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ROOTS & SHOOTS REMEMBERED:
A QUALITATIVE STUDY OF THE INFLUENCE OF CHILDHOOD
PLACE-BASED EXPERIENCES ON THE LIVES OF YOUNG ADULTS

A DISSERTATION

Submitted to the Faculty of
Montclair State University in partial fulfillment
of the requirements
for the degree of Doctor of Education

by

KATRINA G. MACHT

Montclair State University

Upper Montclair, NJ

2016

Dissertation Chair: Dr. Monica Taylor

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MONTCLAIR STATE UNIVERSITY
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DISSERTATION APPROVAL

We hereby approve the Dissertation

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Katrina G. Macht

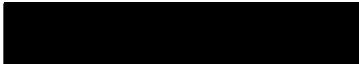
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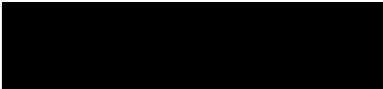
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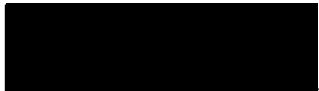

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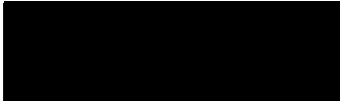
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ABSTRACT

ROOTS & SHOOTS REMEMBERED:

A QUALITATIVE STUDY OF THE INFLUENCE OF CHILDHOOD PLACE-BASED EXPERIENCES ON THE LIVES OF YOUNG ADULTS

by Katrina G. Macht

This dissertation is a qualitative interview study that explored the memories of 10 former students, now young adults, long removed from their intermediate school (grades 4 – 6) experiences. The purpose of the study was to learn what impact involvement in the school’s Roots & Shoots program had on later attitudes and behaviors. Specifically, the study focused on the relationship between distant childhood experiences and current dispositions towards the environment and civic responsibility. The results from the study were based on data collected from interviews, written reflections, and email correspondence, with 10 young adults who attended the intermediate school between 1997 and 2007. At the time of the study, the participants’ ages ranged from 18 to 26. They were interviewed, both individually and in a focus group setting, as well as asked to write reflections based on follow-up questions. Their responses were analyzed, using constant comparative thematic analysis. Each former student contributed significant data to the research, and all of their voices are included in this dissertation. While their perceptions’ of the program’s influence ranged along a continuum, all but one of the participants agreed that the most significant aspects of the program were its place-based, justice-oriented, service-learning dimensions. They linked their experiences in the school’s outdoor classroom to current attitudes and beliefs about nature and society. The

data revealed that it was the outdoor experiences in a local environment that both planted the seeds for ecological literacy and inspired lifelong civic engagement.

ACKNOWLEDGMENTS

Reflecting on this doctoral journey I am reminded of the adage, “It takes a village.” It certainly took a village to get me to this point in the doctoral process. From Jane Goodall, who gently, yet consistently, nudged me to join Roots & Shoots in the early 1990s; to Jerry Schierloh, the environmental studies professor who first formally introduced me to place-based pedagogy as a graduate student; to my friend, mentor, and kindred spirit, Jacalyn Willis, who encouraged me to embark on this journey in the first place, there are more individuals than I can ever name here who have sustained me along the way to reach this goal.

This has not been an easy journey – far from it – and it was never meant to be. On more than one occasion I wanted to walk away and return to a “normal” life, enjoying carefree days with family and friends, instead of spending so many hours buried in a book or hunched over a computer screen, my only companion, Picasso, faithful cat and constant study buddy. However, I did not give up, due in part to my own fortitude, but in larger part to the love, support, and encouragement of my family, friends and colleagues, and the doctoral faculty and staff at Montclair State University.

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This doctoral journey has been a ten-year process, and it would not have been possible without my husband and best friend, Timothy, whose love, patience, and encouragement never wavered, in the face of so many scarified hours without me or any contributions from me to our home. His unswerving fidelity, generous nature, and unconditional love amazes me every day, and of all the things I look forward to at the close of this decade, I most anticipate the renewal of our quality time together.

This journey would have never begun – and certainly would have ended in failure long ago – were not for my mother, Jo Campbell, my constant source of strength and inspiration. As has so often happened in my life, she believed in my abilities long after I stopped believing in myself and, in my yearning not to disappoint her, I kept going.

I offer my heartfelt gratitude to my friends and colleagues, who supported and comforted me in countless ways over the last ten years. The names are too numerous to list here, and I will not begin to try for fear of inadvertently excluding someone. I am particularly beholden to those Middle Creek colleagues who encouraged me in so many instances it is difficult to describe – from serving as “critical” friends, to taking the reins of leadership in Roots & Shoots as I stepped back to write, to lending me their ears, and making me laugh in the darkest situations. Most of all, many thanks to the Middle Creek

students, staff, and administrators who have stayed committed to our Roots & Shoots program over the years and made this teacher's dream a reality.

Finally, this study could not have occurred without the ten former students who were willing to share their stories and personal memories with me. I am profoundly grateful for the time, energy, and attention they gave, not only during the interview phase of the study, but throughout this past year of analysis and synthesis. Without them there would have been no dissertation.

This dissertation is dedicated with love and gratitude to . . .

My true love and life's partner, Timothy Macht, who stood by me through thick and thin,
over every hill and valley of this improbable journey . . .

My mother, Jo Campbell, whose life-long fight against inequality and injustice molded
my core beliefs about what it means to be human and made me who I am today . . .

The memory of my grandmother, Minnie Terrell Campbell, who first taught me to
appreciate the simple pleasures of our natural world . . .

&

My study buddy, Picasso, without whom the writing process would have been ever so
much more lonely.

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CHAPTER ONE – INTRODUCTION

Introduction

As a pre-teen in the 1960s I was enthralled by stories of a young British woman who was making a name for herself studying chimpanzees in Tanzania. Jane Goodall was living the kind of life that totally captivated my adolescent imagination. Her work with chimpanzees was revolutionary; her independence in a male-dominated society, unheard of; her dedication to pursuing her dreams, inspirational. For nearly 30 years Dr. Jane (as she is fondly referenced) committed her professional life to studying and becoming the foremost authority on the chimpanzees of Kakombe Valley in Kigoma District, Tanzania (established in 1968 as Gombe National Park).

In 1986, after the publication of *The Chimpanzees of Gombe*, Jane's life changed irrevocably. While attending an international conference on chimpanzees in Chicago, she was horrified to learn how rapidly their populations were shrinking all across Africa. As she reveals in *Reason for Hope* (1999):

The content of the meeting was mainly scientific but there was a session on conservation. I think we were all shocked when we realized the extent to which the chimpanzees across Africa were vanishing. At the turn of the century there must have been as many as two million chimpanzees in twenty-five African nations, but during the last half of the twentieth century their number had been reduced to less than 150,000, and only five countries had significant populations of five thousand or more. . . . Dwindling chimpanzee populations had become

increasingly fragmented and many groups were so small that inbreeding was inevitable: there was no hope of their long-term survival. (pp. 206-207)

With that realization, came the decision to leave her life of scientific research and devote her resources, talents, and energies to conservation and education (Goodall, 2001).

In 1991, Jane founded Roots & Shoots, a comprehensive environmental and humanitarian service-learning program. In the ensuing years Roots & Shoots has grown from 12 local teenagers meeting on Jane's front porch in Dars es Salaam, Tanzania, to tens of thousands of members, in more than 130 countries today (Jane Goodall Institute, 2014). The term *Roots & Shoots* is a metaphor for all the young people across the globe, empowered to take constructive action to tackle serious issues and improve the world in which they live. Jane's repeated message is powerfully simple, "Every individual matters. Every individual has a role to play. Every individual makes a difference" (Goodall, 1999, p. 281).

When describing the genesis of Roots & Shoots to my own middle grades students (grades 4 – 6), I weave a narrative that is perhaps equal parts legend and verity. It was told to me by one of the program's early members during my first visit to Kigoma, Tanzania, the summer of 2004. One afternoon Jane was meeting with a group of young Tanzanians, who were concerned about environmental degradation within their community and frustrated that they were not learning about these important environmental issues in their school curriculum. One local concern they wished to address was the inhumane treatment of domestic fowl. They wanted to take constructive action by raising public awareness about the practices, but feared they would not be taken

seriously because of their youth. Jane reassured them that they did indeed have the power to make a difference and encouraged them to tackle the problem. Distressed by the conditions in which the chickens in their community were raised, the students believed it was essential to sensitize their families and neighbors to the importance of the humane care of domestic animals. By first learning about sustainable animal husbandry, the students were then able to launch a public education campaign to teach others how to care for chickens while also improving production for human consumption. Initiated and implemented wholly by young people, this first Roots & Shoots project contained the essence of what continues to define Roots & Shoots today, a cyclical model of service-learning built on the tenets that knowledge leads to compassion, and compassion, in turn, leads to action (Goodall, 1999).

Background of the Study

The School

In order to understand the context for the study, it is first important to provide a brief sketch of Middle Creek School (pseudonym), and the Roots & Shoots program my colleagues and I created there. The town in which the school is located, Brookedge (pseudonym), is a 33-square-mile suburban community with approximately 45,000 residents. The district is the largest in the county, with over 9,000 students attending seven K-4 neighborhood primary schools, two intermediate schools, one middle school, and one high school. The student population is approximately 79% Caucasian and 21% minority. The students attending Middle Creek School come to us from three of the Brookedge primary schools.

Originally an apple orchard, sold to the district in 1960 for \$1.00, Middle Creek is a public intermediate school set on 20-acres of land in Central New Jersey. The school first opened its doors in September 1962 to grades three through six. Over its history the school has seen many configurations; however prior to 1995 it was primarily a middle school. I joined the Middle Creek faculty as a self-contained fifth grade teacher in September 1995, when it reconfigured to an intermediate school, at first serving grades four, five, and six, but becoming grades four and five in 1997, when grade six returned to the middle school. The school then served grades four and five from 1997-2006, and grades five and six from 2006 to the present. Over the years at Middle Creek I have taught fourth and fifth grades, served as the school's enrichment specialist, and now teach sixth grade science and English Language Arts. In 2002 Jane Goodall visited the school for our annual Forest Fest and returned in 2004 to designate it as the first elementary Roots & Shoots school in the United States.

Middle Creek School's History with Roots & Shoots

As an educator I was introduced to Roots & Shoots in 1992, when I first met Jane Goodall in Connecticut. Although it was my sixth year of teaching, it was only my second as a fifth grade teacher in the Brookedge school district. For four years before coming to Brookedge I had taught in an urban school in Austin, Texas, and it was those Texas experiences that defined me as a teacher. Fresh out of the University of Texas, I was the third teacher by Thanksgiving in a class of second graders, who informed me they had gotten their previous teachers fired and planned to get me fired, too. Survival instincts kicked in and led me to try to discover something about which they might get

excited. I couldn't have been more surprised when the same eight-year-olds who had threatened to get me fired, got fired-up about endangered whales and dolphins. From that day forward, without knowing I was employing a specific methodology, I addressed core curricula through student-generated science themes that led to action projects. By 1992 two of my classes (one in Texas, one in New Jersey) had been invited to participate in the United Nations' Global Youth Forums on the Environment, and I was serving on the United Nations Committee for Youth and the Environment.

On an early spring day in 1992 I received a phone call from a fellow committee member, in a state of a panic. It was a Wednesday, and Jane Goodall was to be the guest of honor at a ribbon-cutting ceremony on Saturday for a new center in Connecticut. Here was a problem. Jane wanted – expected – children to be at the event, a contingency for which the coordinators had not planned. The phone call to me was dramatic: *Please come and bring your students!* I spent the next two evenings on the telephone, lining up student and parent volunteers to caravan to an event where we *just might* have the opportunity to meet one of my childhood heroines.

The memory of that event has blurred with the distance of time; meeting Dr. Jane has not, for it was the beginning of a rich and enduring relationship. Not only did my students and I meet Jane Goodall, but she also gave us her address in Britain, and the children began writing to her. Not just that class; each of the classes that followed. They wrote to describe their projects; they sent her gifts of their own creations, from cookbooks to calendars; they constantly invited her to visit our school. To our

amazement she personally wrote back – every time – and with each response she told us about Roots & Shoots, gently suggesting we should become members.

When I was transferred to Middle Creek Intermediate School within Brookedge school district in September 1995, and began working with colleagues to develop an environmental education program there, the time seemed to be right for the school's environmental club to join the Roots & Shoots network. These were the early days of Middle Creek's Roots & Shoots program, when our only club was an environmental club. Our primary mission was to transform six of the school's 20 acres of turf into a schoolyard habitat, which the children named Middle Creek's Meadows & Trails. At the time I was also an environmental studies graduate student. To help us achieve our goal, I enrolled in a graduate level course the summer of 1996, *Outdoor Teaching Sites for Environmental Education*, a two-week residency at the School of Conservation in northern New Jersey. The course was based on the theoretical tenet that connecting the classroom to the schoolyard engages students, brings relevance to learning, fosters an appreciation for nature, and builds responsible citizens (Alexander, 1991; Cornell, 1979; Hanna, 1996; Horwood, 1996; Sobel, 1993). Its goals were to guide practicing teachers to develop the confidence and skills necessary to infuse outdoor studies throughout the curricular areas. In addition, each summer the students in the course surveyed and studied one K-12 school's potential for integrated outdoor education. Because I knew I would be taking the course that summer, I applied for Middle Creek School to be the 1996 study site, which was accepted. Although the *place-based* term was never used, that two-week residency was my first formal introduction to place-based education.

Following the summer course, and using the recommendations my classmates and I developed during the two-week residency, Middle Creek formed an active Outdoor Committee. The committee – comprised of students, teachers, administrators, parents, scientists, and community members – met frequently throughout each year to plan and implement enhancement and management projects for the Meadows & Trails, as well as to make recommendations for academic connections. The student committee members, who were also Roots & Shoots environmental club members, served as liaisons between the committee, the club, and their respective classes.

Beginning in 2000 the principles of Roots & Shoots service-learning pedagogy began to be woven more systematically into the school curricula, with one of my fifth grade students propelling the idea forward. As with earlier groups, the class had selected a yearlong environmental theme upon which to focus – theirs was deforestation – and had successfully raised a substantial amount of money for the cause by selling a cookbook of recipes submitted from their personal heroes. The students were at the point of researching organizations committed to combating deforestation, when one student approached me privately: *Did I know about some organization Jane Goodall had founded for young people, called Roots & Shoots?* I told her not only had I heard of it, but what was more, the students in our environmental club were members. On hearing this she suggested we donate the income from our fundraising efforts to the Jane Goodall Institute's (JGI) reforestation projects in East Africa. It was a suggestion I staunchly opposed, not because I did not support JGI initiatives, but because I believed the class should look closer to home for a recipient. JGI was a large not-for-profit organization,

with an enormous budget and many high-profile donors; there were New Jersey-based organizations in our own area, scraping by on shoestring budgets in need of our money so much more. The student fervently reminded me I had emphasized the importance of student voice and choice when they first started the project, and had told the class they would be the individuals making such decisions. I acquiesced.

We agreed to each “make our case” to the class as a whole and let the class choose. When my student’s argument won the day with her classmates, I honored their decision, but with conditions. By this time the children had raised \$4000 to donate and it was not a check I felt comfortable about just dropping in the mail. I was nervous about their hard-earned donation being used for overhead expenses of any organization, even one as respected as JGI. After a little research, I learned that Dr. Goodall was scheduled to speak in New York City within the next few weeks. I arranged for the student and one of her classmates to attend the lecture, personally present the check to Jane, and explain how they would like the money allocated. I can happily say their wishes were respected and it was the beginning of a new phase in our school’s relationship with JGI and Roots & Shoots.

The next year Jane was the guest of honor at the school’s annual Earth Day festival and two years later (2004) she returned to officially recognize ours as the first elementary Roots & Shoots School in the United States. In just a few short years we had gone from being a school with an after-school Roots & Shoots club to a Roots & Shoots School, a school with the stated commitment to weave the program’s mission of compassionate action into our core school district curricula.

Middle Creek School's Roots & Shoots Program

The Roots & Shoots program, as established by Dr. Jane Goodall, is a pedagogical model for activism intentionally designed to be flexible and adaptable in a variety of contexts. It is more of a philosophical approach to civic engagement than a canned curriculum, and thus has the elasticity to be integrated into school and district curricula. Although the Jane Goodall Institute provides loose guidelines for implementation, the organization does not dictate specifics (Johnson, et al., 2007).

Whereas the most common Roots & Shoots model is an extracurricular program (clubs) focused on projects that demonstrate care and concern for people, other animals, and the environment (Jane Goodall's Roots & Shoots, 2012), Middle Creek's model integrates the Roots & Shoots philosophy into core curricula, maintaining a close connection between classroom learning and club activity. Many of the school's teachers took the tenets of the Roots & Shoots philosophy – to respect all life, human and nonhuman; to appreciate all cultures and beliefs; and to take action that addresses genuine community needs – and, using a place-based paradigm, worked together to develop our own homegrown program with features that were unique to Middle Creek School. The school's program has evolved significantly since 1995, growing from a program that focused almost exclusively on environmental issues to one that, starting in 2005, encompasses not only other animals and the environment, but also the human community, with special emphasis on children's educational rights and elder issues – Students Raising Students and Bridging Generations. As with our environmental

initiatives, these program facets begin by first focusing on the local community before broadening our gaze further afield.

While there was some reference to Students Raising Students and other program dimensions related to the human society, the participants in this study mostly attended the school when our program primarily maintained an environmental focus. The most constant facets elaborated on by the participants in this research – the schoolyard habitat and outdoor classroom, adopt-a-spot, backyard workdays, and Forest Fest – fell under the umbrella HOME (Habitats and Open Meadows for the Environment) and were our designs and creations. HOME, was a curriculum-based science program created by Middle Creek teachers, which used our schoolyard as the site for ecological investigations and exploration of such environmental issues important to our community, as suburban sprawl and habitat fragmentation. In order to fully understand the participants' narratives and the resulting analysis, a brief description of each program component follows.

Middle Creek's Meadows & Trails. One key feature of Middle Creek's program about which all of the participants reminisced was the schoolyard habitat and its outdoor classroom. First established in the spring of 1997 on seven neglected acres of school property the site sustains native wildlife and provides learning opportunities for the students who attend Middle Creek, as well as for other schools, both in our district and throughout the state. Consisting of gardens, native grasslands, wildflower meadows, a freshwater marsh, and woodlands, these schoolyard ecosystems are microcosms of diverse communities of organisms found in our region. As the backdrop of the

environmental program integrated into the school's science curriculum, it is a classroom without walls for children and adults to actively engage with nature.



