority figure, the children are also often allowed to roam more freely than upper class kids. This may provide them with more visceral and immediate experiences in their own neighborhoods and yards than those kids in middle/upper classes. Furthermore, children that identify closely with nature do not see themselves as being treated badly and so also do not think nature is being treated badly. In the previous chapter, I presented data collected from the home surveys. I found that more affluent kids (and often white as well) were more likely to be watching shows at home explicitly about the natural world. These types of programming, such as National Geographic or Discovery channel, often include or focus on environmental problems. These kids may have come to the survey with a different knowledge base in regards to issues
surrounding the natural environment. These findings suggest the need for continued exploration in the links between variability in environmental attitudes, socio-demographic diversity, and environmental identities.

In the regression models using the composite ProNEP as the dependent variable, only model four, including the magnet/district as a proxy measure for SES and the identity measure, was significant. Some have argued that environmental attitude measures may be a reflection of what the survey creator thinks is the ‘right’ environmental ideology (Bell 2011), and that this may reflect a middle class white ideology towards the natural environment. Researchers have found that class and racial categories do vary on their endorsement of the NEP (Johnson, Bowker, and Cordell 2004). This is why environmental attitude research with children must include diverse populations and qualitative data to reveal the variation and meaning behind individual responses. From the qualitative data, it is clear that the kids were generally pro-environmental, though with assorted justifications.

Finally, measuring environmental identity alongside environmental attitudes provides a deeper analysis of how environmental attitudes are justified. In chapter six, I explore this relationship further. Theorists speculate that separation of humanity from nature is the root of modern day environmental problems (Light and Katz 1996). But society does, nevertheless, treat nature as an object outside of humans. We can bridge this divide in attitude/identity research and provide more fruitful ideas for how to address environmentally significant behaviors by
uncovering these relational understandings between self and attitudes towards nature.

Overall, the kids tend to hold very strong pro-environmental attitudes – though with different justifications for those attitudes. It is now the challenge to consider how to support and cultivate these attitudes and to promote environmental behaviors consistent with these attitudes. The first steps in environmental education should seek to uncover these child-centered understandings of environmental attitudes, and find ways to nurture the plurality of justifications.

There are limitations of this study. For example, there was no behavioral measure collected to reveal how environmental attitudes relate to the behavioral choices of kids. Furthermore, the data offers a useful cross-sectional snapshot, but it is just that. Longitudinal data for understanding changes in attitudes through the life course is necessary in future research with children.

This study builds our understanding of children’s attitudes towards the natural world. It forces us to consider the structural positioning of children in our society, alongside the diversity in childhoods across socio-demographic groups, and how this variability influences environmental attitudes. Furthermore, the themes discovered in the qualitative data reveal the richness of kids’ environmental attitudes and the necessity of including qualitative data alongside quantitative data with children. Finally, consideration of identities in conjunction with attitudes provides a productive area for further exploration. In the final substantive chapter
of this project, I consider how reasoning and attitude justification stems from different identities.
5.1 Making sense of self and nature

“I love animals and I love trees, flowers, and bugs, and lots of animals; mammals, reptiles, amphibians” said Tony, a small first grader, when telling me why he was part of nature. Of course he was part of nature, he reasoned, because there were all of these things about it that he loved so much and identified with. Second grader, Mark, maintained he was indeed part of nature because, “I’m part of the animal kingdom.”

I used Tony, Mark, and also a second grader, Angela, in the previous chapter as exemplars of how children use different reasoning to make sense of pro-environmental attitudes. I found rights of nature the most common among the reasons given. This reasoning – demonstrated by Angela when she said, people cannot do whatever they want to nature, “because they might stomp on small
animals, bunnies and birds, and they’re not supposed to be killed” – draws on a moral understanding of how nature should be treated. Responses like Tony’s, citing the utility of nature, as exemplified when he said, “If didn’t have trees, we wouldn’t be able to breathe, would be nothing on earth. If you chop down a tree, you are just killing yourself,” occurred second most frequently. The third most common way to make sense of attitudes was evolutionary reasoning (as seen in Mark’s response above). Importantly, all three of these children said they were part of nature; rejecting the idea that they, as humans, were something other than nature. I see this as a sign that these children maintain a strong environmental identity, where their self and nature are connected rather than separate.

Alternatively, Elliana, a quiet first grader, told me she was not part of nature, “because I don’t like nature.” Tyrone, another first grader, said the same thing. William said he was not part of nature because, “I don’t have a home in the woods. It’s on the street.” These three kids, unlike the previous three, did not hold strong environmental identities. Rather, they rejected the idea that they could be considered part of nature. While these latter three were in the minority – only 23% of the kids interviewed said they were not part of nature – their attitudes towards nature are strikingly different than the children who identified as a part of nature. Even more striking, the reasonings behind those attitudes varied considerably from those of the children who do consider themselves part of nature.

Although I did not begin this project focused on the reasoning behind environmental attitudes, I was struck by the richness of the children’s responses.
After I turned my attention to reasoning more explicitly, I realized how much this reasoning is shaped by the children’s environmental identities – that is their sense of self in relationship to the natural environment. Those with a high sense of self in nature – a strong environmental identity – were more likely to use moral and evolutionary reasoning. While those who reject a sense of self in nature – a weak environmental identity - are far more likely to use reasoning that rejects the moral standing of nature and reject evolutionary understandings. In this chapter, I provide insight into how even young children’s early conceptions of self shape how they reason and think about the natural environment. I combine previous work in environmental social sciences with the core social psychological concept of identity to make this argument.

Environmental sociologists, psychologists, and educators often measure attitudes to uncover how people think about the natural environment. However, there is often a disconnect between expressed attitudes and actual behavior, which suggests that researching attitudes alone may not be as useful as once thought (e.g., Dunlap and Van Liere 1978; Dunlap et al. 2000). Researchers have suggested that, instead, it is the meaning behind attitudes that drives action (Schultz and Zelezny 1999; Kopnina 2012). Some argue that, instead, it is the construction of the self that matters. Put another way, it is an environmental identity that drives action (Stets and Biga 2003). Here, I combine these approaches. Integrating research in environmental education and psychology, I argue that we must uncover meaning behind attitudes, particularly values and beliefs, and that a sociological
understanding of the personal environmental identity is a potential mechanism underlying those meaning making processes.

In this chapter, I use a grounded approach to data exploration to understand how views of self and other shape how kids think about the natural environment. I demonstrate that kids possess environmental identities and that it is these identities that shape how they understand their attitudes towards the natural world. To date, there is very little sociological research on children's identities and even less research has been done on their environmental identities (though see work by Kahn 1997a, 1997b, & 2003 as examples of psychological research on children’s environmental identities). My work here begins to address this gap in the literature, while linking previously disparate approaches in the environmental social sciences. It demonstrates the potential of identity research with children, particularly identity research is an exciting area for inquiry and understanding in the environmental sociology of children. In this chapter, I first present background research on meaning and environmental attitudes, followed by previous work on environment and self and identity. I use heuristic models to demonstrate the main ideas behind these research findings. Through analysis of the interview responses of first, second, and third graders, I show how those models should be combined - linking identity to meaning making to attitudes. I conclude by considering how the findings here compel us to think about kids’ identities, particularly in relationship to the environment and morality.
5.2 Literature Review: Attitudes with reason

The previous chapter focused exclusively on environmental attitudes using The New Ecological Paradigm scale. Here again, I use the NEP scale. Research in environmental education and psychology demonstrates that the translation of attitudes to behavior is based upon how one makes sense of those attitudes, that is, what those attitudes mean to the individual (Kopnina 2012; Schultz and Zelezny 1999). Schultz and Zelezny (1999:255) building on the Value-Belief-Norm theory proposed by Stern and Dietz (1994) note, “rather than investigating general attitudes about environmental issues, recent research has attempted to identify underlying values that provide a basis for environmental attitudes. Thus, two people may be equally concerned about environmental issues, but for fundamentally different reasons.” Other work has also found that attitudes are driven by underlying value orientations that are egoistic (for the self), altruistic (for other humans), or biospheric (for life more generally) (Onur, Sahin, and Tekkaya 2012).

The model in Figure 5.1 is a simplified representation of the findings of work in this area. The model demonstrates that different avenues of meaning and understanding can lead to the same expressed attitudes, but it is the meaning behind those attitudes that is more predictive of when environmental behaviors will be affected. It is those attitudes that come from other-oriented reasoning (ecocentricly focused – focused on the ecosystem more broadly) that are more likely to lead to action, rather than attitudes made sense of through human-centered reasoning (anthropocentric – concern is with human needs, not non-human others).
Take for example the idea that nature deserves protecting. Someone with an anthropocentric viewpoint may say, ‘yes, it deserves protecting because it provides ecosystem services such as the clean water and air needed for human survival.’ While someone with an ecocentric focus may say, ‘yes, it deserves protecting because it has inherent value.’ On many scales used to measure environmental attitudes (including the NEP), both of these individuals would score the same. But, it is those that use ecocentric reasoning that are much more likely to engage in action to protect the natural environment.

Figure 5.1: Human/nature orientations shape attitudes

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18 Humankind benefits from a multitude of resources and processes that are supplied by ecosystems. Collectively, these benefits are known as ecosystem services and include products like clean drinking water and processes such as the decomposition of wastes.
These different ways of reasoning about attitudes represent higher order internal processing than an attitude scale uncovers, which simply measures affective response toward an object. Reasoning is often based on value orientations, which stem from larger conceptions of the role of self in society and the world in general (Hitlin 2003). Uncovering how value orientations shape attitudes, points to the need to consider other self/society constructs that operate above the level of attitudes. I demonstrate that a sociological understanding of identity makes sense of how and when these reasonings vary.

5.2.1 Environmental Identity: Constructions of self and others

Sociological identity theory is based on a Pragmatic understanding of the self, with a particular reference to the work of George Herbert Mead. “The self is something which has a development; it is not initially there, at birth, but arises in the process of social experience and activity, that is, develops in the given individual as a result of his relations to that process as a whole and to other individuals within that process” (Mead 1967:135). It is through interaction that the self, as both an actor and social object, develops from specific to more generalized and that constructs of the other (that is other actors) also move from specific others (e.g., those the person interacts with directly) to the more generalized other (e.g., extrapolation beyond those with whom we interact with directly). A larger more encompassing sense of self must include a larger more encompassing sense of the

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19 At least if only used quantitatively without further questions uncovering why individuals hold a certain attitude.
other. This process of internalizing more and more others “embeds the society within the individual” (Coles 2008:5). It is this construction of the generalized other that allows us to reflect not just who we are in a given situation, but who we are in relationship to society in general.

An even larger sense of self and other is proposed by Weigert (2011) in the construction of the generalized environmental other through a transverse symbolic interaction. For Weigert, interaction is not only with human actors but with non-humans as well. Consideration of reactions from non-human, environmental others, expands to an even larger generalized other – one that includes multiple human and non-human others in a more inclusive construction of the self as embedded in both society and ecosystems more generally. An environmental identity then reflects on this sense of self; a self that is embedded and reflexive of interactions with multiple others, humans and non-human. An “environmental identity is a response to a central question, ‘who am I in relation to the natural environment?” (Weigert 2008:250). And while, “the development of an environmental identity is a life-long process, it has its roots in an early age” (Kals and Ittner 2003:137).

Identity theorists propose that the self is composed of multiple identities, arranged within the self, acted upon, and differentially salient based on where and who one is interacting with. Furthermore, all identities are understood as relational – myself in relationship to the environment, a mother in relationship to a child, a student in relationship to a teacher. Identities provide us with ways of interacting

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20 Transverse, meaning a symbolic interaction that extends beyond the actors generally given consideration in social science to include non-human actors as well.
with the world. “They are like a compass, providing direction in a sea of social meaning” (Burke and Tully 1977). We have the ability to take on multiple identities: role identities (e.g., student, teacher), social identities (groups – Democrat, Republican), and personal identities. “[Personal identities are] experienced by individuals as ‘core’ or ‘unique’ to themselves in ways that group- and role-identities are not: often it is discussed as a set of idiosyncratic attributes that differentiate the person from others” (Hitlin 2003:118-19; Tajfel and Turner 1986; Thoits and Virshup 1997).

However, the personal level identity has not been studied to the extent of role and social-identities (Hitlin 2003; Stets and Burke 2000). Hitlin (2003) argues that the focus on role and social identities leaves the self as fragmentary and differentially enacted and proposes that it is our personal identities that provide us with a whole sense of self, a self that transcends the different social and role taking hats we wear. Values operate at the level of the personal identity (e.g., Stets and Carter’s (2011) work demonstrating that the moral identity is a person level identity). These personal identities provide us with a sense of authenticity across varying situations and roles (Weigert and Gecas 2003 & 2005) and may represent a holistic understanding of self along the lines of that first proposed by the Pragmatists (Hitlin 2003, citing Pragmatist’s Dewey, Mead, and James).

Environmental identities and Weigert’s proposal for a transverse symbolic interaction requires that we recognize the impacts of our actions on others, including non-human others. This is an empathetic sentiment that requires
consideration of the other from the other’s perspective. The process of considering the other then shapes who we are, as Berger stated: “...taking the role of the other is decisive for the formation of the self” (1963:99). Environmental identities and constructions of generalized environmental others represent larger moral circles for consideration, a larger sense of both self and other upon which to reflect and measure the meaning of actions. These are person level, whole self, processes.