March 1997: Middle Creek's Meadows & Trails



September 2015: The Same View Today

While teachers in all subject areas utilize the outdoor classroom, the science teachers have devoted considerable time and energy to incorporating it into their science curriculum. Through outdoor investigations students have frequent opportunities to pose questions, delve into ecological puzzles, and form their own understanding of events and phenomena. One such learning opportunity is Adopt-a-Spot.

Adopt-a-Spot. The Adopt-a-Spot project is an inquiry-based, hands-on experience integrated into the sixth grade “The Nature of Science and Technology” unit, launched every September and concluding in June, at the end of the school year. Each student “adopts” a specific location in the outdoor classroom to inventory, observe, and investigate. The young people maintain journals throughout the year, in which they record all related observations, investigations, and analyses. Based on their data, as well as scientific conversations with peers and scientists in the field, the students develop and present recommendations for future habitat enhancement projects. Now an established component of the sixth grade science curriculum, at the time these 10 participants were a part of Roots & Shoots it was informally integrated into the fourth and fifth grade science curricula. All of the seven participants who had me as their fourth and/or fifth grade teacher, and two of the three participants, who had other teachers, did participate in Adopt-a-Spot in the ways described above. One participant, Allen, did not.

Backyard Workdays. Experiences about which every participant had crystal clear memories were backyard workdays, community events that occur five to seven times each year. First implemented in the spring of 1997 to develop the schoolyard habitat, students, staff, parents, and family members have continually come together

since that first March workday to expand and enhance the outdoor site. Prior to each work session teams of environmental club students organize to survey and investigate ways the habitat needs to be improved, and then make recommendations to the school's Roots & Shoots committee, comprised of students, staff, parents, and community members. Subsequent maintenance and enhancement of the site is planned based on the decisions made from the club's recommendations.

Forest Fest. First organized in 2000, Forest Fest was originally an annual spring event that occurred in April to honor Earth Day and celebrate the school's Roots & Shoots program. The day is filled with a variety of booths and activities, featuring animals, make-and-take booths, environmental information, live entertainment, and a Forest Café. In addition to booths created by students, many local and regional agencies are consistently represented at the event, from 4-H and scout clubs to the Seeing Eye and environmental organizations from around the state. As the school's guest of honor in 2002, Jane Goodall spoke to not only Middle Creek's Roots & Shoots members, but to Roots & Shoots members from across the state. It is an event about which every one of the post-college age group spoke.

The Focus of this Study

In the years since the first ribbon cutting ceremony, the Roots & Shoots philosophy has become an essential aspect of our stated school identity, but I have often pondered the overall value of the program on the students we teach. As the school's Roots & Shoots coordinator I have asked myself, what has been the long-term impact of Roots & Shoots on the lives of the students I taught? Did Roots & Shoots involvement

contribute to the long-term development of the children who participated in our programs, or was it something enjoyed as a child and just as quickly forgotten after leaving the school? That has been the focus of this research – to use qualitative research methods to analyze what impact Roots & Shoots experiences had on the identities of 10 former students, who are now young adults. Accordingly, my guiding research question became:

- How did former students’ pre-adolescent involvement in Roots & Shoots affect their perceptions and behaviors as young adults?

My aim was to unearth the long-term effects Middle Creek’s Roots & Shoots program had on the children who attended our school, and how those experiences affected their attitudes and behaviors as young adults. I was specifically interested to learn how those childhood experiences in our local community might have translated into adult civic behaviors, including, but not limited to, attitudes and behaviors towards the environment.

Problem Statement

When Thomas Jefferson first proposed the idea of free public education, it was to create knowledgeable and active citizens capable of democratic participation, citizens who could think critically for themselves, make informed decisions in the new representative democracy, and keep the government in check (Sehr, 1997; Theobald & Curtiss, 2000). As Theobald and Curtiss (2000) note, the original purpose of education held that “schooling was about improving life, not by enabling individual acquisition in the marketplace, but by setting up better deliberation in the policy arena” (p. 106). Today there remains a consensus that public schools are in the business of producing responsible adult citizens (e.g. Eyler & Giles, 1999; Parker, 2003; Sehr, 1997; Westheimer & Kahne,

2004a & b). However, although fostering citizenship and civic responsibility are consistently stated as goals of public education, how to achieve them is continually debated. From the founding of the United States, two seemingly competing views of citizenship have dominated educational curricula: 1) citizen as individual, and 2) citizen as active participant.

The first view highlights individualism and character development, minimizing the role of active involvement in the public sector (Parker, 2003; Sehr, 1997). The second view is seen as *participatory*, with a democratic society only working through active citizen involvement (Parker, 2003; Sehr, 1997; Westheimer & Kahne, 2004b). A curriculum that emphasizes participatory citizenship pushes beyond learning the basic mechanizations of government and the importance of “good character” in a civil society to active involvement on the part of the learner. Participatory citizens come to understand how government and other institutions work within the political landscape.

A third notion of citizenship – *justice-oriented citizenship* – takes citizen-as-participant a step further to citizen-as-social-activist (Westheimer & Kahne, 2004b). These programs promote critical analysis of societal issues, asking why the problems exist in the first place and how they can be addressed. Consequently, justice-oriented citizenship education has the capacity to foster pedagogy that builds *global citizenship*. As an educator, my view of global citizenship education is rooted in the principles advanced by Ladson-Billings (2005), McIntosh (2005), and Noddings (2005), and pushes beyond the recognition of economic global interdependence to encouragement of concern for the welfare and integrity of individuals (human and non-human) across the globe.

Possessing a “global perspective” means developing a world-view, one that promotes respect and appreciation for the integrity of all life, both locally and globally.

A culturally responsive global citizen, as advanced by Noddings (2005), is someone who begins by first focusing on the needs of her local community and then expands her concerns to national and international levels. Further, a global citizen recognizes that there are often multiple perspectives of reality, and appreciates and celebrates the perspectives of others in a culturally diverse society (Noddings, 2005). Noddings argues, “If global citizens appreciate cultural diversity, they will speak of *ways* of life, not one way, and they will ask how a valued diversity can be maintained” (p. 3). Central to this view of global citizenship is the idea that a person needs to become an active, contributing member of her own local community – someone who is concerned about and responds to local issues – before broadening her gaze to issues further afield. As Sobel (2005) asserts, start with concerns that are nearby, up-close and personal, and build from there.

Middle Creek’s program emphasizes global concerns related to the human society, other animals, and the environment. However, the responses of these 10 participants consistently revolved around the environmental dimensions of Middle Creek’s program, and they most often spoke about global issues related to environmental concerns. As was previously mentioned, during the time period when the 10 participants attended the school – especially the post-college age group – our program was predominantly an environmental program.

The Roots & Shoots service-learning model offers one place-based, justice-oriented approach that educates for global citizenship and has the capacity to build culturally sensitive individuals who recognize their responsibility to not only take action, but also first understand the underlying causes for the problems (Johnson-Pynn & Johnson, 2005). Stressing the importance of acquiring knowledge and understanding about “others” of all species, and recognizing the interconnections between all living beings, the Roots & Shoots model equally privileges concerns for people, other animals, and the environment. The place-based Roots & Shoots program my school has strived to create since its inception in 1996 strongly reflects the justice-oriented educational perspective. How successful have we been in planting these seeds for informed civic engagement beyond the two years students attended Middle Creek School? Better understanding of our program’s long-term impact has been the goal of this research.

Purpose of the Study

The purpose of this study was to probe the Roots & Shoots experiences of 10 former students long removed from the school’s program, who are on their journey into adulthood, and investigate who they are now becoming. The study sought to learn if (and how) their Middle Creek experiences impacted attitudes and beliefs about civic responsibility, and influenced them to active community engagement as young adults. The participants were interviewed, both individually and in a focus group setting, and were also asked to write reflections based on follow-up questions. Their responses were then analyzed in terms of recurring themes and attributes that highlighted the long-term impact Middle Creek’s Roots & Shoots programs may have had on their lives.

This is a unique study for a number of reasons. First and foremost, it began to peel away the long-term impact a specific program may have had on students and examined if the program had a lasting effect on a person's future choices and learning. Did student involvement in the program make an actual difference in their lives, or was it simply a "fun way" to learn at the time?

Secondly, although there is a wealth of anecdotal information highlighting the effectiveness of the model, empirical research on Roots & Shoots is limited. Currently, there are no available studies in the United States investigating its long-term impact as a specific model integrated into core curricula. Our school site is distinctive in that it not only offers Roots & Shoots as an extracurricular program, but also infuses its guiding concepts and principles into fundamental academic experiences. In the years since Dr. Jane first cut the ribbon to proclaim Middle Creek a "nationally recognized Roots & Shoots School," the service-learning model has been woven throughout all layers of the school's curricula. One example can be found in our sixth grade science curriculum, through which every teacher integrates the Roots & Shoots model with the previously described Adopt-a-Spot Project. First infused into the fifth grade science curriculum almost 20 years ago after completing the graduate course, *Outdoor Teaching Sites for Environmental Education*, as an attempt to address the concern children have increasingly less and less contact with the natural world (Horwood, 1996; Sobel, 1993), the study project continues today in sixth grade science. The first unit taught each year is "The Nature of Science and Technology," with the primary unit focus on the process skills needed to "think like a scientist." The unit launches the Adopt-a-Spot project in

September, and the project then continues through the end of the school year, with every student “adopting” a specific location in the schoolyard to inventory, observe, and investigate. Visiting their spots on a weekly basis, the children maintain journals, in which they record all related observations, investigations, and analyses. Throughout the process, connections are made between the student-driven investigations and the work scientists are conducting in the field. After frequent data analysis and peer discussions, as well as discussions by video chat with field scientists and students in other schools, the students develop recommendations for future habitat enhancement projects to the school site. Their recommendations are then presented to the school’s Roots & Shoots committee, as well as the Roots & Shoots clubs, and form the basis for future enhancement projects.

Finally, this study adds to the research on place-based service-learning education as viable alternatives to the current dominant educational paradigm. Specifically, it adds to the research on the value of community-based service-learning experiences to increase student engagement and foster greater citizenship within formal educational settings. The results of this study will be shared with my administration and colleagues to better inform future practices within our school community. In addition, the results will be shared with other educators, the Jane Goodall Institute and New Jersey environmental education groups wishing to integrate a place-based service-learning model into their curricula.

Organization of the Dissertation

This dissertation is organized in five chapters. In Chapter One, I review the history of Middle Creek’s Roots & Shoots program, how I came to be interested in the

research, and the context in which the study occurred. Chapter Two explores the theoretical framework that guided my professional practices, both as an educator and as the Roots & Shoots coordinator. It incorporates literature review of place-based education for environmental education, informed by constructivist learning theory and justice-oriented service-learning methodologies. An examination of Roots & Shoots as one viable justice-oriented service-learning model that has the potential to empower students to take action concludes the review. Chapter Three presents the methodologies and methods I used to conduct the research. This is a qualitative, interview study, and the findings were drawn from individual and focus group interviews conducted with 10 former students – ranging in age from 18 to 26 – as well as reflections written by them and myself after the interview sessions. I also explain my analysis approach and review my positionality to the research. The heart of this dissertation is Chapter Four, as it presents the findings of my research. Finally, I conclude the dissertation in Chapter Five with a return to my guiding research question, and consider what larger meaning my findings may provide. I end the chapter with a consideration of the implications this research may have for future programs and practices, assessing the limitations of the research, and making recommendations for future research.

CHAPTER TWO – THEORETICAL FRAMEWORK

Introduction

Sobel (1996, 2007) and Wells and Lekies (2006) remind us that the middle grades of childhood (ages 9 to 12) are crucial years in a child's life, because they are a time when children are most enthusiastic about defining their own worlds through exploration and investigation. Sobel (1996) writes, "The desire to explore the landscape becomes a potent force during these years and many prominent writers and naturalists claim that their feelings of connection with the natural world emerged during this life phase" (p. 23). Yet, too often children today grow up having limited contact with that natural world.

There are several strands of educational thought that provide the theoretical framework of Middle Creek's program, all of which are situated under the broader umbrella of place-based education. With its emphasis on local, experiential learning, and civic engagement, it is no coincidence Middle Creek's program was originally designed in 1996 with place-based learning as its foundation, although I was not aware of the specific term at the time. The program was first initiated immediately following the summer graduate course, *Outdoor Teaching Sites for Environmental Education*, and I returned to Middle Creek that fall excited to create an outdoor classroom – a classroom within nature. Consequently, the same school year Middle Creek's Meadows & Trails first came into existence, the environmental club coordinating the efforts also joined the Jane Goodall Roots & Shoots network of global service-learning programs. Over the years our program has evolved and changed significantly, with many program dimensions added since 2005 that focus on the human society. However, the dominant

program features that existed when this study group attended the school revolved around place and the environment. Consequently, selection of the reviewed literature was driven by a need to acquire the academic knowledge on place-based education necessary to thoroughly analyze and discuss my findings in relation to the guiding research question:

- How did former students' pre-adolescent involvement in Roots & Shoots affect their perceptions and behaviors as young adults?

This chapter is presented in three sections and outlines the theoretical framework upon which Middle Creek School's Roots & Shoots program was originally designed. Specifically, it is a synthesis of the literature related to place-based pedagogy for environmental education, informed by social constructivist learning theory and justice-oriented service-learning.

The chapter begins with a review of place-based pedagogy and highlights some of the empirical evidence that supports place-based education. The second section of the chapter goes on to examine service-learning pedagogy as pedagogy for citizenship education, emphasizing justice-oriented service-learning as the adopted form in Middle Creek's Roots & Shoots program. It elaborates on why I chose the term *justice-oriented service-learning*, as defined by Westheimer and Kahne (2004a), to reflect Middle Creek's broader Roots & Shoots' goals and objectives. The chapter then concludes with analysis of the research on Roots & Shoots generally, concentrating on two empirical studies conducted in Tanzania and China.

Place-Based Pedagogy

When I first began researching the value of outdoor school sites in education in the 1990s, studies revealed that children spent less than 15% of their time in nature, the smallest percentage in human history (Nixon, 1997; Wilson, Kilmer, & Knauerhase, 1996). More recently, Wells and Lekies (2006) report that young people in the middle years of childhood spend less than half an hour of unstructured time outdoors each week – 1% of their week outdoors, but 27% in front of a screen. Even rural children, whose lives are surrounded by nature, no longer learn about their surroundings through exploration, and many know little about their natural environment beyond the features of the landscape (Perry, 1996). Television, technology, and organized sports have replaced experience and exploration.

Recreation for today's young people occurs on playgrounds and sports fields, in shopping malls and in front of computer screens or smart phones, rather than in parks or forests, or along the shores of rivers and streams. Louv (2008) refers to this as the *nature deficit disorder*, and remarks, "Today, kids are aware of the global threats to the environment – but their physical contact, their intimacy with nature is fading" (p. 1). Sobel (1996) criticizes that educators are not teaching about science or the environment in any meaningful way. Rather, we are bombarding children with a litany of terminology for which they have no tangible understanding because they have made no direct, real life connections with the concepts. The consequence is that children are growing up with limited knowledge of biodiversity and significantly diminished pro-environmental attitudes and behaviors (Wells & Lekies, 2006).

My first introduction to place-based education came through a little book given to me by my mother, as I was about to embark on my teaching career, several years before the term *place-based pedagogy* existed. That little book? *The Sense of Wonder*, written in 1956 by Rachel Carson, is now tattered and coffee-stained from years of uncounted readings. I did not know then what a profound effect the words written on those 80 illustrated pages would have on my teaching practices throughout the remaining years of my career, or how it would inspire me to shift my instructional stance to an environmental science-based perspective. Today Carson's eloquent appeal to maintain an indestructible sense of wonder for the Earth throughout our lives continues to inspire me as an educator:

A child's world is fresh and new and beautiful, full of wonder and excitement. It is our misfortune that for most of us that clear-eyed vision, that true instinct for what is beautiful and awe-inspiring, is dimmed and even lost before we reach adulthood. If I had influence with the good fairy who is supposed to preside over the christening of all children I should ask that her gift to each child in the world be a sense of wonder so indestructible that it would last throughout life. (Carson, 1956/1990, p. 28)

Although for me, Carson (1956/1990) is the mother of the place-based movement, the roots of place-based pedagogy, in fact, can be traced much further back than even the twentieth century. While this review is not an historical analysis of place-based pedagogy, it is important to recognize that learning connected to one's locality is an

indigenous philosophical perspective and has strong historical antecedents, going back many centuries (Semken & Freeman, 2008).

Relatively new as a formal pedagogy (the term was first coined in the early 1990s), place-based teaching and learning seeks to connect student learning to the local contexts in which the school is located (Smith & Sobel, 2010). While there are a variety of theoretical perspectives and understandings of place-based pedagogy, because Middle Creek's programs primarily maintained an environmental focus from 1996-2005 (the time period primarily covered in this study), much of the place-based pedagogy reviewed for this study was, at least in part, ecologically focused and includes strong emphasis on the sciences, conservation, and sustainable practices. As a locally-based, environmental service-learning program (the place-based pedagogy emphasized at Middle Creek School), place-based learning pushes beyond the confines of the natural environment to include the interrelated social, cultural, political, and economic aspects of a community, and connects the conservation goals of environmental education to civic concerns for people and the community in general.

Regardless of their stance or the terms used in the literature, the scholars all agree on specific fundamental hallmarks of the pedagogy: the importance of the physical space in which the learning occurs, the role of students as active participants, the value of the school-community connection, and student learning that leads to civic participation of benefit to the community. This research relies on Sobel's (2005) seminal definition:

Place-based education is the process of using the local community and environment as a starting point to teach concepts in language arts, mathematics,

social studies, science, and other subjects across the curriculum. Emphasizing hands-on, real-world learning experiences, this approach to education increases academic achievement, helps students develop stronger ties to the community, enhances students' appreciation for the natural world, and creates a heightened commitment to serving as active, contributing citizens. Community vitality and environmental quality are improved through the active engagement of local citizens, community organizations, and environmental resources in the life of the school. (p. 11)

Key features of place-based learning then include: a) using the local environment as a context for learning; b) learning driven by authentic, hands-on inquiry; and c) the promotion of citizenship through active civic engagement. In addition, all these facets are implemented together, in collaboration with others, to foster an appreciation for nature and the environment.