The person level environmental identity was proposed in sociology ten years ago by Stets and Biga. In that 2003 work, Stets and Biga demonstrated the central role of how individuals see their selves in relationship to the natural environment in predicting their attitudes towards nature and their propensity to act in more environmentally sustainable ways. Kahn, an environmental psychologist, has demonstrated that this perception of self is tightly linked to morality in children (1997). It is only through behavior that identities are confirmed, and not behaving in ways that confirm important (or salient) identities causes negative emotions, for these reasons Stets and Biga (2003) proposed an environmental identity was a better predictor of environmentally significant behaviors than attitudes. Identities bring with them whole packages of meaning to make sense of situations and actions, leading to identity-confirming actions across contexts (Burke and Reitzes 1991). This is why those who exhibit stronger environmental identities also hold more pro-

\[\text{21 Philosophers debate if morality requires the consideration of impacts beyond humans (Haraway 2003; Nussbaum 2004), I would argue that morality must be extended beyond humans and this is what the general environmental other (proposed by Weigert (1997)) and an environmental identity represents.}\]
environmental attitudes (chapter 4 this dissertation; Stets and Biga 2003). Figure 5.2 represents the portion of Stets and Biga’s model that links environmental identity and attitudes. Identities shape attitudes and this is what leads to environmental behavior.

![Diagram](image)

Figure 5.2: Environmental identities shape attitudes

I found that for the kids who I interviewed, strong environmental identities means they often extend moral consideration onto non-human others. Based on this, I propose that moral and environmental identities – both with their larger considerations of self and others – are tightly linked and perhaps inseparable. This proposition is consistent with the view that person-level identities are what links the self across multiple situations (Hitlin 2003) and that identity provides us with authenticity (Weigert and Gecas 2003). The results implicate a Pragmatic sociological understanding of identity as the missing component needed for attitude research focused on underlying values and meanings (e.g., Kopnina 2012; Onur et al. 2012; Schultz and Zelezny 1999). Furthermore, my findings suggest a more global continuous self in kids than one might imagine; one that is not separate from the natural world, but is an evolutionary continuation of life on this planet. I next turn to the methods for the findings presented here.
5.3 Methods

In this chapter, I focus on the qualitative data from the first, second, and third graders who took part in the project. These kids all participated in the semi-structured interviews using the nature in self scale and the NEP.

5.3.1 Self in nature scale

As part of the semi-structured interviews, kids were presented with seven overlapping Venn diagrams and asked, “How much are you part of nature?” (Figure 2.2) (Shultz, Shriver, Tabanico, and Khazian 2004), as presented in chapter two.

The majority of the kids chose selections indicating that they viewed themselves as part of nature. In the previous chapter, I demonstrated that inclusion of this environmental identity measure resulted in the best fitting regression model for understanding environmental attitudes. Table 5.1 shows the Venn-diagrams and frequency responses for these 95 children that I interviewed. I focus my analysis on the 22 who responded with a low sense of self in nature and the 71 that demonstrated a high sense of self in nature. The two children right in the middle, responding D on the Venn-diagram, were both rather quiet during the interviews, providing very little qualitative data.
TABLE 5.1

DISTRIBUTION OF SELVES IN NATURE

<table>
<thead>
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<th>Category</th>
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<tr>
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<td>B</td>
<td>7</td>
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<tr>
<td></td>
<td>C</td>
<td>6</td>
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<tr>
<td>Halfway self in nature (n = 2)</td>
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<tr>
<td></td>
<td>D</td>
<td>2</td>
</tr>
<tr>
<td>High self in nature (n = 71)</td>
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<tr>
<td></td>
<td>E</td>
<td>9</td>
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<tr>
<td></td>
<td>F</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>45</td>
</tr>
</tbody>
</table>

I found that the 22 children with a low sense of self in nature responded very differently to interview questions than those in the other categories. Their reasoning is telling for how weak environmental identities - when the self is not seen as connected to the natural world – may shape how one thinks about the natural environment. The contrast between the reasoning that those with strong environmental identities used and the reasoning of those with weak environmental identities prompted me to look more closely at how identity shapes reasoning behind attitudes.
5.3.2 A modified NEP

The analyses in this chapter use the same modified New Ecological Paradigm scale found in the previous chapter (Table 2.1). Except that here I focus on the qualitative responses to that survey with occasional reference to the quantitative results. Recall that after the kids gave their response on the Likert scale using a modified thumbs up/thumbs down system, I would ask them why or what they meant by their response. These responses form the qualitative data that I draw from here.

I used an abductive, grounded qualitative analysis (Glaser and Straus 1967), allowing themes to arise from the kids’ responses, rather than searching for pre-determined themes, while recognizing the interaction between inference, meaning, and action in data analysis and interpretation of meaning by researchers (Timmermans and Tavory 2012).22 Once I determined that some themes were occurring frequently, I proceeded to use quantitative coding to further explore the connections in the data. I coded the kids’ responses to the NEP surveys for the themes found in Table 5.3. Individuals were assigned dummy variables based on the types of reasoning they used. For example, a second grader, Jacob, said that people could not do whatever they want to nature because littering could cause animals to get sick, demonstrating moral reasoning. He also said humans are part of nature because “they are animals,” demonstrating evolutionary reasoning. So, he was

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22 I follow in line with Timmermans and Tavory’s (2012) call for the need to follow the Peircian theory of abduction, but I did not follow directly in their methodological requirements for that effort. My research began from a Pragmatic perspective, and I later became aware of this 2012 work.
assigned a one for both moral and evolutionary reasoning and a zero for the other types of reasoning that he did not use during the interview. Of course not using a certain type of reasoning does not mean that it would be rejected. It simply was not salient during the semi-structured interviews. I used dummy variables to test how the use of different themes relates to different overall environmental attitudes and how these differences are shaped by the environmental identities.
TABLE 5.3
REASONS BEHIND ATTITUDES

<table>
<thead>
<tr>
<th>Reasoning</th>
<th>Definition</th>
<th>Coded 1, used the reasoning</th>
<th>Coded 0, did not use the reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rights of Nature/Moral</td>
<td>Use of other-oriented reasoning, nature afforded empathetic and sympathetic consideration. Example: Humans are supposed to take care of nature “because [it is] their responsibility. We are basically destroying it. I think [that] people [are] really unfair.”</td>
<td>53</td>
<td>40</td>
</tr>
<tr>
<td>Rejection of Rights/Rejection of moral</td>
<td>Rejection that nature should be afforded empathetic or sympathetic consideration. Example: Humans can do whatever they want to nature “because nature can’t do anything to them. So they can do whatever they want – can cut it down, can plant it.”</td>
<td>9</td>
<td>84</td>
</tr>
<tr>
<td>Direct comparison of Rights</td>
<td>Comparison of those that used rights of nature vs. those that rejected rights of nature.</td>
<td>53</td>
<td>9</td>
</tr>
<tr>
<td>Utility</td>
<td>Reasonings that referred to the usefulness of nature for human survival and well-being, i.e., Anthropocentric. Example: People are supposed to take care of nature, “because if we take care of our trees and flowers, it can give us air. We breathe the air they give us.”</td>
<td>40</td>
<td>53</td>
</tr>
<tr>
<td>Evolution</td>
<td>Use of a continual understanding between humans and nature in reasoning expressed. Similar to moral reasoning, this is other-oriented. Example: Plants and animals have as much right as people to live, “because animals are alive like people and dogs. [They] can breathe like us and eat like us and drink like us. We’re humans, we eat and they eat.”</td>
<td>23</td>
<td>70</td>
</tr>
<tr>
<td>Rejection of Evolution</td>
<td>Rejection that humans should be thought of in continuation with the natural world. Example: People are not part of nature, because “they’re not plants.”</td>
<td>9</td>
<td>84</td>
</tr>
<tr>
<td>Direct comparison of Evolution</td>
<td>Comparison of those that used evolutionary reasoning to those that rejected evolutionary reasoning.</td>
<td>23</td>
<td>9</td>
</tr>
</tbody>
</table>

Reference to a higher power was part of the original analysis. Kids would use this sort of reasoning when they would say things like – humans are not in charge of nature because God or Mother Nature is. However, it did not occur as frequently as other themes (only 12 times). And, as it was coded and used did not relate to identities or attitudes. This may be because references to God and Mother Nature had to be combined, and these are really two very different types of reasonings.
I explore each theme in the results section individually. For the moral and evolution reasoning, I am able to compare those who explicitly accept or explicitly reject those reasons as well. This is different from the previous analysis where I looked at occurrence or absence of a given reason. Rather, for moral and evolutionary reasons I can look at direct acceptance and direct rejection of those given reasons. For example, some kids responded to the NEP with statements like, ‘animals aren’t important’ as an anti-moral reason. There were no anti-utility explanations, so I can compare only those that use utilitarian reasoning to those who do not. I do not focus on overlaps in themes, though there were many.24 I next turn to my results, focusing first on the different types of reasoning used and how these are shaped by environmental identities. I propose a heuristic model that links the findings here to previous research in both values and attitudes with the environmental identity.

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24 This is an area that future research should explore with tools created and focused on uncovering these reasonings from the outset. Because the themes that arose out of the data were discovered through a grounded approach, the data collection tool was not designed to focus on these themes exclusively. Some questions elicited ways of reasoning more than others. For example, the statement, "Humans are part of nature" was much more likely to elicit evolutionary and anti-evolutionary reasoning than the statement, "Humans can do whatever they want to nature" which was more likely to elicit utilitarian reasoning. Use of different reasonings did span across the questions, and how they overlap is important. But, a survey or interview scheme focused on these types of reasonings would do a better job in understanding how different types of reasoning overlap. Regardless, the links from identity to reasoning to attitudes are still robust.
5.4 Results

Kids rely on a handful of different overarching narratives to make sense of their environmental attitudes. These often stem from how they view their self in relationship to the natural world. The qualitative data demonstrates the richness with which children reason about the natural world and humans’ relationship to it. The next three sections - Rights of Nature, Evolution, and Utility – are presented in order of the frequency with which the kids used these types of reasoning in their responses.

5.4.1 Rights of nature: Affording nature moral standing

The rights of nature reasoning centered on arguments that animals have rights, non-human nature should be treated fairly, animals have agency, or animals deserve to live. These sentiments ascribe moral standing to non-human others, either through the expression of empathetic and sympathetic consideration of the other or through the understanding that non-humans also have agency and rights. Rights of nature occurred the most frequently, and was the most surprising. I did not expect to hear early grade school aged kids use such complex moral reasoning to make sense of their attitudes towards the natural world.

Michael, a third grader, referred to the idea of fairness in his reasoning for NEP statement four, Plants and Animals have as much right as people to live: “because it would be fair to plants and animals to let them live, just like people, don’t
go places, but still have the right to live.” This is similar to the argument Rodney, a second grader made, that humans cannot do whatever they wanted to nature, “because [people] might do something wrong and kill the plants and animals. Sometimes people do stuff and it makes nature die.” Or that they can't do whatever they want “because it’s not right. So, if you trash nature and nobody really cares?” (Andrea, a second grader, stated with emphatic irony). Some, such as Rachel, noted that non-humans have agency of their own, often a requirement for moral consideration (see Systma and Machery (2012) for philosophical views on moral standing): “because they [humans] can't do whatever, like can't decorate their own way because animals might not like it, might want something better than what people did.” Animals were given the right to live freely, as exemplified in a quote from Tony, a first grader: “The animals are allowed to be free sort of like humans, but animals get to run around and to be free, rather than just stay in one town or jail because animals can't go to jail.”

Those who rejected a rights of nature orientation used very different reasoning. For example, Mark, a third grader, stated with a shrug, people can do whatever they want “because nature can't do anything to them – so they can do whatever they want – can cut it down, can plant it.” Some kids simply saw humans as being superior to other creatures. Matt, a third grader said: “Animals really don’t matter as much as humans do, some people don’t have animals and people wouldn’t take care of them.” Katie, a first grader, straightforwardly placed animals below humans: “Because we are better than animals,” even though, as Katie added,
“animals have cleaner mouths than ours.” These ideas of human superiority often left no empathetic or sympathetic consideration for non-human nature.

The majority of those who rejected affording nature moral consideration also maintained weak environmental identities. The inverse was true as well. Nearly all of the 53 that used moral consideration to make sense of their attitudes saw their self as being more highly part of nature.25 A strong environmental identity, represented by a sense of self in nature, leads to affording non-human nature with moral standing. For some, this environmental identity seems parallel to a moral identity, whereby, moral consideration is important for many others, human and non-human. Both of these identities represent a larger sense of the self and subsequently, a larger sense of the other. In this case, the other is nature. Those with a low environmental identity rejected the idea that nature deserves moral standing. Although moral reasoning seems to correlate with environmental identity, the same was not true for the second most commonly occurring reasoning, utility of nature. Utilitarian reasoning does not seem to relate to any sort of strong or weak environmental identity.