The literature reviewed for this study emphasize that place-based pedagogy is rooted in social constructivist learning theory (e.g. Kudryavtsev, Stedman, & Krasny, 2012; Sugg, 2013; Theobald & Curtiss, 2000). The basic premise of social constructivism is that, rather than *receiving* knowledge, the learner *constructs* knowledge in collaboration with others. By "knowledge" I do not mean the acquisition of a series of unrelated facts to be memorized, regurgitated on a test, and just as quickly forgotten, but rather knowledge as the skills, values, and dispositions necessary to make meaning of the world in which we live, as well as to develop an aesthetic appreciation for the nature of things in the world (e.g. Brooks & Brooks, 1993; Dewey, 1938/1997; Fosnot, 2005;

Freire, 1970/2006; Garrison, 2009; Reich, 2009; von Glasersfeld, 2005). This acquisition of knowledge is an ongoing social process in which the learner continually elaborates and reorganizes current knowledge and understandings as new information presents itself, and learning occurs when the learner herself is actively and socially engaged in meaning-making (e.g. Dewey, 1910/1997; Fosnot, 2005; Garrison, 1995; Reich, 2009; Vygotsky, 1978). Freire (1970/2006) maintains, “Knowledge emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry human beings pursue in the world, with the world, and with each other” (p. 72). In their research, Theobald and Curtiss (2000) draw many parallels between what they call community-based curricula and classroom environments grounded in social constructivist learning theory. They discuss how such place-based pedagogy encourages the social aspects of learning through conversation and dialogue, inquiry and action, and the application of new knowledge in real contexts.

Because curriculum initiatives arise organically from the unique features and personalities of a community, there is no set, *prescribed* place-based curricula (Smith & Sobel, 2010). The literature none-the-less emphasizes the common distinguishing dimensions of place-based teaching and learning defined in the previous paragraphs. Although sharing commonalities with a number of other pedagogical frameworks, including civics education, service-learning pedagogy, and environmental education, place-based pedagogy takes a broader, more integrative approach. It incorporates aspects of each of the previously mentioned frameworks and weaves them together in a distinctive fashion. Rather than treating human issues and environmental issues as

mutually exclusive of one another, place-based education, for example, strives to integrate the dimensions highlighted in Sobel's definition above to address human and environmental issues as interconnected societal concerns. These dimensions, acting in concert with one another set place-based education apart from other pedagogical approaches. Place-based educators recognize that one's own local environment is the best place to foster an appreciation for nature, and to build the skills and competencies required for ecological literacy and stewardship (Louv, 2008; Semken & Freeman, 2008; Smith & Sobel, 2010).

School & Neighborhood as a Context for Learning

The first key dimension of place-based pedagogy is the role *place* takes in the learning experience – place both as a physical space and as a context for learning. The school's environment and neighborhood become central players in the child's education and provide contexts for learning across a range of academic disciplines (Orr, 1992; Smith, 2002; Tolbert & Theobald, 2006). Because experiences are grounded in students' own lives and local communities, their learning builds on concrete, tangible involvement with the world around them, rather than reading about topics in far-off locations with which children have no connection. Their locally-based learning becomes the antidote to what Orr (1992) describes as the modern student's disconnected life to the world around her, "sealed in a cocoon of steel, glass, and concrete, enveloped in a fog of mind-debilitating electronic pulsations" (p. 134).

Dewey's legacy to place-based education is striking in his emphasis on localized instruction and the role schools need to play addressing community concerns (Dewey,

1899/2009; Orr, 1992). In *Experience and Education* (1938/1997), he asserts that a learner's experiences are most often shaped within local settings, close to the school, and that it is of vital importance that educators "know how to utilize the surroundings, physical and social, that exist so as to extract from them all that they have to contribute to building up experiences that are worthwhile" (p. 40). Dewey's entreaty to connect the child to the local community was a clear precursor to contemporary place-based pedagogy, as was his contention that the school needs to play a relevant role in the life of the community. Theobald and Curtiss (2000) echo Dewey's challenge to schools to prepare students for future civic responsibilities through direct experiences with the community in the here-and-now and assert that, "school should be life and life should be school" (p. 107).

Results from Smith and Sobel's case study of Sunnyside Environmental School in Portland, Oregon (2010) demonstrates how powerful connecting children with their local environment and community can be. First founded in 1995 as a middle school, and now a K-8 public school, all of the school's curricula revolve around ecological themes connected to rivers, mountains, and forests, the ecological features of their surrounding landscape. Keeping in mind the role they play within their community, teachers at the school begin their school mornings with community meetings, providing the students with opportunities to meet and learn about individuals from the real world who are also involved with helping to address social and environmental issues in their area. The teachers maintain that these and such subsequent experiences as community native-plant sales, vegetable gardening for a local homeless community, and collecting and sharing

water quality data of a nearby wetlands with Portland's Bureau of Environmental Services, connect students to their locality and foster a lifelong sense of compassion for their community. Although Smith and Sobel (2010) acknowledge that the data are anecdotal, they state there appears to be a long-term connection between the experiences the middle schoolers had at Sunnyside and their readiness for field biology in high school, as well as for pursuing careers in environmental fields.

Smith and Sobel (2010) further highlight how the teachers at Sunnyside then apply immediate local experiences to more far-ranging issues, in their discussion of one of the students' community-based projects. For example, after examining opposing perspectives of the controversial topic of impending wolf migration to Oregon from Idaho – those in favor of wolf reintroduction and those opposed, such as farmers and ranchers – the middle school students attended a legislative hearing about the plan. Although the children generally favored wolves returning to Oregon, their knowledge of all sides of the issue facilitated rational engagement with individuals attending the hearing from the ranching communities. One conversation with a state judge from the eastern part of the state resulted in the students visiting families in his area to learn directly about their perspectives and the impact such a reintroduction would have on their lives. Smith and Sobel (2010) assert that these kinds of balanced approaches endeavor “to foster the sets of understandings and patterns of behavior essential to create a society that is both socially just and ecologically sustainable” (p. 22).

Developing ecological literacy by fostering a love of nature. Instilling an appreciation for nature is highlighted as an important reason for providing children with

frequent opportunities to get outside and connect with their local environment. The literature is replete with personal anecdotes about the relationship between childhood experiences in nature and later adult attitudes and behaviors towards the environment (Louv, 2008; Orr, 1990; Sobel, 1996 & 2005). My own childhood experiences reflect similar influences. While my mother was my moral guidepost and instilled in me a passion for equity and social justice, my grandmother instilled in me a lifelong love of nature. Although I am certain she never intended to create an environmentalist, she was the influential adult in my early childhood who taught me to step gently on this Earth – to seek beauty in the landscape, to delight in early morning country walks, and to thrill at the sound of birdsong.

The literature reviewed for this study also reveals a direct correlation between adult attitudes and behaviors toward the environment and childhood experiences outdoors. Sobel (1996) argues that, “Authentic environmental commitment emerges out of firsthand experiences with real places on a small, manageable scale” (p. 39). He further asserts that it is only through frequent opportunities to bond with nature before being asked to save it that children truly become motivated to make a difference on its behalf. Citing Chawla’s (1988) review of the handful of studies conducted on environmentalists and what most influenced them, he notes that it is not an environmental curriculum; it is not childhood activism; it is time spent in the unstructured outdoors with an adult mentor. Wells and Lekies’ study (2006) of 2,000 adults, ages 18-90, who were living in urban areas, found similar results. Those individuals who had the most “wild nature”

experiences, as opposed to “domesticated nature” experiences, were the persons who also maintained the strongest positive attitudes and behaviors towards the environment (p. 13).

The reviewed literature further asserts that, only through direct experience with nature on a small, local scale, will it foster ecological literacy. In 1949 Leopold argued for citizens to abandon an ecological ethic driven by self-interest, and to instead develop morally ethical behaviors towards the Earth that “change(s) the role of *Homo sapiens* from conqueror of the land-community to plain members and citizens of it” (p. 204). He goes on to call for a land ethic that “reflects the existence of an ecological conscience, and this in turn reflects a conviction of individual responsibility for the health of the land” (p. 221). Sobel (1996), Goleman, Bennett, and Barlow (2012), and others have taken up this call, and assert that it is only by starting young and starting small that these kinds of ethics are going to be fostered. Sobel (2007) highlights the success of a school in St. Louis, Missouri that has adopted this approach. Starting with an overnight outside in their schoolyard in first grade, and building progressively more challenging tasks each year after that, by eighth grade the students are engaged in a weeklong service experience in an urban part of the city. The service experience is not conducted in isolation, but rather is the culmination of eight years of increasingly more sophisticated opportunities to engage with nature. Sobel (2007) argues it is through these kinds of experiences that children become genuinely invested in ecological responsibility for, not only their communities, but also global communities. He writes, “By working on small, manageable, cognitively accessible environmental problems at the micro level [children are] developing the sense of agency . . . one of the crux elements in shaping persistent

stewardship behavior” (p. 19). This is not to suggest that place-based curriculum ignores or dismisses global concerns and issues. Rather it seeks to first connect children to what they know – to the familiar, immediate personal surroundings with which they can more easily connect – before broadening the gaze further afield, something that is particularly important when teaching about ecology and environmental issues (Louv, 2005; Smith, 2002; Sobel, 1996).

Sobel (1996) emphasizes this connection of moving from the local to the global in his description of a class of students in Freeport, Maine, which formed CAKE: Concerns About Kids’ Environment. Responding to their feelings of powerlessness in the face of such graphic images as rising sea levels and catastrophic storm wreckage in their classroom studies of global warming, the students were encouraged by their parents and teachers to first view the issue from a more local perspective. They surveyed the community and observed all the discarded Styrofoam containers on the sides of the roads. Researching the connection between the production of Styrofoam and the release of CFCs into the atmosphere, which contributes to global warming, the children decided to take on the local McDonald’s to stop using Styrofoam in their restaurant. They appealed to their town council to stop the Styrofoam, and after a considerable legal fight, the children’s efforts were successful. Their McDonald’s was one of the first to stop using Styrofoam containers. Upon the heels of this success, the young people then expanded their efforts to a broader context, focusing on auto emissions at the state level and tropical deforestation on a more global scale. Sobel illustrates this student-driven initiative as one

example of children learning about a global issue in a local context before broadening their perspectives to communities further afield.

By seeking to tap into the natural ties the children have to their own community, ecological and civic literacy is more easily fostered. This class project is an example of how place-based approaches helped children move from their known local world to the broader, global community. The approaches use *all* aspects of the local community – both the natural and built environment – to create learning experiences that are for a purpose and connected to *real* places, people, and contexts (Kudryavtsev, Stedman, & Krasny, 2012; Powers, 2004; Semken & Freeman, 2008; Smith, 2007; Sobel, 2005; Theobald & Curtiss, 2000).

Learning Driven by Authentic, Hands-on Inquiry

With their theoretical roots firmly planted in social constructivism, the place-based learner is consistently valued as an active creator of knowledge throughout the learning process (e.g. Cole, 2010; Semken & Freeman, 2008; Smith, 2002; Sobel, 2005; Sugg, 2013; Theobald & Siskar, 2008). Dewey's (1938/1997) legacy to place-based education is probably nowhere more profoundly felt than in its emphasis on active, minds-on, student-centered learning. Throughout the reviewed literature, authors frequently cite Dewey's (1899/2009, 1938/1997) assertions that schools need to heed the learner's lived experiences, honor the role of the student in the learning process, and view learning as the active construction of knowledge in relation to other individuals. Social constructivism as espoused by Dewey is foundational to place-based pedagogy for such authors as Orr (1992), Smith (2002), Sobel (2005), and Theobald and Siskar (2008). As

Smith (2002) noted, Dewey's concern in 1899 for schools failing to be relevant and connected to a child's life remains as large an impediment to learning today as it did more than 100 years ago.

The literature consistently drew connections between place-based pedagogy and the fundamental principles of constructivism – knowledge construction in collaboration with others – because they have the potential to engage student interest, value student thinking, and foster student learning (e.g. Goralnik, Millenbah, Nelson, & Thorp, 2012; Louv, 2005; Sobel, 2005; Theobald & Curtiss, 2000; Tolbert & Theobald, 2012). Taking into account what the learner brings to the educational experience and striving to ascertain what ideas students already possess prior to embarking on a unit of study, a teacher who adopts a place-based framework is someone who honors students' experiences, interests, and engagement in the learning process. She then facilitates learning and encourages students to become engaged in experiences that challenge their initial explanations and interpretations.

Place-based scholars view learning as a journey of exploration in relation with others, one in which the learner is searching for understanding by reorganizing past experiences in light of new, sometimes troubling, ones. For them, place-based education seeks to provide meaningful contexts for children to deepen their understanding across disciplines, see that their learning is for a purpose, and has value and meaning to the broader society (Smith, 2002; Tolbert & Theobald, 2006). Place-based learning experiences provide opportunities for the state of “perplexity, confusion, or doubt” Dewey (1910/1997) asserted is the origins of thinking (p. 12). He writes:

Thinking is not a case of spontaneous combustion; it does not occur just on ‘general principles.’ There is something specific which occasions and evokes it. . . . To maintain the state of doubt and to carry on systematic and protracted inquiry – these are the essentials of thinking” (p. 12).

By privileging the child’s past experiences and authentic questions, place-based education connects academic instruction to real life and addresses the concern Dewey had with formal schooling more than a century ago and persists today – that school-based experiences are totally disconnected from the child’s life. Power’s (2004) evaluation of four place-based education programs in New Hampshire and Vermont – the CO-SEED Project, the Community Mapping Program (CMP), the Sustainable Schools Project (SSP), and A Forest for Every Classroom (FFEC) – consistently found students were motivated and engaged in the learning process throughout their involvements in each of the programs. Students and teachers in FFEC stated that, when the students were working outdoors, they felt more enthusiastic about learning, and in SSP teachers responded their students were more eager to learn when they were involved in hands-on projects. Because they knew their learning was for a purpose and would be shared with the community, students participating in CMP felt more invested in their learning and committed to the work. As one student reflected, “When you get to create your own map, it’s a lot more interesting than just creating something from a book. A book is kind of interesting, and you are learning, but when you are doing it, you learn more and you can remember it” (p. 27).

Rather than being what Smith (2002) calls, “an imposed chore” (p. 30), a place-centered school or classroom offers students experiences to make meaning of new information in personally relevant contexts and is a place where “teachers hold students to the same intellectual standards to which society holds adults: the construction rather than consumption of knowledge” (Smith, 2002, p. 33). Learning takes place from the perspective of the learner, and as such, she is the one who constructs meaning by connecting new information and concepts to what is already known or believed. Powers (2004) found this was especially true for children with special needs, who were more connected to and invested in their learning when they were engaged outdoors in hands-on investigations, with adult role models.

Place-based educators create environments where new information and ideas are presented, but the learner is the one who must integrate the new ideas and ways of thinking into what she already knows. Perhaps the new experiences conform to what she has previously come to understand, or not. If the new ideas cause her disequilibrium, then it is the learner who must struggle to restructure her thinking, change connections among what she already knows, or even abandon long-held beliefs. As Julyan and Duckworth (2005) state, “Our beliefs about how the world works are formed around the meanings we construe from the data of our experiences” (p. 63). In such an environment, teachers become co-learners along with their students. They do not have all the answers and are themselves constantly reorganizing and reconstructing their prior knowledge and experiences in a context that is familiar to them.

Place-based learning is a collaborative, social process, and the search for meaning occurs through interactions with others. Reflective of the classic service-learning model to be discussed in the next section, students and teachers work together through rigorous, disciplined inquiry, to identify locally-based problems of concern to them, pursue answers to student-generated questions that will lead to greater understanding, develop skills and strategies to address the problem, identify potential solutions, and finally take action to help ameliorate the issue. Contrary to the norms of the positivist educational model, which is structured as a one-to-one relationship between the learner and the content-to-be-mastered, humans are social animals. We do not learn in isolation. Fosnot and Perry (2005) note: “Throughout our evolution . . . we have sought to establish communities, societies, forms of communication, and thus cultures as an adaptive mechanism. We attempt to survive collectively, rather than individually; we procreate, communicate, and teach our young” (p. 29). Educational environments that encourage the social aspects of learning are hallmarks of place-based classrooms (Sobel, 2005).

Promotion of Citizenship through Civic Engagement

Finally, central to place-based learning is the notion that all learning should contribute to the life of a community (Bartsch, 2008; Theobald & Siskar, 2008). Throughout the reviewed literature, the scholars repeatedly emphasize the critical role student action and civic engagement play in the learning process, and the value of students working with community members to address locally identified issues (Bartsch, 2008; Semken & Freeman, 2008; Theobald & Siskar, 2008). Goleman et al. (2012) highlight the value of civic engagement in the life of a community in the description of

the efforts of one elementary school in San Anselmo, California. The project, Students and Teachers Restoring a Watershed (STRAW), was started in 1993 by a class of fourth graders, and has continued every year since with each new group of students. Concerned about Stemple Creek, a 16-mile creek in their area, polluted by run-off from fertilizer and other agro pollutants, the students worked with community members and a local rancher to develop a project that would mitigate the erosion. The 1993 class completed the project on the rancher's land, planting native trees along the creek's banks to stabilize the erosion. Every year since, students have continued and expanded on the original project. Today, where once there was nothing but bare creek banks, now stand a dense growth of trees and other vegetation, which has not only stopped the erosion, but also provided rich habitat for an array of birds and other wildlife.

By connecting young people to civic responsibilities within their communities through service projects that have clear and desirable benefits to the school, neighborhood, town, and/or region, student learning becomes relevant and children come to be seen as valuable assets to the life of a community. As Goleman et al. (2012) underscore in the previous example, young people want to engage in real-world problem identification and problem solving, and be involved in local decision-making experiences where they can be active and connect to their communities, while preparing for civic responsibilities in the future.

Thus, service-learning is an essential component of pedagogy of place, although place pedagogy is not always an aspect of service-learning. Our experiences at Middle Creek School reflect a trend that emerged from the literature – place-based service

projects that have visible results in the environmental quality of our community. Local environmental improvements that arise from scientific inquiries are frequently highlighted as model place-based projects (Howley, Howley, Camper, & Perko, 2011; Kudryavtsev, Stedman, & Krasny, 2011; Semken & Freeman, 2008; Smith, 2007). Sobel (2005) notes a 2000 study conducted by the Education Development Center in Texas that found children who were involved with school gardening projects developed greater civic attitudes towards the environment than did children who did not participate in gardening projects. He also cites a 1999 review of research journals by Zelezny. One of her findings is that sustained school-based environmental programs have more lasting impact on students' environmental attitudes than one-shot school trips to environmental camps. Sobel (2005) argues that these two studies provide some evidence "for those educators trying to weave environmental education into the fabric of public schools" (p. 49).

Justice-Oriented Service-Learning

Parker (2003), Veugelers (2007), and Westheimer and Kahne (2004b) use different terminology to describe similar characteristics of citizenship education models. For the purposes of this study I have chosen Westheimer and Kahne's term, *justice-oriented*, to describe service-learning programs that combine concerns for social justice with actions that strive to improve communities. Middle Creek School's broader Roots & Shoots goals were to foster justice-oriented perspectives, which sometimes we achieved and sometimes we did not. Since its inception, the program strived to push beyond the models of citizenship education Westheimer and Kahne (2004b) call personally responsible citizenship and participatory citizenship to the model they term,

justice-oriented citizenship. Our place-based, service-learning program was designed with the goal of nurturing these kinds of morally and socially sensitive citizens capable of responsible social interaction; citizens that acknowledge their differences, while seeing themselves as members of a single society; citizens committed to undertaking complex problems in society, while acknowledging that no solution is ever permanent or final (Bruner, 1996; Parker, 2003; Westheimer & Kahne, 2004a).

Service-learning distinctions. Service-learning is viewed in the literature as one feasible instructional approach to make learning relevant, while cultivating socially-conscious, engaged citizens. As with definitions of democracy and citizenship, there are competing perspectives and approaches, and Kendall (1990) identified 147 different service-learning definitions in the literature, partly because so many *service* projects are given the label *service-learning*. Some service-learning programs emphasize citizen-as-individual, while others accentuate citizen-as-participant, and still others underscore citizen-as-change-agent. Although these philosophical differences are striking, most service-learning programs view experience as a strategy for improving learning and offer students opportunities to address a range of issues in a particular community, place, or situation outside of the traditional classroom setting (Manley, Buffa, Dube, & Reed, 2006; Smith & Sobel, 2010).

Across the philosophical spectrum, programs provide a framework for children to learn about the importance of and need for civic responsibility by providing students with opportunities to make decisions about and participate in organized activities that tackle a genuine need. Generally, the activities reflect Dewey's (1916/1997) definition of

experience, and are designed to promote student learning and development through action, analysis and reflection. Moving students beyond theory in the classroom to practice in the real world, a basic service-learning model includes the key components of preparation, collaboration, curriculum integration, action, reflection, and celebration, regardless of the philosophical stance (Kaye, 2004).

Criticisms of service-learning curricula. Service-learning is not without its critics. While service-learning programs have grown exponentially since the 1990s, many educators, especially administrators, remain unconvinced of its educational merit and academic rigor. Frequently dismissed as “fluffy, feel-good stuff,” service-learning has often been relegated to the periphery of teaching and learning strategies (Eyler & Giles, 1999). Even as student-centered, constructivist approaches have entered the mainstream of teaching practices, service-learning is rarely mentioned as an avenue to make learning more relevant and meaningful for students (Kinsley, 1997). Several authors note that, although there is a vast quantity of service-learning literature, not enough studies exist to evaluate the relationship between service-learning and citizenship education, and thus validate its use as an educational pedagogy (Eyler & Giles, 1999; Kinsley, 1997; Manley et al., 2006). Consequently, service-learning as an effective teaching method continues to have difficulty gaining institutional legitimacy. Kahne, Westheimer, and Rogers (2000) claim that, while hundreds of higher education institutions are expanding their service-learning programs to foster more engaged citizenship, the research on their effectiveness is sparse. Most studies that do exist are surveys. They describe one 1999 survey on college freshmen that found, while

approximately 75% of the students surveyed reported performing volunteer work as high school seniors, only 39% felt their efforts contributed to the “influence of social values” and the students’ interest towards civic engagement as college freshmen was only 21% (p. 8).

The literature consistently holds that the loose application of the term to nonacademic programs is a major impediment to gaining legitimacy and institutional support. Hill and Pope (1997) observe, “While many educators understand the value of helping others and the power of learning through experience, relatively few understand how to use these values to help students learn traditional curriculum and develop academic skills” (p. 186). They go on to explain that many programs passing themselves off as service-learning are in fact community service. They assert that the dilemma is further exacerbated by high schools and universities trying to increase their chances for funding by often just retitling existing community service programs as “service-learning” without restructuring the programs to embody the core principles and dimensions of service-learning. Smith and Sobel (2010), also, critique service-learning programs as lacking academic rigor and being more concerned with the action component than making efforts to analyze and understand the root causes for the problems in the first place. They write:

More often than not, service learning is extra-curricular rather than curricular, an additional requirement or special activity instead of a substantial part of students’ educational experience. It connects students to their communities without

intentionally deepening their understanding of the unique characteristics and dynamics of their home places. (p. 27)

Consequently, because of a lack of rigor and loose definitions applied to many programs, educators and scholars alike continue to perceive service-learning as extra-curricular activities or add-ons, rather than effective instructional methods. Smith and Sobel's (2010) assertion further reinforces Middle Creek's notion that a place-based Roots & Shoots program, linking extracurricular projects to classroom learning, has the potential to foster greater citizenship and civic responsibility.

Justice-oriented service-learning dimensions. One dramatic distinction between the different philosophical approaches to service-learning can be found in a program's mission. Does it promote personal citizenship without encouraging active political participation in our democracy, or does it address fundamental issues of justice and equity? One example illustrating the difference between personally responsible, participatory, and justice-oriented citizenship is a stream cleanup. A personally responsible citizen volunteers her time to help clean up the streambed on the day of the event and the participatory citizen is involved in the organization of the cleanup. The justice-oriented citizen, however, not only is involved with the organization and implementation of the cleanup, but also analyzes the trash collected, trying to determine its origins and reasons for the pollution in order to develop preemptive plans to reduce trash pollution within the community in the future.

Westheimer and Kahne (2004a) caution that, "Personal responsibility, voluntarism, and character education must be considered in a broader social context or

they risk advancing civility and docility instead of democracy” (p. 244). Smith and Sobel (2010) also assert that service-learning programs which are most often extra-curricular, rather than curriculum-based, privilege action over analysis. They argue that place-based service-learning initiatives do more to connect academic learning to meaningful issues in society, and provide students with authentic experiences to understand the reasons for societal problems, in the first place. Their arguments reflect the justice-oriented perspective espoused by Westheimer and Kahne (2004b).

As described by Westheimer and Kahne (2004b), justice-oriented service-learning pushes students to dig beneath the surface, and to critically analyze and challenge existing practices throughout every phase of the process, starting with preparation and planning. It is in this initial project stage that specific needs are scrutinized, partnerships established, and plans-of-action generated. In a justice-oriented program partnership and collaboration are seen as essential hallmarks of service projects, with teachers facilitating early student discourse with community partners to investigate together root problems before embarking on a course of action. Mattessich and Monsey (1992) define collaboration as “a mutually beneficial and well-defined relationship entered into by two or more organizations to achieve common goals” (p. 7). It is stressed as an important element in constructive, reciprocal relationships between the servers and the served. Clear learning goals and objectives are articulated, with all involved stakeholders understanding the desired learning expectations and accomplishments.

Justice-oriented programs are not community service. While community service programs tend to be extracurricular activities, with little or no connection between the

service and what is taught in the classroom – what Manley, Buffa, Dube, and Reed (2006) describe as the “soup kitchen” model, where students are superficially “helping” without taking time to collaborate with those being served or learn the reasons and complexities creating the need for service in the first place – justice-oriented service-learning programs make *service* and *learning* equal partners, and the projects themselves form the basis for significant learning opportunities. These service-learning experiences “challenge the superficial level of knowledge we measure in standardized tests and drive deeply to questions about application of knowledge and how we live what we know” (Keilsmeier (1992) in Wade, 1997, p. 20). The extent to which the service is integrated into the curriculum is a key distinction between community service and service-learning. Eyler and Giles (1999) assert: “We have embraced the position that service-learning should include a balance between service to the community and academic learning and that the hyphen in the phrase symbolizes the central role of reflection in the process of learning through community experience” (p. 4).

Smith and Sobel (2010) describe just such a place-based, justice-oriented program in their depiction of the efforts of one high school science teacher, Elaine Senechal, teaching in an impoverished neighborhood of Boston, Massachusetts. As a result of her desire to design a more relevant science course for her students that aligned with the school’s stated mission of developing community leaders, she created an environmental justice science elective. One primary focus of the course was to partner with a local nonprofit which was working with local residents to improve the environmental quality of their area. A concern the students identified and then acted upon was the belief diesel

exhaust from idling trucks and city buses was contributing to high rates of asthma in their community. For the next six years, class-after-class of environmental justice students conducted surveys, researched air quality issues, and worked to get Massachusetts to enforce an existing, but seldom enforced, statute that prevented vehicles from idling more than five minutes in any one place. Ultimately, a 2004 court ruling found against the Massachusetts Bay Transit Authority, and the agency was required to not only pay a fine, but also reduce their idling time and move their vehicles away from diesel. Smith and Sobel (2010) note that in 2008 Senechal wrote that the students who were receiving recognition for their efforts were the same people who had previously been at risk of dropping out of school. They remark, “What made the difference was that they were able to find ways to contribute their intelligence and energies to projects that were genuinely worthwhile. They rose to the occasion and both they and their community were the beneficiaries” (p. 57).

The Roots & Shoots service-learning program established at Middle Creek School endeavors to wed the principles of both place-based and justice-oriented citizenship education into a program that promotes age-appropriate, authentic civic experiences. Primarily science-based and focused on complex environmental issues, we have sought to develop a justice-oriented service-learning curriculum that highlights the notion of citizenship education as both political and contestable, one that does not privilege individual acts of human kindness over controversial issues of equity and institutional structures that exacerbate societal problems (Westheimer & Kahne, 2004a). Instead it emphasizes questioning, analysis, and reflection as tools to seek a deeper understanding

of root problems, recognizing that any solution arrived at today may not work tomorrow. Our goals have been to create a service-learning program that reflects a constructivist framework for teaching and learning; one in which students are actively involved in constructing their own knowledge and meeting curriculum requirements through meaningful real-world experiences (Bruner, 1996; Freire, 1970/2006; Payne, 2000).

Roots & Shoots As Place-Based, Justice-Oriented Service-Learning

As has been previously described, the research on service-learning as pedagogy is vast and one can find many different models in the United States. Why, then did Middle Creek choose Roots & Shoots as the foundation for our program? What makes it unique among other notable programs? Primarily, its flexible structure and capacity to incorporate multiple perspectives, multiple passions, and multiple methods, as well as its emphasis on youth voice and choice in the learning process, potentially engage students in rigorous curricular challenges. Although Jane herself has a deep personal commitment to issues related to animals and the environment, the program she created is not strictly environmental. Instead, it is an inclusive model that recognizes the need to address the spectrum of societal issues. As I have often heard Jane say in conversation (and I paraphrase), if we limit our focus to animals and the environment, without tackling the human suffering across this planet, animals and the environment do not have a chance. The Roots & Shoots model recognizes that each of us has something about which we are passionate – some cause that moves us. I have never met a student who does not care about something, and Roots & Shoots creates a pedagogical framework for activism on

behalf of that “something.” The parameters are intentionally broad to encompass diverse backgrounds, beliefs, perspectives, learning styles, and abilities (Goodall, 1999).

The Roots & Shoots philosophy emphasizes the role of the individual within the broader community, and the responsibility each person has as a global citizen (Goodall, 1999). It is congruent with the philosophy that Theobald and Curtiss (2000) describe as foundational to the US educational system, and reflects the tenets Westheimer and Kahne (2004b) highlight as core to justice-oriented citizenship: earnest collaboration to understand issues related to injustice in all of their complexities – social, political, and economic – while accounting for competing perspectives and interests of various stakeholders.

Ranging in age from preschool to adult, Roots & Shoots participants consistently acknowledge multiple, differing viewpoints, as they address genuine community needs, in ways that are important to the students and community alike. Found in a wide variety of contexts – schools, churches, scout groups, independent clubs, college campuses, nursing homes, refugee camps, and correctional facilities – all groups share the program’s mission, “To foster respect and compassion for all living things, to promote understanding of all cultures and beliefs, and to inspire each individual to take action to make the world a better place for people, animals and the environment” (Jane Goodall’s Roots & Shoots, 2014, Mission section, para 1). Members are expected to take constructive action, based on well-researched needs that demonstrate care and concern for animals, the environment, and/or people, and are encouraged by the Jane Goodall Institute (JGI) to complete at least one project every year in each category. The

importance of on-going initiatives is consistently stressed to all member groups. As a service-learning approach, grounded in place-based pedagogy, Roots & Shoots relies heavily on Dewey's philosophy of experiential learning and emphasizes reflection and evaluation as critical to project success (Johnson-Pynn & Johnson, 2005).

Whether it is a simple effort, such as persuading one's family to conscientiously recycle at home, or a more comprehensive one, such as organizing a habitat enhancement project, Roots & Shoots service experiences typically employ the following cyclical model:

1. Learn about community issues by administering a needs assessment or conducting some other form of research;
2. Identify a specific problem to address;
3. Research the underlying causes for the problem and explore potential solutions;
4. Partner with experts in the field, community leaders, and/or organizations to determine a specific course of action and then to engage in the community service experience;
5. Reflect on the overall experience, the successes and challenges, and then identify the next course of action;
6. Begin the process anew (Johnson & Johnson-Pynn, 2007).

In order to maintain project efficacy and ensure responsiveness to the needs of the local community, reflection and evaluation do not just occur at the end of the experience, but rather are key components throughout every stage of the process. It is this reflection and evaluation that help members create and implement projects that are of genuine value to

the community, not just important tenets of service-learning, but also important to place-based learning (Johnson, Johnson-Pynn, & Pynn, 2007).

At Middle Creek School this cyclical approach to place-based service-learning has been adopted in both our Roots & Shoots clubs and our science and language-arts curricula. Although numerous ongoing service-learning projects are maintained at Middle Creek School at any given time, HOME – Habitats & Open Meadows for the Environment – is one curriculum-based environmental science program that utilizes the school’s schoolyard habitat to engage student responsibility by applying scientific inquiry to concerns about local habitat loss. The project addresses one of the most serious environmental problems occurring within our community and throughout New Jersey – suburban sprawl (Hasse & Lathrop, 2003). Students’ academic investigations explore the consequences of inefficient land use, fragmented ecosystems, and disrupted habitats. Student actions take the form of creating habitats for wildlife on the school’s 21-acre site and working with the local community to preserve what remaining open spaces the community has left. The Adopt-a-Spot project described in Chapter 1 is one curricular component of HOME.

In addition, our fifth and sixth grade language-arts classes employ the cyclical model in their yearlong research projects, conducted in collaboration between the language-arts teachers and Middle Creek’s media specialist. The students begin the school year by exploring a variety of issues of concern to them. The topics consistently range from such animal and environmental concerns as puppy mills and deforestation to human issues of poverty and lack of educational access in many parts of the world. After

the cursory investigation of a range of topics the students then select one topic to research in greater depth before developing and implementing a plan of action to lessen the problem. Their research not only includes print and digital media, but also interviews with experts and individuals most affected by the issues. The action plans are developed in collaboration with community partners, who assist the students in creating manageable plans that are genuinely needed and can be feasibly implemented. Reflection and evaluation are hallmarks of each phase of all Middle Creek Roots & Shoots service experiences.

The most common Roots & Shoots model is extracurricular, but in a few instances, such as at Middle Creek School, the service-learning model is integrated into school curricula (Jane Goodall's Roots & Shoots, 2014). Because of its flexibility, Roots & Shoots is more of a philosophical approach to civic engagement than a canned program. Consequently it has the elasticity to be integrated into curricula, rather than added on to it, potentially engaging all students in civic actions. Roots & Shoots members are encouraged to create programs that are unique to their settings and address local concerns.

As an educator I was drawn to Roots & Shoots because I was inspired by the possibilities of weaving the Roots & Shoots philosophical framework into established curricula grounded in place-based pedagogy. I was further inspired that the Roots & Shoots programs we created at Middle Creek School had the potential to guide students to see their place in the world, and to appreciate the value of civic responsibility and active participation moving forward in their lives. While primarily extracurricular activities, two studies conducted of Roots & Shoots programs in Tanzania and China

earlier this century reflect dimensions of place-based service-learning also found at Middle Creek school – locally-based environmental efforts that strive to improve the students’ communities. The studies, reviewed in the following section, report some similar participant reactions and interpretations, as do the participants in the Middle Creek Study group, and the findings have the potential to further contextualize the findings of this research.

Research of Two Roots & Shoots Initiatives Rooted in the Local Community

Empirical research on Roots & Shoots is limited, and I was unable to find studies that reflect the integrated curricular and extra-curricular program features unique to Middle Creek School. The two studies I did find investigated the impact Roots & Shoots programs have had on young people and their civic growth, one in Tanzania and the other in China (Johnson et al., 2007; Johnson-Pynn & Johnson, 2005). The studies are part of a broader ongoing endeavor to assess the influence Roots & Shoots membership has on youth around the world, although to date no subsequent studies have yet been published.

Johnson-Pynn and Johnson (2005) first investigated school-based Roots & Shoots programs in communities adjacent to Gombe National Park in the Kigoma region of Tanzania. The region supports an agrarian economy, with more than 85% of the households dependent on agriculture and livestock for their livelihoods and about 34% of the population living below the poverty line (Economic Development Initiatives, 2006). Because of their way of life, the clearing of forests for crops, firewood, and timber to sell to logging companies presents persistent pressure on the land. As a result, the focus on environmental education has grown in recent years, and Roots & Shoots groups have

taken prominent roles to address the escalating environmental concerns in their local environment, with most of their organized service experiences focusing on sustainable management of natural resources. Establishing tree nurseries was one common project that garnered widespread community support because the initiative addressed the community's essential needs for food and firewood (Johnson-Pynn & Johnson, 2005).

Reflecting place-based education dimensions, Johnson-Pynn and Johnson's study (2005) reveals that both participants and community members view Roots & Shoots as an effective program to build knowledge, enhance personal and social growth, and engage citizens in local conservation efforts. Of the students surveyed, 90% felt a strong commitment to their clubs and 87% believed their service projects were worthwhile and were making a difference within their community. Further, the youth conveyed a sense of civic responsibility, with 52% expressing a deep desire to work for fairness and justice, and 75% expressing a sense of duty to improve the world.

The researchers observed that the Kigoma Roots & Shoots groups were successful on a number of levels. Their local environmental projects measurably improved the ecology and water quality of the local area, and the groups effectively educated family members and others about environmental degradation and the importance of conservation. They were especially successful teaching adult family members about how to use sustainable agro-forestry in their own farming. One program coordinator's comments emphasized this value of raising public awareness: "We really try to encourage the R&S members to spread the word of R&S out of school, so when they're at home . . . in the communities . . . they get a chance to actually teach their parents about things" (p. 34).

Reviewing Johnson-Pynn and Johnson's study (2005), I am struck by the response similarities between their participants who were still involved in Roots & Shoots and my participants, who were long removed from their experiences.