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25 T-test comparison reveals that those who reject rights of nature averaged 3.5 for self in nature, while those that embrace rights of nature averaged 5.8. This is significant at p<0.01 (t (46) = -3.18). Those that did not use moral or anti-moral reasoning averaged 5.14 for their self in nature.
5.4.2 Utility of nature

Children used utilitarian reasoning to explain expressed environmental attitudes in 40% of the interviews. Many kids thought that humans should take care of nature because it provides us with things we need to live. Nathan, a third grader, recognized our need for oxygen when he stated: “because if [people] don’t take care – trees will die and trees give us oxygen.” Similarly, Theresa said that “nature is good for you and gives you fresh air.” Some kids noted that our food comes from nature. Ted, a second grader, noted the usefulness of trees in providing both food and air. “Like maple tree gives us sweets, so should take care or won’t have air if no trees.” Another second grader, Vincent, noted that wooden houses also come from trees. Some others simply noted that “people need nature to survive” without giving explicit reasons in reference to oxygen, food, or other materials.

Not everyone used utilitarian reasoning, but even by first grade the kids have learned about the role of plants in the production of oxygen and other ecosystem services, making the lack of anti-utilitarian reasoning rather unsurprising. This is likely why the use of utilitarian reasons was split among those with strong environmental identities and those without. Understanding the utility of nature is not an identity level process, i.e., relative to how one thinks of their self in relationship to the natural world, but rather simply requires some very basic understandings of science that even young children already have.
24 percent of participants used evolutionary reasoning to explain one or more of the NEP statements, and slightly under 10% used anti-evolutionary reasoning. Kids that used evolutionary reasoning understood, like Angel, “We’re mammals and animals are too.” Others, like April, noted other similarities: “They eat food like us and drink water like us.” Though those two statements are different, both of these first grade girls recognized the similarities between ourselves and other animals. Sarah asked, “Do you know the circle of life?” I responded, “Yes.” She went on, “Animals, people survive on others – circle of life helps – we are mammals, animals [are] too.” For kids in this group, humans are on a continuum with the rest of nature, not separate from it. They understand that we share many traits in common with other animals, and some explicitly understand that we evolved from other animals. This non-dualistic view led the vast majority of them to hold pro-environmental identities that did not differentiate between humans and non-humans.

Anti-evolutionary reasoning was just the reverse – stating that humans should not be considered part of the natural world. Some examples of statements that rejected evolutionary reasoning came from John: “[Humans,] they’re not actually animals, so they don’t live in nature.” While others rejected the idea that humans were nature because we are not plants. Ted, who we saw previously using utilitarian reasoning, stated, “People are born from other people, don’t grow from the ground, don’t have roots or leaves sticking out of their body and we can move
and plants can’t.” Or simply that we are not nature because: "We’re Not Nature. We’re Not Bugs!” as Katie, who we saw using anti-moral reasoning earlier, emphatically and nearly shouted at me.

Like with moral reasoning, it was those who rejected evolutionary reasoning that viewed their self as much less part of nature than anyone else. Those with a high sense of self in nature, on the other hand, were much more likely to use evolutionary reasoning.26 A strong environmental identity often meant that kids would understand humans as on a continuum with the rest of the natural world in order to make sense of their environmental attitudes.

Recognizing the environmental identities may relate to understanding the scientific theory of evolution is important as schools in some states continually debate the teaching of evolution, a central scientific theory. Future research should look at how the teaching of this core concept at an early age influences not only an understanding of science generally but also the social-psychological impacts on attitudes and identity.

Evolutionary and moral reasoning projects from strong environmental identities, whereby the self is considered as part of nature and so consideration for other non-humans is made sense of through either an expanded moral circle or an evolutionary continuation between humans and non-humans. The utility of nature reading, on the other hand, is self-evident and unrelated to identity processes. The

26 The mean self in nature score for those who used anti-evolutionary reasoning was 2 vs. 5.8 for those who used evolutionary reasoning (t (24) = -6.65, p<0.001). Those who did not use either evolution or anti-evolution reasoning average 5.17.
Environmental identity is about how one sees his/her self, and about how he or she sees others. The more inclusive the kids’ environmental identities, the more inclusive those kids are in consideration of non-human others. And the reverse, those who reject an environmental identity are less inclusive in their consideration of non-human others.

5.4.4 Environmental identity and sense making

The final analysis brings the sociological appreciation of the central function of identity to make sense of how these identities shape how children reason about the natural world and their subsequent attitudes. Identity seems to be the missing component needed to understand why some types of reasoning behind environmental attitudes are more likely to lead to action. As shown in chapter five, stronger environmental identities lead to more positive environmental attitudes. By considering the mediating role of reasoning here, I demonstrate this effect is because identity shapes the types of reasoning used which, in turn, lead to certain types of attitudes. Table 5.4 breaks down the types of reasons and NEP scores, comparing those who have a low environmental identity (n = 22) with those who expressed a high environmental identity (n = 71).
Mean NEP for high and low environmental identity and reasoning used. The n’s represent the number of individuals who used that sort of reasoning on any of the NEP statements. Ttest comparison results are reported when significant, comparing the NEP scores for those who used and did not use each type of reasoning (the dummy variables presented in Table 5.3). The final column is a direct comparison between those who used moral and anti-moral reasoning and those who used evolutionary and anti-evolutionary reasoning. *p<0.01, **p<0.001

<table>
<thead>
<tr>
<th>Reasoning</th>
<th>Mean NEP (n = 112)</th>
<th>Mean NEP - self in nature low (n = 22)</th>
<th>Mean NEP - self in nature high (n = 71)</th>
<th>Significant Ttest (used or did not use the reasoning)</th>
<th>Significant Ttest (direct comparison)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moral</td>
<td>25.84 (45)</td>
<td>22.25 (8)</td>
<td>26.62 (37)</td>
<td></td>
<td>t(46.27) = -4.04**</td>
</tr>
<tr>
<td>Anti-moral</td>
<td>21.88 (8)</td>
<td>21.6 (5)</td>
<td>22.33 (3)</td>
<td>t(94) = 3.16*</td>
<td></td>
</tr>
<tr>
<td>Utility</td>
<td>25.16 (31)</td>
<td>23.43 (7)</td>
<td>25.67 (24)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evolutionary</td>
<td>25.5 (20)</td>
<td>24 (1)</td>
<td>25.58 (19)</td>
<td>t(26) = -3.19*</td>
<td></td>
</tr>
<tr>
<td>Anti-Evolutionary</td>
<td>21.5 (8)</td>
<td>21.17 (6)</td>
<td>22.5 (2)</td>
<td>t(94) = 3.55**</td>
<td></td>
</tr>
<tr>
<td>Overall mean NEP</td>
<td>22.87</td>
<td>26.04</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is clear from the table that, regardless of expressed identity, kids who use the anti-reasoning (anti-moral and anti-evolution) have much lower overall scores on the NEP. Children who use moral, evolution, and utility reasoning, on the other hand, average about the same on the NEP. However, when the influence of reasoning on NEP scores is broken down by the identity measure it becomes clear...