As in Tanzania, Johnson et al. (2007) found that Roots & Shoots had a positive influence on Chinese youth to engage in civic action. First introduced to China in 2000, there were already approximately 50,000 youth participants organized in 200 Roots & Shoots groups throughout 30 provinces by the time the researchers conducted their study in 2007. The Chinese study group consisted of 50 student members, ranging in age from 15 to 24 years old, and 14 adults (program coordinators, teachers, and volunteer interns) in Beijing, Shanghai, and Wenzhou. The group represented a variety of school-based clubs, found at both the middle and secondary levels, as well as in universities and technical schools. Typically, the clubs were after-school programs, advised by teacher volunteers. Students indicated that concern for environmental issues, which they wanted to learn more about and then share with others, was the principal reason for joining Roots & Shoots. They felt textbooks and traditional education settings could not provide them with the knowledge they would otherwise gain in Roots & Shoots. Activities ranged from recycling initiatives and tree plantings, to working with hospitalized children, to public awareness campaigns about the humane treatment of animals (Johnson, et al., 2007).

In keeping with the Roots & Shoots model, students were responsible for project implementation and teachers served as advisers, reviewing project ideas and making recommendations about their feasibility. Although the teachers were actively involved in

the process, the projects were predominantly student-directed, an unexpected finding for the researchers. Because of the authoritarian structure of Chinese society, they expected the projects to be teacher-directed and were surprised to learn that it was the students who identified a problem, analyzed potential solutions, and then designed and implemented a plan of action (Johnson et al., 2007). One student member explained:

There is a typical Roots & Shoots way. We call it the Roots & Shoots way.

Students who participate are sitting down and talking to each other to figure out what they are most interested in doing. They have another meeting where another group joins in to prioritize what is most important and to think out what they could do for the project. (p. 369)

Surveys of student and adult participants indicated some similar results to the East African research, as well as some differences. As in the East African study, respondents viewed Roots & Shoots as an effective program for building civic and social responsibility, with more than 56% of those surveyed stating that membership had had a very large impact on their sense of duty to improve the local environment, 54% stating they felt strongly they will continue their efforts, and 51% expressing a deep desire to work for fairness and justice (Johnson et al, 2007). In addition, 54% of the participants believed that their initiatives had been successful. Also similar to the East African study, increased global environmental knowledge, compared to local environmental knowledge, received the lowest rating, with only 8% of the respondents stating that involvement in Roots & Shoots had increased their global knowledge. The researchers found these

results to be normal, given the technological isolation of East African youth and the historical socio-cultural isolation of Chinese youth.

The most striking difference between the two studies was the correlation the students perceived between academic growth and Roots & Shoots membership, which was almost 68% in East Africa and only 34% in China. The program challenges the Chinese youth faced were also somewhat different, with academic pressure and an overabundance of schoolwork cited as the greatest reasons for attrition. In fact, on average, students only remained involved in the clubs slightly more than two years. As with the Tanzania research, this research (2007) also examines students' place-based, justice-oriented, place-based experiences unique to their locality, yet sharing similar dimensions as those in Tanzania and at Middle Creek School.

In spite of program challenges, Johnson et al. (2007) concluded that Roots & Shoots was perceived by all stakeholders to be a successful program and emphasized the significance of these findings, given how vastly different the two regions are. They credited the program's flexibility and ability to adapt to different cultural contexts for its universality. They went on to assert that the program's features make Roots & Shoots stand out over other service-learning programs, and make it more versatile across widely ranging geographic and cultural boundaries.

Summary of the Literature

The literature reviewed indicates that place-based pedagogy informed by constructivist learning theory and justice-oriented service-learning methodologies has the potential to effectively engage students in the learning process, guide children to view

themselves in relation to the world in which they live, and to appreciate the value of civic responsibility and participation. Such pedagogy makes learning authentic, as it uses the local environs to help students build their own knowledge about societal issues and then apply the knowledge in meaningful ways. By having a voice in planning and implementing projects, young people become invested in making real-world decisions to improve the lives of others. Place-based learning is especially seen as effective pedagogy for educating informed, critical citizens, capable of actively engaging in the democratic process.

Roots & Shoots is the place-based, justice-oriented, service-learning model that Middle Creek adapted to link academic rigor and community service by emphasizing the important program components of research, skills application, and reflection. When effectively integrated with school curricula, Roots & Shoots is seen as a constructivist, student-centered approach to teaching and learning. It promotes social responsibility and thoughtful action – action that addresses the needs of and works in collaboration with the community being served. Although the research on Roots & Shoots is still limited, the studies that have been published indicated promising prospects for its potential to promote student empowerment and agency.

CHAPTER THREE – METHODOLOGY

Introduction

This project was a qualitative interview study of former Roots & Shoots students' perspectives about the influences their pre-adolescent experiences had on their adult attitudes and behaviors towards civic engagement. Thus, the overarching research question driving the study became:

- How did former students' pre-adolescent involvement in Roots & Shoots affect their perceptions and behaviors as young adults?

In order to understand how individuals made meaning of their Roots & Shoots involvement, the study employed common features of qualitative research: prolonged engagement, interpretation of experience, contextual specificity, researcher involvement, inductive analysis, and thick descriptive text (Bogdan & Biklen, 2007; Merriam, 2009).

An overarching goal of this study was to uncover and interpret what meaning past experiences had for participants, and as such, the participants' perspectives and the context in which the experiences were remembered were central to the study. Meaning is constructed, and as researchers, we are interested in how individuals interpret their lives and experiences (Gilligan, Spencer, Weinberg, & Bertsch, 2003). Because meaning is constructed, this study sought to capture the context within which the remembered experiences occurred. In order to lessen the gulf between the researcher and participant, how I positioned myself, as the researcher, within the study was also critical (Fine, 1992). Making visible my relationship to the study, as well as my biases and prior assumptions, was another strategy used to safeguard the integrity of the study.

Finally, this study relied on inductive analysis and the interpretations presented in Chapter Four emerged after the data were collected, coded, and grouped together. Through inductive analysis Bogdan and Biklen (2007) assert: “You are not putting together a puzzle whose picture you already know. You are constructing a picture that takes shape as you collect and examine the parts” (p. 6). Relying on quotes from the participants, the findings presented in Chapter Four are detailed descriptions of their interpretations and my analysis, set within the context of the theoretical framework upon which the interpretations rest (Merriam, 2009).

An Interview Study

The impact of a program to which I have devoted much of my professional career was not going to be learned through empirical statistical analysis. Every person, child and adult, is an embodied, complex being, embedded in our culture, the sum of which is far greater than any statistical data can represent (Bruner, 1996; Schubert, 1991). Relying primarily on interviews, conversations, and reflective written responses, this study attempted to make sense of the impact Middle Creek School’s Roots & Shoots program had on 10 former students’ journey into young adulthood. The heart of the study was a collection of stories told by the participants through a series of interviews.

As a research method, an interview study is one that involves deliberate discourse between the researcher and one or more individuals in order to obtain information (Gay, Mills, & Airasian, 2009; Merriam, 2009). Conducted individually or in groups, interviews are used to collect data that cannot be gleaned any other way, such as to learn about past phenomena or a person’s perceptions about experience. Gay et al. (2009)

explain, “Interviewers can explore and probe participants’ responses to gather in-depth data about their experiences and feelings. They can examine attitudes, interests, feelings, concerns, and values more easily than they can through observation” (p. 370).

In this study interviews were the primary method used to learn about the thoughts, feelings, and interpretations 10 former students had about their memories of pre-adolescent Roots & Shoots experiences and the long-term impact the experiences had on them. I selected an interview study as the framework for this research project because of its possibilities to gather rich, descriptive data about individuals’ interpretations and opinions of past experiences. By conducting interviews I was afforded opportunities to understand what the participants thought was the relationships between their Roots & Shoots involvement and current civic attitudes and behaviors as young adults. The initial, individual interviews ranged anywhere from 30 minutes to an hour in length, and resulted in informal conversations that gave the individuals occasions to reflect deeply on prior experiences and express themselves fully. Bogdan and Biklen (2007) point out that well-constructed interviews allow the interviewee to become the authority – the person in the know – and the researcher becomes the learner, seeking new knowledge. The transcripts of the interviews used in this study provided me with a wealth of raw data from which to draw my findings.

Research Participants

Participant Selection

In order to gain multiple perspectives about the lasting impressions of Roots & Shoots, this study used purposeful sampling for the initial selection of 10 participants

(Bogdan & Biklen, 2007; Merriam, 2009). Because I was interested in a specific population of students who had attended Middle Creek School and were now adults, I established explicit boundaries from which to choose the participants. Although this was a small pool of individuals I believe it was sufficient to gain varied perspectives about Roots & Shoots experiences. Limiting the number of participants allowed me the opportunity to go in depth with their memories and perceptions, rather than painting broad brushstrokes of the phenomena as a whole. It also allowed me time to more fully analyze and interpret the meaning of the stories told.

All participants were selected from a pool of students who attended the school between 1997 and 2008, and were a part of Roots & Shoots on an academic level. That is to say, they were in fourth, fifth, and/or sixth grade classrooms that integrated the Roots & Shoots service-learning model into the science and English Language Arts curricula.

There were two subgroups, with five members in each group. The first subgroup was comprised of post-college age young adults, ages 22-26, who attended the school between 1997 and 2003. At that time the school serviced fourth and fifth grades, and was structured following an elementary school model. The classrooms were self-contained, with one teacher teaching all of the core subjects to the same group of students. Several of the teachers and their classes looped with their students for both grades. For these students their entire intermediate school experience was with the same teacher. This was the population who attended the school when it was going through the transitional stages of becoming a Roots & Shoots School, and when Jane Goodall and several of the Jane Goodall Institute staff visited the school. Many of the students were involved in the

overall application process, with some of them instrumental in presentations to the Board of Education seeking approval and support for the distinction.

The second subgroup contained college-age students, ages 18-21, who attended the school between 2004 and 2008. Three of these students attended the school for three years (fourth, fifth, and sixth grades), as they were there during the transition from an elementary-based intermediate school to a middle grades model. They had the experience of Roots & Shoots both in self-contained classrooms in fourth, and possibly fifth grade, and then in a semi-departmentalized setting in sixth grade. Members of this population were on hand when Jane Goodall returned to the school to launch it as a Roots & Shoots School, and were in attendance when Roots & Shoots as integrated curriculum was still fresh – only a few years old. During this time period, the fourth and fifth grade science curriculum in particular emphasized using the schoolyard as an environmental learning laboratory.

Prospective participants who met the identified criteria and for whom I had contact information were divided into the two age bands described above. The names of all of the individuals were written on slips of paper and placed in one of two jars, depending on which time period they attended the school. Five individuals were then selected for each subgroup, by drawing the names out of the jars. The prospective informants were contacted and invited to participate in the study. None of the initial contacts declined to participate.

Demographic Data

All participants were required to complete a Demographics Questionnaire prior to the first interview. Table 3.1 shows the results of that questionnaire. Ranging in age from 18- to 26-years-old, six of the participants were female and four were male. All members of the group reported they were white Caucasians, and all but one are either currently attending college or possess undergraduate degrees. Of the 10 participants, seven had me as a classroom teacher and three interacted with me only as the Roots & Shoots club advisor. Of the seven individuals who were my former students, three were in looping classes and one was involved in the application process to become a Roots & Shoots School.

Table 3.1
Participant Demographic Data

Name	Age	Gender	Ethnicity	Education	Employment	R&S Involvement
Allen	26	Male	Caucasian	Bachelors Degree	Film Editor	2 years
Ella	24	Female	Caucasian	Bachelors Degree	Dietitian	2 years
Haley	24	Female	Caucasian	Bachelors Degree	Oyster Restoration	2 years
Jack	24	Male	Caucasian	High School	Graphic Designer	2 years
Dana	22	Female	Caucasian	Graduate Student	Math Tutor	2 years
Ava	21	Female	Caucasian	Junior in College	Research Assistant	2 years
Mark	20	Male	Caucasian	Junior in College	Work Study @ College	2 years
Walt	20	Male	Caucasian	Sophomore in College	Student	3 years
Jamie	19	Female	Caucasian	Sophomore in College	Student	3 years
Ria	18	Female	Caucasian	Freshman in College	Student	3 years

As described, the participants were divided into two sub-groups, those who were college-age and those who were post-college-age. All of the college-age participants are currently attending universities. Of the post college-age group, one is in graduate school, three have graduated from college and are in the workforce, and one entered the workforce immediately following high school graduation. The professions of these four participants are marine biology, dietetics, film editing, and proprietor of a design firm. All 10 participants had vivid memories of their Roots & Shoots experiences and strong attitudes about how the experiences helped shape their lives.

Research Design and Methods

Data Collection

Merriam (2009) reminds us that one of the first requirements for an effective qualitative study is to ensure we spend sufficient time collecting the data needed to be able to draw reliable conclusions. She recommends that data should continue to be collected until the researcher feels she is beginning to see or hear the same information over and over again. The data collected from this interview study came in a variety of different forms, from transcripts of individual and focus group interviews, to participants' written responses, to my own field notes and journal responses immediately following each interview. These research interviews, informal conversations, participants' written responses, my reflective journal entries, and field notes were created and/or collected and then analyzed. Further elaboration of each type of text follows below.

The interviews. As mentioned, this study primarily relied on interviews of 10 former Roots & Shoots students. The young adults were encouraged to review any

photos, journals, or other Roots & Shoots artifacts they may have saved from their time at Middle Creek School prior to their first interview, and to bring them to the interview for us to explore together, if they so chose. Three of the participants did bring artifacts to their interviews to reference, and the documents served as powerful sources that triggered recollection of important memories long forgotten. For example, both Ella and Haley had saved their “learning logs” from fourth and fifth grades, which triggered many memories about scientific investigations conducted in Middle Creek’s Meadows & Trails.

I conducted one round of semi-structured interviews with all of the identified participants. Because there was specific information I wanted to gather from every member of the study group, prior to the first interview I had created a list of questions, which guided the interview (see Appendix D). However, I did not feel bound to those questions and they were used more informally than would have been the case in a structured interview (Merriam, 2009).

How I conducted the interviews most certainly influenced the stories the participants shared and the interpretative texts created (Clandinin & Connelly, 2000). Although the interviews were semi-structured, my goal was to conduct more informal and relaxed interviews than are even typically associated with semi-structured interviews. As Anderson, Herr, and Nihlen (2007) point out, interviews are “important in gaining a perspective on how others understand and interpret their reality. Interviewing assumes a skill in listening and a nonthreatening manner in asking questions” (p. 169). While I had specific questions prepared in advance of each interview, I wanted participants to share their stories of experience in ways with which they were most comfortable. In this way, I

hoped to lessen the amount of bias that often results from unequal relationships established in formal interview settings. Each interview began with the participant sharing with me what was currently occurring in his or her life, before we commenced with the more formal conversation about childhood memories of Middle Creek's Roots & Shoots program, and perceptions of how the program influenced his or her adult life.

Five of the individual interviews were face-to-face and five were by video chat. They took place over the course of one week in settings chosen by the interviewees. The questions I designed for the initial interviews addressed not only what the participants remembered about their past Roots & Shoots experiences, but also what connections they saw (or did not see) between Roots & Shoots and their lives today.

Each interview began with a reminder to the participant about the primary goals for the program – to foster active citizenship and engage students to become more purposefully involved in caring about and taking action on behalf of their own community, as well as the larger global community. As a result, prior to answering any of the interview questions described in Chapter Three the program's goals were fresh in the participants' minds, and on a number of occasions participants in fact used the term "active citizenship" in their responses.

Participant reflections. At the close of each interview I told the participant to expect an email message from me in a day or two with one or two more questions, to which I wanted a written response returned to me by email. My email asked them to write reflectively about the additional questions and to return their responses to me by email before the focus group meeting (see Appendix D). All of the participants returned

their written reflections in a timely manner and I was able to review their responses prior to the focus group meeting. While a few of the reflections were brief and did not provide much additional information, others were very contemplative and in-depth. I was able to then use both the interview and reflection data to help formulate the questions for the focus group.

The focus group. After all the initial interviews were completed and transcribed, and I had reviewed the written reflections, I brought the participants together in a final focus group session to share experiences and memories, which took place in the home of one of the research participants. Nine of the ten participants were able to attend it, either in person or by Skype. The tenth participant, Ella, responded to the focus group questions later by email.

At that time I shared with the study group common themes I heard them say in the individual interviews, as well as the differences in perspectives individuals within the subgroups and between the two subgroups stated. I encouraged them to respond to, and provide feedback on, my findings and interpretations in order to help eliminate the possibility of misinterpretations, as well as to help me identify any hidden biases. I wanted to know if I had appropriately interpreted their narrative accounts from the individual interviews and if they were able to see their memories of Roots & Shoots experiences in those interpretations (Merriam, 2009). The focus group interview was conducted even more informally than the original individual interviews. I presented recurring themes I had noted from several of the interviews and then allowed the participants to freely discuss among themselves their current interpretations without

interruption.

It was during the focus group interview, in fact, that a spirited discussion of one facet of Middle Creek's program, Habitat Partners, occurred. Habitat Partners was an environmental urban-suburban partnership between fourth and fifth grade classes at Middle Creek School and classes in two urban schools in the northeastern part of the state. First implemented in 1997, the program ran through the spring of 2006, but was disbanded when the school's grade configuration changed to a five/six building in the 2006-2007 school year. The purpose of the program was to guide children from diverse communities to investigate together themes related to ecology and the environment, while developing relationships with each other through sustained, on-going interactions with the same partner for one to two years. While Haley and Walt maintained that the partnership was a highly influential aspect of Middle Creek's program, Dana asserted that it made her "uncomfortable," and the remaining participants in the focus group had little recollection of it at all.

As with the individual interviews, the focus group session was tape-recorded, transcribed, and coded to facilitate a more accessible search later for common themes and discrepant stories.

Email correspondence. Throughout the analysis phase of the project I often shared drafts of my findings with the participants, in an effort to ensure I was not misrepresenting their memories and interpretations. As my own interpretations of the data changed I continued to share drafts with them to confirm or refute the categories and themes (see Appendix F).

In addition, during this time period much email correspondence occurred between my advisor, members of my committee, and me. I continuously shared drafts and received feedback, both through conversation and email. Their feedback and my own written reflections were invaluable for me to interrogate my personal memories, biases, and preconceptions.

Reflective notes and journal entries. Throughout the process – both during the interview and analysis stage of the research – I maintained a research journal that provided me with a space to process the data, as well as work through personal biases and challenges that arose along the way (see Appendix E). Clandinin and Connelly (2000) caution that, as researchers, we need to be mindful of the researcher-participant relationship and how it affects the information recorded in the field, as well as the kinds of texts later created. From the moment I stepped into the first interview I was attentive to these interpretative factors as I analyzed and presented my findings. Consequently, the journal entries I maintained about interactions with participants included reflections on the interpretative and relational aspects of the data, as well as the external conditions that existed during each story's telling. After each interview I reflected on that experience, recording my immediate reactions and observations, from descriptions about what happened to notes on body language and facial expressions (Bogdan & Biklen, 2007). One entry remarked on the eagerness with which several of the participants shared their Roots & Shoots experiences and how vivid their memories seemed to be of events I had totally forgotten. Other entries took on a more reflective nature, personal musings that pondered and attempted to make meaning of what was transpiring. I was

surprised to learn, for example, how many participants commented on how significant it was for them to work with professional scientists in the Meadows & Trails. These early journal entries were where the “influence of inquiry-based science investigations” first came to light for me. Later entries interrogated myself in relation to my interpretations and reflected my ongoing struggle and frustration to “correctly identify and analyze” recurring themes illuminated in the data. These reflective entries were not ultimately used in the research texts, but were essential to the ongoing inquiry as “a way to puzzle out experience” (Clandinin & Connelly, 2000, p. 103).

Data Analysis

Analysis of the data began with the first interview, and I kept track of my initial thoughts, hunches, speculations, and questions both in my field journal and in the margins of the transcribed interviews. These were my early attempts to make sense of the interviewees’ responses, as well as to identify commonalities between responses. Although analysis started the minute I stepped into the first interview and was ongoing throughout the inquiry, moving from data collection – from close contact with the participants – to composing research texts was a complex and difficult transition. The process of reading and re-reading data, and beginning to write texts for publication, is a daunting proposition for even the most experienced researcher, and certainly was overwhelming for a novice like me. This was my first qualitative study and reliably interpreting the data was a particular challenge for me. As a result, I took many wrong turns along the way. I spent several months thinking the emerging themes were related to considerations of social justice and civic engagement, because that was my mindset

entering the research and what I had anticipated the findings would yield. It was not until deep into the analysis phase of the project – and with the assistance of critical friends and members of my committee – that I came to realize that the participants’ collective voices revealed much different themes – those related to place-based education.

As I transitioned from data collection to analysis I revisited the research question and attempted to review the transcripts with fresh eyes, making frequent notes in the margins of the texts about what popped out as particularly interesting or significant. As Anderson et al. (2007) write:

A comprehensive scanning of all the data in one or two long sittings provide some emerging patterns with which to begin the process of analysis. Take these initial emergent patterns and see what fits together, what converges. It is here that you begin to match, contrast, and compare the patterns or constructs in the data in earnest. (p. 215)

This archival stage of the interpretative process was when I sorted and organized the texts in order to learn what was generated. It was also where I made many initial mistakes. During this first inductive stage I began to identify what I thought were important ideas and themes, as well as contradictory trends, and to develop a list of descriptive categories that I hoped would allow for theory to emerge from the data more easily moving forward. After archiving, reading, and rereading what I had, I then began the phase of deeper interpretation and analysis.

This research primarily relied on constant comparative thematic analysis (Glaser & Strauss, 1967/2012; Merriam, 2009). In order to look for any common themes and

important confirming and disconfirming patterns, I coded the interviews and written reflections. The codes I developed relied on key descriptive categories, as well as significant phrases and memories about particular occurrences. I started by creating charts with the categories listed in the first column and each data set where the descriptive code occurred listed in the subsequent columns. This helped me better manage and organize the abundance of data I had collected, as well as attempt to interpret relationships between the data (Merriam, 2009).

In addition to analyzing elements within the data, I also looked at each individual interview as a whole story that could then be compared with other interviews and organized into general patterns or themes. How did the memories compare in relation to each other? What were the common interpretations of Roots & Shoots experiences being told by the participants? What were the participants saying about how their experiences influenced who they are becoming as young adults? The constant comparison of both the key categories and the stories as whole entities provided a basis for analytic analysis of emergent themes (Boeije, 2002).

Identifying themes and making meaning of the data in relationship to the themes was the greatest challenge for me in the research process. For the first seven months, after initially organizing the data into coded charts, I proceeded on the inference that the themes emerging from the participants' narratives revolved around civic responsibility in relation to issues of unearned privilege in a predominantly affluent, white suburban school. It was only with the persistent critique and prodding of my advisor and other members of my committee that I came to recognize these were not my themes at all.

Place-based learning was not a theme I recognized at all until I was many months into the analysis process. Not until I collated the responses of all 10 participants to the following three questions did I see what strong influences both the physical space and the experiential space the outdoor classroom had on them:

- *As you think about your life now, how would you describe it in relationship to the stated goals of Roots & Shoots?*
- *In any way did Roots & Shoots influence the way you currently think about your life – the things with which you get involved?*
- *Do you think your life would be any different if you had not been involved in Roots & Shoots?*

Their correlated responses to the three questions revealed how often each of the young adults referenced their Meadows & Trails' experiences and the recurring associations they made between the experiences there and the program's overall influence on their lives.

Further, there were many conflicting pressures that came to bear as I moved from raw data to research text. I was concerned about how to keep fidelity to the participants and their role within the research process, while also writing for a more removed audience. I was also mindful of how the published text would be situated within the literature. Finally, I was attentive to creating a research text that balances these conflicting pressures without becoming reductionist. If I composed without attention to the field experiences and texts I ran the risk of creating a fiction totally disconnected from experience, but if I composed without attention to my audience I risked losing the

significance of the broader story (Clandinin & Connelly, 2000). I was working with a small group of participants over only a short period of time. It was necessary for me to balance their personal memories and the emerging themes, without wanting to make generalizations about those themes. I was persistently conscious of the purpose of the study and continually reminded myself that, as in all qualitative research, while my findings might be transferrable, they were not generalizable.

Ethical Considerations

From the moment I selected my research topic to the day of the final dissertation publication ethical considerations imbued every aspect of the research process. Although the types of concerns I faced varied, depending on where I was in the process, they were always uppermost in my mind. As the former teacher of seven of the participants and the Roots & Shoots club advisor for all of them, I was keenly aware that the data presented would be filtered through my interpretations and perceptions of Middle Creek's programs addressed by the respondents. Consequently, my efforts to establish trustworthiness of the interpretations and analysis relied heavily on both consistent member checking and engagement with critical friends (Maxwell, 2005; Merriam, 2009).

Before I identified and reached out to participants, demonstration of compliance with the ethical guidelines established by the University (i.e. clearly defined research process, assuring anonymity, informed consent, etc.) was necessary. However, ethical matters did not stop there. As Anderson et al. (2007) point out:

While getting approvals can certainly be a significant part of beginning the research process, it should not be confused with the ongoing questioning that

researchers must pursue as the research develops, where we commit to continued interrogation of *ourselves* regarding what makes for ethical research in the sites in which we carry it out. (p. 134)

From positioning myself within the research to using multiple sources of information to continually searching for disconfirming evidence, it was critical to the research design for me to have structures in place that addressed both anticipated and unanticipated concerns, and to establish trustworthiness (Anderson, et al, 2007; Bogdan & Biklen, 2007; Clandinin & Connelly, 2000; Merriam, 2009, Morrow, 2005).

Reflexivity

The multiple lenses through which I view the world shape how I live my life as a human being; they compete for influence over my perspectives as an educator and researcher. Who I am; the journey I have traveled; the baggage I carry with me – all affect the research and stories I choose to use and how I choose to use them. I did not come to my study neutral and context-free. As Villenas (1996) asserts, “I cannot be neutral in the field . . . to take on only the role of facilitator is to deny my own activism. . . .” (p. 727). Rather, because I recognized my influence in the research process, it was essential for me to maintain transparency in my interactions with the research participants and myself (Maxwell, 2010).

Making visible my researcher stance provided insight into my interpretations, and created a point of reference for understanding others’ educational experiences. They were windows into my beliefs, my interpretations of theory, and how these beliefs and interpretations influence my educational practices. Pillow (2003) calls this positioning

of oneself within the research *reflexivity*. Throughout the process I continuously challenged myself to interrogate and critique the research itself in relation to who I was and where I came from through my field notes and reflective journaling. Fine (1992) asserts that researchers seldom acknowledge our own biases with our discussion: “That we are human inventors of some questions and repressors of others, shapers of the very contexts we study, coparticipants in our interviews, interpreters of others’ stories and narrators of our own, are somehow rendered irrelevant to the texts we publish” (p. 208). Yet, it was by positioning myself in relationship to my participants that I was able to better situate the research. Constant, penetrating assessment of my own, as well as my participants’ shifting positions, enabled me to be open to ambiguities, as I engaged in the research.

The young adults selected for this study were individuals I not only know, but several were my former students. We have had prior relationships and there was no question that preconceived power-relations had to be addressed. Although they are no longer students of mine, and I am not currently in a position of power in their lives, I am a former teacher and, as such, someone viewed in a role of authority. How much of what they said to me was out of deference to my position and what they thought I wanted to hear? Going into the interviews it was imperative for me to be conscious of and account for these potential dynamics, so that I was able to create an environment in which the participants felt comfortable disagreeing with and challenging me. One way I did this was to address the possible power relations at the outset of our conversations. I made my own positionality visible and reassured the participants that they did not have to share my

opinions about Middle Creek School or Roots & Shoots. In this way I hoped to assure the participants that nothing they said would be factored into any kind of future evaluation.

Finally, I had to be aware of my own long relationship with the Roots & Shoots program. I have integrated service-learning pedagogy into core curricula since I began teaching in Austin, Texas, and I first became connected to the Jane Goodall Institute more than 20 years ago, when I was teaching at another school in my current district. When I transferred to Middle Creek School I introduced Roots & Shoots to my colleagues and administration, and I am the individual who spearheaded the initiative to become a Roots & Shoots School in the earlier part of this century. I am invested in the program's success and my own favorable opinions towards Roots & Shoots run the risk of not only coloring my own interpretations of the data, but also influencing the informants' responses. As former students, they certainly knew my intimate connection to the program going into the interviews. I made my own positionality visible at the outset of the interviews and reassured the informants that they were not expected to share my opinions. I also was on guard against asking leading questions, which could prompt participants to make statements they would not otherwise make.

Further Considerations towards Trustworthiness

Ultimately ethics in research with human beings is about assessing the risks and benefits of the inquiry, and ensuring that its results do minimal or no harm to the individuals involved (Anderson et al, 2007). When I first envisioned this project I could not imagine how the stories the participants might share with me could bring harm to

anyone. However, as I progressed through the data collection I recognized that what gets privileged and what gets left out of the final research texts might potentially affect participants' feelings and sense of self. Am I conveying the spirit of the stories they envisioned in their telling? I had a responsibility for and consequently need to be attentive to the stories that made it into the published dissertation (Schubert, 1991).

I knew it might not be possible to make the research design 100% foolproof, but there were structures I did put in place to consistently interrogate myself and establish an environment of trust. As I previously described, the interviews were structured more as dialogues than interviewer/interviewee format, and I sought to diminish the potential power relations previously discussed by creating a safe environment where we were equal partners.

One key element of the design was "member checking" through both discussion and written communication (Anderson et al., 2007, p. 153). In an effort to establish interpretative validity, I shared my preliminary interpretations with the participants when we met in the focus group session, asking them if I had appropriately captured their narrative accounts from the individual interviews. The focus group session also provided them with an opportunity to add additional information that had arisen since the initial interviews. In addition, the focus group session was a time for participants to have conversations with one another about their Roots & Shoots experiences, as well as to provide me with feedback about my interpretations. I was a participant in the conversations, but I did not lead them.

Because the participants are directly quoted in this dissertation, I often shared drafts with them via email to solicit feedback in an effort to ensure that I was not misrepresenting their responses. As the emerging themes evolved and changed I again reached out to the group members to ask them if the themes and categories still made sense to them. Although there was frequent email correspondence with the participants throughout the process, at no time did any of them state I had misrepresented them, even when it turned out that the themes initially identified were not reflective of the data as a whole.

As has been repeatedly emphasized throughout this chapter, critical self-reflection and journaling were vital instruments used to address issues of bias, power relationships, research choices and explanations, and to establish trustworthiness throughout each step of the process. It was only through journaling – and a conversation with former professor, Jerry Schierloh – that I came to realize that all of the *little* themes I had previously identified fell under the broader umbrella of place-based education.

Not only was trustworthiness critical as I worked with the participants, but it was also paramount to the validity of the overall research. Clandinin and Connelly (2000) emphasize that, “we also owe care and responsibility to a larger audience, to the conversation of a scholarly discourse, and our research texts need also to speak of how we lived and told our stories within the particular field of inquiry” (p. 174).

Triangulation – multiple forms of information – was one safeguard I used to diminish the risk of faulty interpretations and make my research texts more credible (Merriam, 2009). Conducting interviews, both individually and in groups, administering questionnaires,

and reviewing written reflections were all used in the interpretations of the participants' stories.

Throughout the research process I made a conscious effort to search for data that could contradict emerging findings and themes. I actively sought discrepant stories about the influence Roots & Shoots experiences had on the participants' journey into adulthood (Booth, Carroll, Ilott, Low, & Cooper, 2013; Morrow, 2005). I then compared these diverse interpretations in order to unpack their complexities and avoid overly simplistic data analysis, as well as to combat personal bias. Although little disconfirming evidence surfaced with this particular group of 10 participants, there were two instances in which discrepancies occurred. The first was that a few of the participants perceived the richness of their Middle Creek experiences was dependent on who they had for a classroom teacher. As both Ria and Jack stated, how often students were able to go outside to learn science or how often Roots & Shoots concepts were woven into the core curricula really depended on whether or not the teacher wanted to include it or not. By actively seeking discrepant stories, I also became aware of Dana's singular voice emphasizing aspects of Middle Creek's program related to the human society. This was not an element as emphasized in the other nine participants' stories. It was only by bringing together the different narratives and placing them in juxtaposition with one another, that I was able to see the disparate interpretations. In addition, as Booth et al. (2013) advised, I methodically and persistently used reflexivity throughout the analysis to ensure that the findings were consistently scrutinized and my researcher subjectivity acknowledged. Finally, as I progressed through the data collection and analysis, I continued to search the

literature, looking for references that emphasized contrasting perspectives. Although I strenuously searched for disconfirming evidence, it will be seen in Chapter Four that little emerged related to the research question that drove this study.

Another safeguard I employed to contribute to the inquiry's trustworthiness was using *critical friends*. As Anderson et al. (2007) explain, critical friends are individuals who are "willing to push on the researcher's assumptions, biases, and understandings" (p. 153). My critical friends were colleagues, other doctoral students, and a former professor who were willing to read, question, and challenge my interpretations. I relied on them to review my transcriptions and other written material for any biases and assumptions, and then to provide honest feedback. I did receive some *critical* feedback from these individuals, especially throughout the writing process. For example, one *critical friend*, who was also a doctoral student, responded to my first findings draft and pointed out that the overall theme in the data appeared to be the influence of Middle Creek's Roots & Shoots program had to nurture science enthusiasts and a love of the environment in general. His critique that the sections about privilege and agency were confusing and he had difficulty understanding how the different threads wove together made me reexamine the draft with new eyes. In addition, around the same time I had a conversation with my former professor, Jerry Schierloh, who suggested reading some scholars on place-based pedagogy. It was at that point when I came to recognize the predominance of place-based learning in the data. However, it was my advisor and other members of my committee who most pushed me to consistently revisit the data and move from "general

assertions” to a more complex presentation of the themes that reflected the collective voices of this group of participants.

Limitations of the Study

No research is free of limitations, and there are reasonable critiques that will be made of this study. The first is that I studied the experiences of students in only one school. Unfortunately, to my knowledge there is only one freestanding Roots & Shoots school in the United States, and it was the focus of this study. When we first became a Roots & Shoots school in 2004, there were also two magnet middle schools within larger urban middle schools with which we shared the distinction. Since that time, I have been told that the teacher leaders of those two programs have retired and one of the schools’ integrated Roots & Shoots programs has disbanded. That knowledge further motivated me to pursue this research and uncover the long-term impact on former participants’ lives.

A second limitation of this research was the small group of participants in comparison to the number of students who participated in the school’s Roots & Shoots program over the years. This is a conscious choice I made in order to delve deeply into the participants’ stories of experience and attempt to provide a richly nuanced interpretation of what Roots & Shoots means to them. A future study might want to expand the number of participants, as well as delve more deeply into the experiences of students from different time periods in the program.

Finally time was a definite limitation in this study. The interviews and collection of artifacts took place over a one-month time period. Although there were two interviews with all participants (including the focus group session), if more time had been available I

would have been able to more fully plumb the depths the participants' stories of experience. However, it was the amount of time available for this research and a parameter within which I had to work. Again, a future study, with longer engagement, might lead to even deeper understandings.

Participant Profiles

In order to contextualize the data analysis and subsequent discussion, before exploring the themes that emerged from their interviews and written reflections, I am presenting a brief profile of each of the 10 young women and men who participated in this study. Drawn from information shared with me during the interviews, these profiles are designed to provide snapshots of the individuals – introductions to who they are today and what is currently going on in their lives, glimpses of their Middle Creek Roots & Shoots experiences as young preadolescents, and my relationship with each participant. As will be seen from the profiles, their level of involvement with service-related experiences ranged from volunteer work to more critically informed activism at the time of the study.

The Participants

Allen. One of the founding members of Middle Creek's first Roots & Shoots Environmental Club, Allen was a 26-year-old film editor, working mostly on documentaries and occasional animation video art work. He was the oldest member of the research study group. Although currently not directly involved in any service-related activities, Allen saw his work as service-related. Many of the documentaries deal with such social issues as prisons and prison reform, tin mining in Indonesia, and the BP oil

spill. By telling the human stories of what is happening in society Allen viewed his work as having a greater purpose than simply providing entertainment. As he reflected when we met:

Documentaries in general tend towards these topics. . . . To be a documentary film editor I'm the one who's at the front lines of shaping how the story develops and how it plays out. So it's really the end process where I get to work closely with the directors and it's very creative.

Although not one of the students in my class, I remember Allen as a committed fourth and fifth grader, who took his club membership very seriously. As a student in the earliest days of Middle Creek's Roots & Shoots program, he was the fifth grader who proposed the name for the school's environmental club, which was quickly adopted by his peers and remains in use today. Even after leaving Middle Creek, Allen frequently returned throughout middle school and high school to participate in walk-a-thons, backyard workdays, in-coming parent orientations, and the annual Forest Fest. He was one of the alumni students to return and host Jane Goodall during both of her visits to Middle Creek. Upon his graduating from high school and entering college, I lost track of Allen until I reached out to him to participate in this research project.