Note that degrees of freedom is 46, meaning the n was 48, rather than 53. This is because five individuals used both moral and anti-moral reasoning at different points in the interview. For the direct comparison analysis, those were dropped. The n for evolution vs. anti-evolution is 28 because no one used both of these types of contradictory reasonings.
that identity shapes reasoning. Only 17% of those who used moral reasoning also had a low sense of self in nature, while 62% of those who used anti-moral reasoning said they were not part of nature. Those who used anti-moral reasoning had significantly lower NEP scores than those who used moral reasoning, who had the highest NEP scores of any group.

The same is true for evolutionary reasoning. Only one kid said he was not part of nature and used evolutionary reasoning. His reason for not being part of nature: “because nature never welcomes me.” Seventy-five percent of the children who used anti-evolutionary reasoning had a low sense of self in nature, and scored significantly lower than others on their NEP scale. Direct comparison of those who used and rejected evolutionary reasoning demonstrates that this avenue of understanding has a strong impact on one’s attitudes towards the natural world.

Utilitarian reasoning is used more often by those with a high sense of self in nature, but it is used with some frequency by those with a low sense of self in nature. Furthermore, it does not have nearly the impact on the overall attitude scale as the moral reasoning does. It is particularly striking that those who reject types of reasoning (e.g., anti-moral or anti-evolutionary reasoning) score far lower than anyone else on the NEP. This suggests that the weak environmental identity leads to less considerate environmental attitudes, perhaps even more than the strong environmental identity influences pro-environmental attitudes. However, this deserves more attention in future research aimed at linking identity and reasoning to attitudes.
A sense of self in nature, which I argue is an environmental identity, demonstrably shapes overall scores on the NEP, as seen in the previous chapter. The data presented in this chapter demonstrates that this occurs through the avenue of human/environmental sense making. Identity theory states the sense of self is a higher order process than attitudes, which are affective appraisals of an object. That is, how we see our self is a greater influencer of thoughts and behavior than how we think of the object itself. It is our identities that shape our orientation towards the world. The qualitative responses of the kids support this and provide impetus for consideration of how children construct others and their selves. Previous researchers have demonstrated that reasoning and values behind attitudes are important to consider. Here it is shown that this is an identity level process. Model three uses the data here to link the previous work in reasoning and attitudes with sociological identity theory.

Figure 5.3 illustrates how the research in values and attitudes and that in environmental identity are both supported, yet need one another to foster a more complete understanding. Yes, a strong environmental identity leads to more positive environmental attitudes because it provides avenues of sense making and links to values that a weak environmental identity does not. Additionally, yes, values behind attitudes are more likely to shape behavior because values are based on underlying
identity processes that relates to a more continuous and connected self, a self that
must include the consideration of more others.28

Moral and evolutionary reasonings (represented together as other-centric)
are rooted in similar understandings of the environmental self, leading to similar
environmental attitudes. Because the environmental identity is a person level
identity, it more closely resembles early theorists’ ideas of the self (Hitlin 2003).
This identity is a process of construction of the self in relationship to many others.
In the conclusion, I consider the Meadian Pragmatic development of self and what
this data suggests for how we can understand larger conceptions of self and other in
children.

28 The link the behavior is not tested here, but is supported by the literature in
environmental attitudes, identities and values.
Combining the findings of Stets and Biga (2003) with those of Kopnina (2011) I propose that an environmental identity in children is strongly linked to other-centric reasoning and weakly linked to anthropocentric reasoning. The anthropocentric reasoning can lead to more positive or more negative environmental attitudes, while the other-centered reasoning has a positive influence on environmental attitudes. Finally, while not tested here, it would be predicted that those that follow the pathway on the bottom of the figure (environmental identity, using other-centric reasoning, and more positive environmental attitudes) are also more likely to take action for the natural environment, while those on the top are less likely to engage in action for the natural environment.
5.5 Discussion: How identity shapes attitudes with reason

Preliminarily, it can be said that environmental identities are good predictors of environmental attitudes because the underlying identity processes provide avenues of reasoning that shape those attitudes. Kids with a high sense of self in nature draw on moral reasoning and evolutionary understanding to make sense of their environmental attitudes, while those who do not have a strong sense of an environmental self reject moral or evolutionary reasoning to make sense of their environmental attitudes as consistent with their non-environmental selves. Utility of nature does not directly link to identity. Those with high and low senses of self in nature both use it when it fits the attitude they are expressing. Moral and evolutionary reasoning were likely parallel because they stemmed from a larger view of self and other. Those with weak environmental identities, however, seem to have a more narrowly defined sense of self and other, leading to less consideration and concern for non-human others.

I suggest that environmental identities, as person level identities, are often made sense of through values. Hitlin (2003) proposed that values operate on the level of the personal and are cross situational. The research analysis here, with the inclusion of environmental identity, shows that how we construct ourselves matters and shapes how we think about the other. Evolutionary and moral reasoning are other-oriented. When self is larger, consideration of who counts as other is also larger. The generalized other, generalized environmental other, moral and environmental identities all represent ever more inclusive conceptions of who
counts as other in our construction of who we are. This is why those who reject an environmental identity also have a smaller consideration of who counts as other, leading to lower overall environmental attitudes through both anti-moral and anti-evolutionary reasoning.

There are a couple of key shortcomings that make the findings here preliminary and suggest the need for further research. First, as I previously stated, I did not set out thinking that kids at this young age would be using the types of reasoning discovered in the qualitative data. Future research should use more open ended approaches to uncovering how children think about their selves in relationship to the natural world and their reasoning behind how nature should be treated. Other possible avenues of inquiry should use research tools designed to uncover the variety of reasoning, rather than the attitude measures which may influence thinking simply by how the questions are stated. Certain types of reasonings were more likely to occur based on which attitude statement they were in response to. This confounds the results. While I maintain they are robust, using measures that are not leading, the way the NEP attitude statements may be, is important for future work.