Ella. A 24-year-old registered dietician, Ella was my student for two years, in a fourth/fifth grade looping class. In addition, she was a member of the school's environmental club, and actively involved in and out of class, planning and participating in a variety of Roots & Shoots projects and events. She was one of the students to travel into New York City in 2001 to personally hand Jane Goodall the \$4000 check from our

class' cookbook sales. Upon meeting Jane that evening, Ella seized the opportunity to invite her to our school, and got the ball rolling for a 2002 visit that became a significant turning point in Middle Creek's Roots & Shoots evolution. Although actively involved with Roots & Shoots as a Middle Creek student, Ella did not return often to participate in Middle Creek's Roots & Shoots events after moving on to middle school. I had little contact with her until this study began.

After receiving her BS in dietetics, with a minor in biological sciences, Ella went on to complete a dietician's internship and now works as a clinical dietician at one of the area hospitals. In addition she offers wellness counseling to the employees of one of the pharmaceutical corporations, and has launched her own private practice. In spite of her active workload, Ella volunteers her time conducting weight management seminars at the local community center and is a "wellness champion" at the hospital where she is employed.

Haley. Haley and Ella were classmates in the same looping class in fourth and fifth grades, and involved in many of the same Roots & Shoots experiences. I remember Haley as the peacemaker, not only in the classroom but also at such Roots & Shoots activities as backyard workdays and Forest Fest. Whenever there was conflict between girls, it was Haley who consistently tried to bridge competing sides and calm raw emotions. Her involvement with Roots & Shoots extended beyond the two years she attended Middle Creek, as she and her family continued to return every year until her high school graduation to coordinate and run the café at our annual Forest Fest. As with

Allen and Ella, I lost touch with Haley and her family after she moved on to college. It was only when I began this research project that we reconnected.

Possessing both a captain's and scuba instructor's licenses, as well as a degree in marine science, Haley is an oyster restoration specialist for the Chesapeake Bay Foundation (CBF) in Virginia. A nonprofit organization, with two full-time staff and many volunteers, CBF's primary mission is to return oysters back to the rivers and sanctuary reefs in the area. Haley expressed a love for her job, both because she felt she was making a difference and because "no two days are the same." Some days she can be found coordinating volunteers to pick up recycled shells from local restaurants, to be used to attach spat-on shell oysters (baby oysters) before returning them to local rivers. On other days, Haley can be found working with volunteers to create 120-pound concrete reef balls for oyster larvae to attach to and then get placed in rivers and sanctuaries. In her free time, Haley volunteers helping out at a local no-kill cat shelter, an activity she finds especially rewarding.

Jack. Jack was also at Middle Creek School the same years as Haley and Ella, but was not a member of their looping class, and had other fourth and fifth grade teachers. Currently he runs his own full-service design firm, providing a range of services to customers, from graphic design to printing. Whenever possible, he encourages his customers to opt for eco-friendly paper and other products when placing orders, and devotes 10% of every purchase to specified charities. He is particularly concerned about environmental issues, and much of his free time is spent with his girlfriend, volunteering within the community and surrounding area. Their efforts include removing invasive,

non-native plants from a 2,740-acre park in Central New Jersey, participating in river cleanups, and returning to Middle Creek School to assist at Forest Fest and occasional backyard workdays. During our interview, Jack voiced a deep commitment to his volunteer activities:

We need people to start volunteering to maintain these environments.

Without these areas we wouldn't be able to see the animals or the plants that are native to this area. People volunteering really help keep that around, because there's not enough money to keep all this area available.

My memories of Jack are of an energetic fourth and fifth grader, who could sometimes be unfocused until we got out into the outdoor classroom. Backyard workdays were times when he would shine. The strongest mental picture I have of those days is of Jack driving around the outdoor classroom on a mini-tractor, delivering a wagon of woodchips to various areas of the site for trail maintenance. His active fourth grade involvement led him to become the chair of the fifth grade Executive Council. Even after leaving Middle Creek, Jack and his family consistently volunteered their time at Forest Fest's snake booth, and since high school graduation he has returned for many backyard workdays. Consequently, I have had periodic contact with Jack over the years.

Dana. Two years younger than Ella, Haley, and Jack, Dana was a 22-year-old graduate student, studying for a Master of Occupational Therapy, a field of study she chose after returning from a trimester in Uganda as an undergraduate. Her conversations with the occupational therapist (OT) at a special needs Ugandan orphanage opened her eyes to the way an OT can take a "holistic, hands-on approach to healing." She returned

from the trimester abroad, having made the decision to change the direction of her studies from pre-med to OT, and to one-day return to that Ugandan orphanage to work with the young people there.

Dana chose both undergraduate and graduate institutions based on the service requirements each school had. As an undergraduate, she worked primarily with a local soup kitchen and food bank, as well as raised awareness on campus about issues related to homelessness. In addition, she participated in two service trips, one to Syracuse, New York, and the other to New Orleans, before her trimester in Uganda. Her current program requires that she conduct a needs assessment of a community facility and implement a project using OT skills to create access to services for members of the community that might not otherwise have access.

The two years Dana was a fourth and fifth grade looping student at Middle Creek School were pivotal years in the school's Roots & Shoots evolution. Jane Goodall visited the school for the first time in 2002, when Dana was a fourth grader, and the subsequent year the school began the application process to become a Roots & Shoots school. As a member of both my fifth grade class and the Roots & Shoots environmental club, Dana was one of the student leaders involved in the application process, making a presentation to the district's Board of Education, as well as contributing to the written application submitted to the Jane Goodall Institute (JGI). Because of the involved application process, JGI staff frequently visited the school throughout the year to work with Dana and her classmates. She remained connected to Middle Creek's Roots & Shoots programs throughout middle school and high school, returning each year to participate in

a variety of events. Since she left home for college I had not been in touch with Dana until this study began.

Ava. Ava was the oldest member of the college-age subgroup and was in her third year at a New England university, majoring in biology, and brain and cognitive sciences. In addition, she has maintained a part-time research position at the university, examining the mechanisms behind learning and memory.

When not attending classes, studying, or working, Ava was engaged with the campus chapter of a national organization that focuses on mental health awareness and reducing the stigma around mental illness. She was drawn to the organization in her freshman year because of the prevailing attitudes that she saw the university students had about mental health issues and the overwhelming pressure to be perfect. It was an attitude she wanted to change, and before she knew it she was planning events and organizing conferences among other schools in the area. By her sophomore year she was the organization's campus president, work she found both taxing and rewarding:

It's nice when you talk to somebody and they realize your goal, and they want to do anything they can to help. So those are some of the more rewarding moments, and when people just are happy that somebody is starting that conversation. It can get overwhelming at times, but it's an overwhelming positive experience.

Although Ava was involved in both classroom and club Roots & Shoots' experiences as a fourth grader, I did not get to know her until she was in my fifth grade class – the same year Jane Goodall returned to Middle Creek to launch us as an official

Roots & Shoots School. A quiet, studious individual, I remember conversations with her mother that year about how to encourage her to develop more leadership skills before moving into middle school. Over the years since fifth grade, she showed herself to be a leader on numerous different occasions. In middle school, she returned to Middle Creek to implement her Bat Mitzvah project by organizing fourth and fifth graders to create a new outdoor garden; and then in high school she returned again for her Girl Scouts' Gold project. At that time she organized a group of students to create an informational booth for Middle Creek's International Bazaar about educational issues in other parts of the world. Since that time my only contact with Ava before this study was when she and Mark stopped by to visit over the winter break of her freshman year of college.

Mark. A fifth grade classmate of Ava's, Mark was a junior in college, studying electrical and computer engineering when I interviewed him. In addition, he worked in the IT department on campus, assisting with customer service and web development. It was a job he found especially rewarding, saying that between both his academic and practical experiences he was totally immersed in computer work.

In spite of the full workload, Mark found time to participate in the campus Catholic Service Group and had served as the service chair on the student executive board since his sophomore year. One service event he organized for the organization was the Hunger Banquet, which explored wealth distribution, both in the local community, and on a global scale. Participants in the event were divided into three groups and then fed according to their income. He explained, "There were three people who got a three-course meal, five people who got a normal plate of food for dinner, and then 10-15

people who got a bowl of rice.” After the simulation, everyone ate a “regular meal” and discussed the relationship between poverty and hunger with a guest speaker. Mark expressed a strong commitment to his service activities, stating that it was important to him to “teach people to be good leaders and then use that quality to serve the community.”

Mark was primarily involved in Middle Creek’s Roots & Shoots program as one of my fifth grade students. As he reminded me in our interview, he was not a member of any of the clubs and the only extracurricular activities in which he was involved were the backyard workdays. However, he was a frequent workday participant both as a Middle Creek student and in subsequent years. He said that it was because he felt such a strong connection to Middle Creek’s schoolyard habitat that he was motivated to return as a high school senior to complete his Eagle Scout project there, to expand the evergreen forest and design a new study circle. Consequently, I have had occasional contact with Mark over the years.

Walt. A year younger than Mark, Walt was a college sophomore at the time we talked, pursuing a degree in religion, with a minor in environmental studies and a creative writing certificate. He shared that many of his university pursuits reflect an intersection between the arts, service, and the environment. One ongoing endeavor taking up much of his nonacademic time was his work on an independent radio program, where he interviews both professors and activist groups about environmental issues. He described a recent piece he had done about new vegetarians and what it was like for them to not eat turkey for the first time at the Thanksgiving holiday. Another commitment taking up much of Walt’s time was a campus poetry group that holds workshops for middle school

students in Trenton, as well as weekly sessions in prisons, where people are provided with outlets to talk about themselves in ways that “they don’t think they’re able to talk about.” He found both the environmental news program and the poetry group rewarding work, because he enjoyed the opportunities to bring his passion for creative writing together with his desire to “want to be worth something.”

Walt was an active fourth, fifth, and sixth grade participant of Middle Creek’s Roots & Shoots program, both as a student and as a club member. A fifth grade student of mine, he had other teachers for fourth and sixth grades. During our interview he shared vivid memories of those young pre-adolescent experiences and talked extensively about projects with which he had been involved both in the schoolyard habitat and for Forest Fest and other events. He clearly remembered organizing an anti-Styrofoam campaign for Forest Fest, to make people aware of the Styrofoam trays used in the school’s cafeteria and educate the public about the consequences of its continued use.

In the years after leaving Middle Creek, Walt occasionally returned for special Roots & Shoots events, and in the summer before his senior year of high school he completed his Eagle Scout project in the schoolyard habitat. The project was to redesign a bird watchers’ garden that he and his twin sister had created as fifth graders, to make it more sustainable for ongoing maintenance. His project also included the construction of an outdoor kiosk that traced the photographic history of Middle Creek’s Meadows & Trails on one side and provided bulletin board space for public notices on the other. Because it was only Walt’s second year out of the Brookedge school district, my contact with him had been more recent than with many of the participants previously described.

This was also true for Jamie, who was the same age as Walt, and Ria, who was a year younger.

Jamie. Jamie was a sophomore at a New England university, studying critical psychology at the time of this study. She was particularly concerned about inequities in the criminal justice system, and we spent a significant portion of her interview discussing her perspectives on the “politics of crime” and how it affects different demographic groups, as well as the need for systemic prison reform. Jamie shared that much of her time out of class was devoted to two service-related enterprises: the local chapter of CLIPP (Civil Liberties in Public Policy) and Dance in the Community. While CLIPP focuses on reproductive justice, Dance in the Community combines dance and community engagement. She described taking the Dance in the Community project to such community facilities as rehabilitation programs for young female offenders, ages 13-17, and conducting movement workshops with the adolescents. Expressing a deep commitment to both endeavors, she was especially articulate about the movement workshops, which she saw as positive vehicles for individuals who were “trapped in negative environments” to express and begin to heal themselves.

As a fifth grader in my class, Jamie was already a passionate young person. In fact, it was Jamie and a fellow classmate who first introduced me to the inhumane conditions of large-scale puppy breeding facilities, known as puppy mills. Their service-learning project that year was to wage a community campaign, raising awareness about the issue and encouraging citizens to adopt from the local animal shelter, rather than buying puppies from pet stores that often get their “stock” from these breeders. Because

of the girls' efforts that year Middle Creek developed an ongoing partnership with the local shelter which continues today.

I occasionally saw Jamie in the years after she moved on to the middle school, as she periodically returned for Forest Fest, and other community-based Roots & Shoots events. She worked in the after-care program housed at Middle Creek School during her senior year of high school, and our contact for that year became more frequent.

Ria. The youngest member of the study group, Ria was in her first semester as a freshman at one of the state universities, majoring in English and Secondary Education during the study. She hoped to become a middle school English teacher upon graduation. Because she was a soccer player and coached a girls' soccer team throughout high school, she continued to work at a local soccer store when she came home for breaks.

One of Ria's first semester college requirements was to participate in "Community Engaged Learning" and her service assignment was to provide campus tours for sixth grade students from Trenton Schools. The goal of the project was to "warm them up to college and say that it was something they could achieve." She chose that specific service experience because of her love of middle-grades children and goal to one day teach them herself. She talked about how her experiences as a Middle Creek teacher's aide with my sixth grade classes her senior year of high school influenced her to want to work with that age group in her career.

Ria was not one of my students when she attended Middle Creek, and my only contact with her was through the Roots & Shoots clubs. I did not get to know her very well until she returned to the school as a teacher's aide her senior year. As my intern, she

was a hard-working, industrious individual who was actively involved in the life of the school community, both during her assigned hours in the school day and returning for many evening and Saturday events.

Summary

This study utilized a qualitative research design to explore the lasting impact Middle Creek's Roots & Shoots program had on 10 former students. Data for the study were collected through individual interviews of the young adults, as well as through a focus group interview and written reflections. Ranging in age from 18 to 26, there were six female and four male members of the study group who were involved in the school's program as fourth, fifth, and/or sixth grade students. The individuals' responses were then analyzed and themes identified in an effort to uncover and discern the significance childhood place-based, service experiences might have on young people in the long-term.

CHAPTER FOUR – FINDINGS

Introduction

The teachers at Middle Creek Intermediate School set out to create a Roots & Shoots program that fostered respect for others – human and nonhuman – and encouraged civic participation within the community. Did the model we created not only achieve our goal in the short term, but also make a lasting impact on the students it touched? Did it, as Jamie remarked, “set a precedent and open the door to community engagement in very practical ways” going forward in in their lives?

This chapter presents findings about the long-term effects of pre-adolescent involvement in the Roots & Shoots program at Middle Creek Intermediate School, and how the experiences influenced the same individuals as young adults. The findings are drawn from individual and focus group interviews conducted with the 10 participants described in Chapter Three, as well as reflections written by them and myself after the interview sessions. All of the participants in the study revealed themselves to be multifaceted, complex people who possessed strong views about society and their future in it. Their responses portrayed young adults who had vivid memories of their Roots & Shoots experiences, and strong conceptualizations of learning, citizenship, and civic engagement. Throughout our interactions each person spoke favorably about Middle Creek’s Roots & Shoots programs, however there were varying views on the long-term impact of their experiences. When asked if their lives would have been significantly different had they not been involved in Middle Creek’s programs six of the participants spoke with conviction about a clear, direct influence at a young, impressionable age. A

love of science, respect for the environment, community engagement and activism, global awareness, and leadership skills were qualities highlighted in both their interviews and written reflections. The remaining four participants spoke more about the impact of the programs in relation to other influences in their lives, such as scouts and church activities; and two of them, in fact, acknowledged that, until contacted Middle Creek's Roots & Shoots program was not something they thought about in their everyday lives. As Allen stated, when we first met, "Whether or not it's traceable directly to this one source is maybe unclear, but I do believe there is a factor, because it, along with other things, has brought me to this point."

As was previously described, Roots & Shoots is more of a philosophical approach to service-learning and civic engagement than a packaged curriculum, and the Jane Goodall Institute does not prescribe a specific program design (Johnson et al., 2007). Middle Creek School's after-school environmental club first became a member of the Roots & Shoots network in 1996, and by 2000 many of our school's teachers had woven its principles into the existing core science curricula. Using the Roots & Shoots model as our guide we created a program distinctive to our school and its needs. Nine of the 10 participants interviewed most often referenced features connected with the school's local environmental program described in Chapter One – Middle Creek's Meadows & Trails (the seven-acre schoolyard habitat and outdoor learning center), Adopt-a-Spot, backyard workdays, and Forest Fest.

Place-Based Learning

Going into this research I originally anticipated that the primary influence of Middle Creek's Roots & Shoots programs would be to cultivate engaged citizenship, young adults who are actively involved in community affairs, whether their actions were on behalf of the human society, other animals, or the environment. While civic engagement was a key concept to emerge from my conversations with the participants, its persistent association with their outdoor learning experiences was unexpected. I did expect the outdoor classroom to have had limited influence on the members of the study group; I did not anticipate how prominently it factored into their memories and interpretations. Every one of the participants spoke about the influence the schoolyard experiences had on them beyond their pre-adolescent years attending the school, and nine of them viewed Middle Creek's Meadows & Trails – both the physical place and the experiences they had there – as the greatest lasting influence on their lives. Only Dana spoke of other program features that were more influential than the outdoor classroom, and even she emphasized its significance in relation to current academic pursuits.

Although none of the respondents expressly used the term “place-based learning” their reflections mirrored the guiding principles of place-based pedagogy identified in Chapter Two – using the local community as contexts for learning, student-driven, inquiry-based instructional approaches, and civic engagement with the community. During both the individual interviews and the focus group session all 10 young adults talked to varying degrees about two ways in which place-based learning influenced them in the long-term. As I had anticipated, the experiences inspired sustained civic

engagement (personal and communal actions to address problems within a community), but unexpectedly, the experiences also planted the seeds for ecological literacy (recognizing and understanding how even the most seemingly inconsequential human behaviors impact the natural systems of our planet).

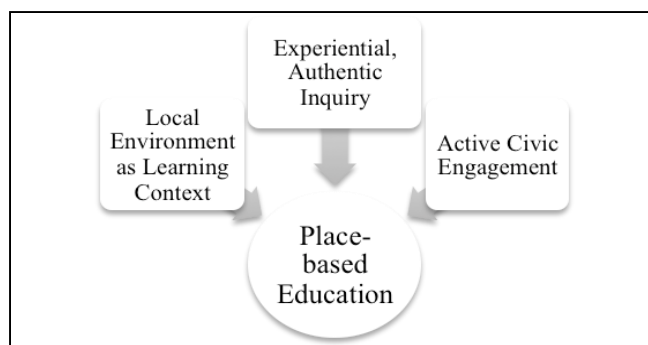
I begin by elaborating on what I mean by place-based learning, as it pertains to the context of this study, and then go on to elaborate on the three key place-based dimensions referenced by the participants: using the local environment, authentic inquiry, and civic engagement. I conclude the chapter by examining how experiences in Middle Creek's schoolyard planted the seeds for adult ecological literacy and inspired sustained civic engagement. There are three major components of the findings in each of the sections: 1) the evidence itself; 2) my interpretations and discussion of the evidence; and 3) links to the theoretical framework upon which the interpretations rest. The respondents' own words (the evidence) are used throughout the chapter to illustrate how the group as a whole made sense of those experiences, and the quotes selected represent their collective memories of the links they saw between Middle Creek's programs and who they are today.