Secondly, this research was conducted in a Montessori school. As I stated, Montessori curriculum focuses on evolution of the universe, earth, life, language, and numbers. It may be that because of this curriculum, which children in other schools are generally not exposed to until later grades, that my interviewees draw on a type of reasoning available to them that other kids of the same age would not
have so readily available. Future work should look across multiple curriculums to see how different foci in the classroom may shape conceptions of the self and avenues of sense making.
CHAPTER 6:

CONCLUSIONS: PROPOSING AN ENVIRONMENTAL SOCIOLOGY OF CHILDREN

6.1 Environmental sociology of children

The environmental sociology of children proposed here is an important and needed addition to research already going on in environmental sociology. My findings point to the need to uncover child-centered understandings of self and nature. The students at Wiley offered a rich look into how children think about nature and their place in that construct. My analyses demonstrate that it is important to consider the variability in childhoods across socio-demographic groupings to understand both constructions of nature and self as well as attitudes towards nature. I found a significant connection between expressed environmental identities and the sense making surrounding morality, evolution, and nature for children in this sample. I contend that a philosophically pragmatic approach is best suited for interpretation in an environmental sociology of children.
Specifically, I uncovered the interaction between where kids place nature and their desire to interact with it, finding that when nature is dangerous it is usually far away. When humans are included in children’s constructions of nature, nature is often geographically closer to home. These symbolic boundaries around nature may vary from adults, but should be considered as legitimate ways of knowing nature. Differences in childhoods across class influenced both constructions of nature and attitudes towards nature. Lower class children more often placed nature as close to home and viewed humans as being the overseers and protectors of nature, likely reflecting their own lived experience of who and how they are cared for. The kids here, overall, demonstrated strongly pro-environmental attitudes and those with stronger environmental identities often held the most pro-environmental attitudes of all. Importantly, I discovered that environmental identities shape how kids understand their attitudes. Those with a strong sense of self in nature use moral and evolutionary reasoning to make sense of their attitudes, while those with a low sense of self in nature reject nature’s moral standing and the scientific theory of evolution. All of these findings, with particular emphasis on the last, lead me to contend that we need to more thoroughly understand the role of person-level identities in shaping how we think about and interact with the natural world. Understanding a pragmatic moral environmental identity, already demonstrated by many of these kids, is the next step in theorizing in the environmental sociology of children.
6.2 Pragmatic Moral Environmental Identities

Mead grounded his Pragmatism in Darwinian Evolution (1967), and a link between morality and evolution is one that the early Pragmatists proposed (Weigert unpublished). The Pragmatists’ processual view of the world sees all life as a continual evolving system. Parallel to this is the emergence of the self and other, also a processual, emerging system where individuals and society reflect and act. It is through this recognition of the continual and connected self, whose actions impact others, that the generalized other arises. Facts, in so much as they are true, are tested against the ‘world that is there’ to gauge their factualness (Weigert 2008).

Morality and evolution are a continuum, both evolving, both tested against the world that is there.

Pragmatism has always, from its very beginning, paid attention to morality. It is a philosophy, after all, based in the writings of the Scottish moral philosophers; writers who rejected the idea of Hobbesian human nature and were looking for other ways to understand the human condition (Thayer 1981). Morally grounded actions must consider consequences on all others across time and space (Weigert unpublished). For Weigert (1997) it is the realization of this larger spatial and temporal other that generates the construction of the generalized environmental other upon which to imaginatively consider the impacts of one’s actions.

Dewey contended that morality is contingent on the ability to imagine the effects of action on others (Alexander 1987). The Wiley children’s expressions of empathy toward the natural environment are a moral imaginative process,
demonstrated with statements like, “nature is alive because people want to be alive and animals want to be alive and everything wants to be alive and they don’t want to die.” Pragmatism extends consideration of how our actions can keep nature alive as a moral imperative.

The kids in this study who hold moral/evolutionary environmental selves, seem in some ways to already be doing what philosophers propose is necessary to face and refocus our shared environmental future (e.g., Bernstein 2010; Braun and Castree 1998; Light and Katz 1996). In expressing an environmental identity, many of the kids demonstrate that they hold larger, more encompassing constructs of both their self and the other than one would predict at this young age. They reason by extending moral consideration outside of the human sphere and they reject the idea that nature and humans are separate in the first place. How could children this young hold these large constructs of self and other? Recent work in developmental psychology suggests that kids have larger empathetic spheres than previously thought and may operate in ways that are more morally grounded than previously considered.

Allison Gopnik and colleagues demonstrate that even babies “not only learn more, but imagine more, care more, and experience more than we would ever have thought possible” (2009:5). While Mead and Dewey were, until recently, some of the few philosophers that spent much effort focusing on children, they thought that morality did not develop until late adolescence (Mead 1967; Dewey 1933). However, my research findings suggest that kids grapple with larger conceptions of
self and other than previously thought, and are prone to state moral declaratives based on considerations of a larger more inclusive other. This is in line with the new research in cognitive psychology, suggesting that even babies have the capacity for empathy (Gopnik 2009). It is now the challenge of our institutions to accept these changing views of children and to decide how to support the growth and maintenance of the capacities that kids already possess (Gopnik, Meltzoff, and Kuhl 1999).

It is important to consider how dominant narratives of nature as something separate from humans may operate as a competing narrative (Espeland 1998) from the kids’ own expressed strong environmental identities. These links between self and nature were made using both moral and evolutionary reasons. We must consider how the teaching of natural science as removed from questions of morality may compete with the connections these kids are making between self, nature, and others. Furthermore, the constant debates in some states over the teaching of evolution likely impacts children’s understandings of both science and their self.

Pragmatists suggest that the separation of morality and science, which parallels the separation of humans and nature, is a false dichotomy upon which the West relies (Latour 2010; Mead 1923; Thayer 1981). Theodosius Dobzhansky, one of the founders of modern genetics, stated, “Nothing in biology makes sense except in the light of evolution” (1973). For some of the kids here, their lived experience and relational understanding of self, other humans, and other non-humans is made sense of in this same light. The linking of morality and evolution in pragmatism in
understanding the development of self and other has far reaching implications for how we think about teaching kids about science and the natural world and subsequently about themselves. Many of the kids in this study already make moral and evolutionary connections between their self and others. The work by Gopnik and colleagues (1999 & 2009) provides us with new ways of thinking about children. Considering the perspective of the moral/evolutionary child may help us in shaping better ways of teaching that does not lead to the split between morality and science and humans and others. Research in the environmental sociology of children needs to next focus on how these views on self, nature, and other change through development, and how institutions support or negate these moral environmental identities. I next consider the implications for my dissertation as a whole and apply the pluralistic ideas of a pragmatic environmental morality to improving environmental education (Carlsson-Kanyama et al. 2008; Cotton 2013).

6.3 Application to Environmental Education

Saylan and Blumstein (2011) argue environmental education is failing: “It has failed to bring about the changes in attitude and behavior necessary to stave off the detrimental effects of climate change, biodiversity loss, and environmental degradation that our planet is experiencing at an alarmingly accelerating rate” (1). The authors, as well as others in environmental education (e.g., Sobel 2004) want environmental education to move away from being a narrowly focused topic area
within biology, and instead to engage students on all fronts of environmental issues. Linking environment, community, politics, and civic action as a way to better engage and inspire young people to act on environmental issues.

This approach has shown promising results (Sobel 2004). However, to do this well I think we must first recognize our Western construction of science itself is removed from human experience. Bradshaw and Bekoff (2001) call for the re-embodying of science as not removed from humans, but as a human endeavor, replete with human meaning. The authors state that scientific integrity and social responsibility should be seen as one in the same, not as separate pursuits as has often been the case. Looking back at what the children in my study said demonstrates that they are not yet making such a distinction. Rethinking how we teach science, and therefore how we teach science teachers, is a necessary step in making the changes to environmental education. Decompartmentalizing the environment, restructuring the way we think about science itself, and bringing the kids in as active negotiators in the classroom are steps that are needed, but ones that will not be easy.

My recommendations for environmental education, based on findings presented in this dissertation, are:

1. While many teachers understand constructivism in education conceptually, they often limit its application to the observation that all students do not come in with the same content knowledge. This needs to be broadened to
appreciate that it is not just content knowledge that varies in students, but rather larger constructs of the world itself. These differences in meaning, and resultant attitudes towards those constructs, should be more readily recognized and explored by educators. This is an area that has been sorely under-studied in the literature and evaluation of environmental education.

2. The central theories of science – like evolution – should not be up for ideological debate in public school elementary teaching. Personal, familial, and endogenous sectarian beliefs need to observe the boundaries that preserve such enlightened principles as critical thought. At the same time, further research is needed to better understand how exposure to theories of evolution at a young age influences kids as they progress through their education. Central theories to the understanding of science should be central to the teaching of science.

3. Views on science itself must change. While this research was done in a Montessori school, where the science and culture projects are placed together, it was not clear to me that teachers understood the philosophical roots of Maria Montessori’s mixing of science and culture, nor did they necessarily understand that this approach is radically different from how science is viewed and has been viewed historically in our society. Teachers themselves should be explicitly taught about the break between science and culture, and understand their role in bringing the two back together for the “re-embodiment” of science (Bradshaw and Bekoff 2001). The evidence from
this study suggests that many children are already doing this. It is time for their teachers to follow their lead.

4. Finally, this area of research finds common cause with recent work in developmental psychology that speaks to the need to reaffirm the active, brilliant potential of children. Many good teachers already recognize this, expanding on this, bringing each child’s way of knowing the world into the classroom, and using those ways of knowing to shape how teaching occurs, works to benefit kids and teachers alike.

6.4 Shortcomings

As I made clear throughout this dissertation, this research was all conducted in a public Montessori school. While the public component of that means that I was able to work with kids across socio-demographic groups, the Montessori focus means that the structure and content of education looks significantly different from kids in other public school settings. This is most relevant to understanding the role of evolution in how these kids think about the natural environment. Many schools do not teach kids Darwinian evolution until high school. The children in this sample, however, already had that framework available to them. Future work should seek to uncover these same questions in non-Montessori settings. The evolutionary framework is key for all of the biological sciences, and future research should seek to reveal how the teaching of this theory at a young age shapes understandings of self, nature, and environmental attitudes.
Other shortcomings include the attitude scale used to reveal how kids think about nature. As I said previously, the NEP statements likely shape the reasons that the kids used. For example, though I did not end up using references to God or Mother Nature in my final analysis, because they did not occur frequently enough to analyze, all of the statements related to those entities were in response to statement one: “People are supposed to be in charge of nature.” It was in response to this that kids would say things like: “No, God is in charge” or “Mother Nature is in charge.” The NEP statements are likely leading in terms of the types of reasoning kids then use. I still contend that the findings are robust because the kids did not use the same types of reasons on all questions, and other than in reference to a higher power, the other types of reasoning were spread across more NEP statements. However, a more open-ended, child constructionist approach should be used to uncover children’s environmental attitudes, without possibly leading them.

6.5 Future research

I want to conclude with areas for future research in the environmental sociology of children. I have stated numerous times that children have not been included in environmental sociology. Research in more settings is necessary as is the need to develop more tools for analysis. Understanding how constructs of self, nature, and other change through the life course and the role of educational institutions in shaping those constructs is necessary. The importance of the teaching of evolution for understandings of self and nature needs further exploration.
Theorizing on the pragmatic moral environmental identities of children and how institutions can work to support, rather than quash, those identities is desperately required. This project is a beginning of a needed area of interest, recognizing a child-centered approach to the environmental sociology of children. These kids have legitimate and rich understandings of the world around them, often more encompassing than would be expected. The lived experience of kids, 'closer to the ground,' affords them unique perspectives that adults should seek out, accept as valid, and learn from.
APPENDIX:

PROCEDURES

Teachers at Wiley were recruited at a school wide informational meeting the day before the 2011 school year began. Fifteen of nineteen teachers at Wiley volunteered to have their classes participate. The classes they taught ranged from pre-kindergarten through fourth grade. The early childhood and fourth grade teachers were asked to administer surveys to their students at the beginning and the end of the school year (data presented here comes from the end of year). Teachers were asked to fill out a monthly online survey tracking how often they took their classrooms outside, the number and types of nature related lessons they presented in their classrooms, and asked for an inventory of the animals and plants in the classrooms and descriptions of the students’ role in the care of those creatures. Finally, teachers also filled out their own environmental attitudes survey (the teacher and classroom activity data were used in Streeter and Mikels-Carrasco (2012)). Because of the intensive nature of the longitudinal surveys, all teachers were given monetary compensation for their time after full participation in the study was complete.
Working with research subjects, young children in particular, requires consideration of the protection of human subjects. While there was deemed to be no harm that could come from this study, it was nevertheless vital that parents be informed that their children would be surveyed, observed, and/or interviewed before any data was collected. Parental consent forms were sent home with all students in participating classrooms the first week of school (before data collection began). Parents could then opt their child out of the study by returning the form to their child’s teacher (only one child was opted out of the project by his/her parents).

While others (e.g., Best 2007) have spent time familiarizing themselves with children’s culture before entering the field, as the mother of a child that attends Wiley, I felt familiar with the school setting and comfortable participating without this preparation. For example, I was already readily familiar with characters or objects relevant to kids’ culture. Perry the Platypus (a character from Disney’s TV show, Phineas and Ferb), an oft mentioned reference to TV made by kids in the study, was one I too could immediately reference in both TV and book format. Furthermore, having had a child in this particular Montessori school and a collaborator teacher at the school, I was familiar with terminology used in the Montessori classroom as well as how the classroom was generally run – with students on rugs, exercising free choice, and often highly interactive with one another.
REFERENCES


Williams, Raymond. 1985. *Keywords: A Vocabulary of Culture and Society*. Oxford: Oxford University Press.