Throughout the interviews and written reflections all of the participants in this study consistently recalled memories of learning environmental science in the school's outdoor classroom, Middle Creek's Meadows & Trails, and attributed their pre-adolescent experiences in that setting as at least partly influencing whom they were as young adults. For some their adult activities were directly linked to actions on behalf of the environment; for others, efforts targeted societal concerns; however for all, Middle

Creek's Meadows & Trails played a prominent role in their discussion of their adult views on ecological literacy and civic participation.

By “place-based learning” I mean using the local environment – both the physical space and the experiences that occur there – to learn academic content and develop a meaningful personal connection with the natural world. Rather than transmitting knowledge about such far-away ecological concepts as tropical rainforest destruction, concepts that are distantly removed from a child's schema, place-based pedagogy accentuates first learning through and in relation to the local environment (Sobel, 2005). Grounded in the philosophies of Dewey (1938/1997), place-based pedagogy emphasizes three key dimensions: pushing instruction beyond the walls of the classroom to the local environment; experiential, authentic inquiry; and active civic engagement. Because experiential learning plays such a central role in place-based curricula, abstract concepts are consistently taught through distinct, concrete experiences in the local schoolyard and community.

Figure 4.1: Dimensions of Place-Based Learning



One of the core theoretical underpinnings of place-based learning is that the local environment and the social environment of a community interact together to shape one

another (e.g. Orr, 1992; Powers, 2004; Smith & Sobel, 2010; Sobel, 2005; Sugg, 2013; Tolbert & Theobald, 2006). By adapting curricula to local conditions and issues, and working with members of the broader community to provide students with authentic, hands-on, real-world experiences, schools become what Sobel (2005) calls, “players in the community ecosystem” (p. 17). What I mean by this is that when a school develops meaningful partnerships with community members and agencies, and tailors authentic classroom experiences that lead to a genuine benefit for the community, it is creating learning environments in which the school and community are working together to nurture the developmental growth of the child, not only for the future, but for the here-and-now, too. The learner becomes a participating citizen, a contributing member within her community, rather than an outside observer, as is typical in traditional education. As Sobel (2005) asserts, “We’re not preparing students for tomorrow, we’re preparing them to solve the problems of today. You don’t learn ecology so you can help protect nature in the future. You learn so you can make a difference in the here and now” (p. 18).

While today’s children may seem sophisticated about global environmental issues and are able to recite how many acres of rainforest are disappearing daily, in most US schools they have much less actual contact with the land than previous generations (Stiles & Hudson, 1997). Place-based learning seeks to change that paradigm by providing students with direct experiences within their local natural settings. Whether wooded acres or vegetation growing between cracks in the sidewalks, the schoolyard becomes the space for children to work together to begin to understand and appreciate the concepts of biodiversity. The spaces provide learners with opportunities to focus the concepts on a

small scale, in a context that is meaningful and manageable, and serve as the framework for children to recognize the value of biodiversity in their own backyard before applying their learning to the needs of ecosystems everywhere.

As I described in Chapters One and Two, during the years the participants attended Middle Creek School place-based pedagogy was most noticeably infused throughout our science curriculum, as well as in the extracurricular Roots & Shoots clubs. However, because Middle Creek was an intermediate school and the teachers taught self-contained classes, they often took a multidisciplinary approach to science instruction. Rather than teaching science as an isolated discipline, they emphasized that language arts and mathematics were the tools needed to learn about the natural world around us. Thus, while the conceptual content being learned was science-based, the tools utilized to learn that content involved reading, writing, and mathematics.

Middle Creek's Meadows & Trails served as a living laboratory for the students to concretely explore such ecological concepts as life cycles, ecological patterns, the function of systems, and the effect of human actions on the environment. By investigating first-hand the niche of organisms within the surrounding ecosystem, the schoolyard became the lens through which the students could directly view these complex concepts and issues before applying their learning to the larger, global context. Middle Creek's program embodied the three key dimensions of place-based pedagogy reflected in the literature: using the local environment to cultivate a sense of connectedness, authentic inquiry, and civic participation. While emphasis of the three highlighted place-based dimensions differed between participants, all 10 noted that it was

the facets woven together that made Middle Creek's program memorable and potent. They remembered the experiences as being relevant, tapping into their personal interests, and making them feel connected to something bigger than themselves. Throughout our meetings and correspondence the participants consistently talked about the impact of Middle Creek's Roots & Shoots program in relation to their experiences in the outdoor classroom. When sharing memories and reflecting on their value, they repeatedly used such expressions as "developing a love of place," learning to "do science" in their Adopt-a-Spot projects, having "freedom to take control of learning," and feeling like they were "making a difference" in the life of their community.

The next three subsections address each of the components raised by the participants, using their own words to further elaborate their perspectives. Before moving into the subsections, Table 4.1 is presented as a snapshot of the dimensions emphasized by each participant. It is meant to serve as a quick visual reference of the frequency each dimension recurred in the data. From the table the reader can see that all of the participants spoke about the value using the local environment had on fostering a bond with nature, eight of them highlighted their outdoor inquiry-based learning experiences, and nine of them reflected on the opportunities they had in the Meadows & Trails to feel like they were helping the environment, and as Haley said, "making a difference."

Table 4.1
Place-Based Dimensions and Participant Responses

Dimension	Participant									
	Allen	Ella	Haley	Jack	Dana	Ava	Mark	Walt	Jamie	Ria
Using the local	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Inquiry		✓	✓	✓	✓		✓	✓	✓	✓
Civic Engagement	✓	✓	✓	✓		✓	✓	✓	✓	✓

Using the Local Environment to Foster a Bond with the Natural World

One key feature of Middle Creek’s Meadows & Trails repeatedly emphasized by the participants was its capacity to nurture a love of nature. They spoke of their schoolyard experiences as opportunities to become more connected through their senses to the natural world around them and see the interconnections between humans and animals and the environment. They talked about how the program helped them better view themselves in relation to ecological communities right out their backdoor.

Walt reflected that his Meadows & Trails experiences “fostered an intense love of place” that has stayed with him throughout his life and in some measure influenced his current career path. He reflected what Louv (2008), Sobel (1993; 1996), and Wells and Lekies (2006) assert – that childhood experience in nature have a direct impact on adult attitudes about nature and the environment later in life. Walt and others’ reminisces of their Middle Creek schoolyard experiences were consistent with what Wells and Lekies learned from a 2006 interview study with 2,000 adults, ages 18-90 – childhood involvement with “wild nature” had a direct positive effect on adults’ environmental attitudes (p. 13). The same factors that were revealed in a number of studies about what most contributed to environmentalists’ core environmental values – sustained time spent

in the outdoors and adult role models who nurtured a love of nature – were also apparent throughout the study group’s recollections (Sobel, 1996). As Sobel (1996) stressed, “What’s important is that children have an opportunity to bond with the natural world, to learn to love it and feel comfortable in it, before being asked to heal its wounds” (p. 13).

Ria was perhaps the most vocal about the relationship between her experiences in the Meadows & Trails and her feelings for the environment now. She viewed the opportunities to go outside as a Middle Creek student as the times when she had direct contact with nature and were experiences that were “personal and meant something” to her. She talked about how special it was for her to “adopt” an area of the outdoor classroom and “claim something as my own and watch it grow over time.” She explained that to sit “under the shade of the trees” and just be quiet with nature, she could hear the wind and the birds. Those experiences fostered for her a respect for nature that has never gone away.

Both Walt and Ria supported Sobel’s (1993) argument that, “Developing this sense of place depends on the previous bonding of the child to the nearby natural world in middle childhood. The sense of place is born in children’s special places” (p. 161). Some of Walt and Ria’s “special places” were in Middle Creek’s Meadows & Trails; “special places” which led them to make stronger lifetime connections to nature and ecological understanding. In these participants’ eyes place-based learning took them beyond the walls of the classroom to the “out of doors to the garden, surrounding fields, and forests” (p. 37), as Dewey (1899/2009) recommended, and used the local natural environment as the preferred classroom for bonding with the natural world.

The participants' responses consistently reflected both Louv (2008) and Sobel's (1996) assertions that the middle years of childhood (ages 9 to 12) are critically important for making emotional connections to nature, because it is a time when children are most curious about exploring and defining their own worlds. Middle Creek's Meadows & Trails were learning laboratories in which the respondents came to see themselves as a part of nature, not separate from it. Allen captured a common perception about using the schoolyard to learn such ecological concepts as human and environmental interdependence when he stated that through his experiences there he came to understand that, "we are intimately linked with the spaces and the environments and the living creatures around us." The natural world right out their backdoor was an ecological community in which they were all members. The space created an ongoing intimacy with nature by directly connecting the pre-adolescents to the natural world, and providing them space to explore their own backyard ecosystems before studying more remote systems from which they were distantly removed.

Authentic Scientific Inquiry

Authentic inquiry, in the participants' case scientific inquiry, was the second key dimension highlighted by eight members of the study group, and consistent with the literature on place-based learning (Smith & Sobel, 2010; Theobald & Curtiss, 2000; Tolbert & Theobald, 2012). Rooted in constructivist learning theory and embracing a Deweyan perspective, the program was perceived to have provided the young adults with recurrent experiences of becoming active investigators in the learning process. They were producers, rather than consumers of knowledge, constructing new scientific

understandings through experiences in which they were able to address prior beliefs, and sometimes misconceptions, about natural phenomena, before taking action to acquire new knowledge. Often driven by “perplexity, confusion, or doubt” (Dewey, 1910/1997, p. 12), and a need to uncover alternative ways of thinking about phenomena, they echoed Dewey’s notion of inquiry: “To maintain the state of doubt and to carry on systematic and protracted inquiry – these are the essentials of thinking” (p. 13). Throughout the interviews two particular aspects of authentic scientific inquiry were consistently highlighted as significant facets of Middle Creek’s program that made it valuable to the respondents in the long-term: hands-on, experiential learning, driven by student interest and personally meaningful questions; and collaborative experiences that occurred in relation with others.

Whether it was adopting a spot in the schoolyard, examining meadow diversity, or conducting soil analysis, eight participants viewed the chances to go outside and raise questions that led to investigations in a natural setting as inextricably connected to the inquiry process. They stated that when they were invited to pose questions about which they were curious they began to take more ownership for their learning and find school more relevant. Although eight participants advocated for the importance of inquiry-based science investigations, driven by questions of personal interest, Dana was one of the individuals to speak most extensively about it. She was representative of the group when she reflected that fourth grade was her first memory of learning science at all and remarked about how much emphasis was placed on asking probing questions that led to hands-on investigations. She reflected: “I think asking the right questions was something

I wasn't used to doing and something I continue to do today." Because it was her first exposure to such experiences, they made a lasting impression on her and influenced her interest in scientific inquiry going forward. As a graduate student in Occupational Therapy she connected the opportunities she had asking questions in Middle Creek's Meadows & Trails, and trying to understand natural phenomena there, to her current pursuit to develop deeper conceptual understanding of phenomena:

I can memorize stuff from a book, but [Middle Creek] really got me sparked on trying to figure it out. . . . It's looking at it for answers and I think [Middle Creek] started me looking. . . . I still remember what a hypothesis was and designing an experiment with mealworms. It's cool when you can figure out really complex things.

The mealworm investigation Dana recalled was conducted as a preface to the students' outdoor examination of arthropod life cycles in the Meadows & Trails, and she asserted that the experiences conducting scientific investigations in- and outdoors at the school sparked a life-long passion for scientific learning.

Throughout our conversations Dana's comments consistently reflected Dewey's (1914/1944) assertion that it is not just enough to encourage students to ask questions in school, but educators need to provide opportunities for students to ask questions that "naturally suggest itself within some situation or personal experience" (p. 155). Dana and the seven other participants' memories of their investigative experiences in the Meadows & Trails were of asking personally meaningful questions. These were the questions that then needed to be followed by hands-on investigations they could conduct

to gain understanding about ecological concepts important to them, which could then be followed by community action.

Memories of the Adopt-a-Spot project stood out as archetypal of learning opportunities that involved hands-on, experiential learning, driven by personal curiosity. Ria was one of several individuals to state how important the project was for her. She remembered it as the first time she had ever been able to ask her own questions, design her own investigations, and make her own decisions about what to study in school. As with so many of the participants she talked about how significant it was for her to make first-hand connections with an aspect of the environment that was both personal and meaningful for her. She recalled the pleasure she felt exploring science in the outdoors, which she stated was a key aspect of making any learning experience meaningful. She compared the outdoor learning experiences to sitting in the classroom “with paper and pencil, and just listening to what a teacher says about science:”

I got to go outside and ask questions, and have one-on-one contact with science. Something that was personal and something that meant something to me. You’re basically asking your own questions and educating yourself in an outside arena, which becomes a learning classroom. . . . You had to claim a spot in the backyard as your own and you got to watch it grow over time, and you wrote observation articles on it and took notes in your lab notebook.

The connections that Ria made with the natural world by exploring the landscape right in her own schoolyard reflected how powerful of a force place-based experiences can be for children in fourth and fifth grades.

Recalling specific environmental actions, participants viewed the intersection of academic learning, personal interests, and meeting legitimate community needs as most often occurring in the Meadows & Trails, and referred to the time spent there as “learning by doing.” Because the learning was for a purpose, it was most valued. Rather than erecting “a Berlin Wall between academics and the rest of our lives” (Bigelow in Sobel, 2005, p. 10), the participants maintained their experiences in the outdoor classroom had significance because of the real world connections they made there. The combination of investigating ecological concepts that addressed important environmental issues during Adopt-a-Spot, followed by meaningful actions to improve the schoolyard habitat during backyard workdays, made them feel they were applying new knowledge in ways that made a difference for their community. Walt was one of six participants to highlight the role Adopt-a-Spot played in encouraging learning that had relevance and was for a purpose, and talked about the outdoor classroom as the place where he could direct his learning and actions:

I think the classroom was really influential for me with the independence that we got to choose something that we cared about to research, and then do something about it. . . . I think there was a sense of ownership that was new and I think very appreciated, at least by the people in our class.

Walt consistently highlighted this sense of taking ownership for one’s learning, which then led to a greater sense of responsibility. He repeatedly declared it was the most consequential aspect of Middle Creek’s program, and affirmed that

learning was constructive to him when he could explore a topic about which he genuinely cared and then pursue a course of action that led to real world benefits.

Conversations with Mark also reflected the importance of learning for a purpose. He viewed the schoolyard as the place where he could “learn about issues and know that my active participation can make a difference. . . . Roots & Shoots taught me to be able to identify problems, and identify ways to help to find solutions to those problems, and be involved in terms of actually implementing solutions.” These opportunities to get outside to directly learn about nature were consistently mentioned by the participants as a powerful component of Middle Creek’s program. Working with others they were able to explore, analyze, evaluate, and make sense of problematic issues and potential solutions, treating the solutions as working hypotheses to be continually tested and adjusted as new information presented itself. Rather than reading and watching videos about difficult ecological concepts, students were able to go outside and engage in investigations that directly explored them.

Sobel (1996) maintains, complex ecological concepts can only be taught effectively through “tangible, concrete experiences” and without them, “we’re not really teaching science or environmental education, we are teaching a veneer of words, recitation without reality” (p. 27). One ecological concern local to Middle Creek’s backyard habitat and neighboring community brought up as an example in two of the interviews was the overabundance of deer – deer who come into yards, eating and destroying much of the flora in sight. By first exploring and understanding the ecological and environmental reasons for the local deer problem children began to understand the

issues of habitat loss and fragmentation, which they were then able to apply on a larger, global scale to forests around the world. Both Haley and Ava remembered videoconference experiences their classes had with scientists in a tropical forest in Panama as building those kinds of experiences, as they were learning about some of the same issues of deforestation and fragmentation their community faced in Brookedge. Being able to place these universal ecological issues in a local context helped them to better understand how the problems were affecting communities around the globe. It was a perception about outdoor investigations consistently articulated by all but two of the members of the study group.

Jamie accentuated the value of learning in a real context when she commented, “You need to have the personal experience, the personal community engagement, but you also need the education, the knowledge, the academic skills and understanding to back that up, because you’re missing something if you’re just doing one. They reinforce each other; they really compliment each other.” Her comments echoed the sentiments of fellow participants: classroom learning took on more significance when there were real world connections. The combination of investigating ecological concepts that addressed appreciable issues in the outdoor classroom, followed by meaningful action to improve the schoolyard habitat made them feel that they were applying their new knowledge in ways that made a difference for the community.

The eight participants who spoke about inquiry also talked about the importance of collaboration, in the inquiry process. They viewed their learning about the natural world as closely intertwined with their relations to other persons, both peers and adults,

and again echoed Dewey's (1910/1997) assertion that inquiry is a social activity and concept formation occurs through human activity and interaction. Haley frequently underscored the value of learning in relation to others and talked about the life lessons such opportunities taught her. "To me that was a great building block for showing kids how working together can accomplish anything. . . . Working together on environmental projects helped enforce the benefits of working in teams." Walt's memories of conducting investigations with his classmates was of, "students working together, learning as much as you can with friends and then doing something as a group." Having a shared sense of purpose and contributing to mutually identified goals with classmates in the Meadows & Trails were hallmarks of authentic inquiry for Haley, Walt, and the six other respondents. It was through collaboration, students inquiring together, searching for meaning of difficult ecological concepts, that they were able to reach new levels of "collective knowledge."

Six of the participants further underscored that their actions would have lacked authenticity had they not had opportunities to connect to the broader Brookedge community, and that people working in collaboration to tackle real-world problems was essential to the program. Defined as mutually beneficial relationships and shared responsibilities between all stakeholders to achieve common goals (Wade, 1997), meaningful collaboration was viewed as essential to civic engagement and a powerful life lesson the participants carried with them beyond their fourth, fifth, and/or sixth grade years. Backyard workdays and Forest Fest were again highlighted as opportunities for them to work not only with peers, but also with teachers, parents, local community

leaders, and scientists. Jack and Walt both captured the essence of these respondents' perceptions in our discussions. Describing his memories working with peers and adults to accomplish specific goals in Middle Creek's environmental program, Jack highlighted how the interpersonal relationships helped him to see how his contributions to the larger community were valued and respected:

Working in large groups at the workdays and having those meetings in the evening about setting up the Forest Fest, it showed me how much can be achieved if you work hard with others. It takes a lot of work to be able to develop and maintain a backyard such as ours; no one can do it on their own. I think it showed that no matter your age, you are able to help out [in the community] and make a difference.

The long-term value of developing projects in collaboration with others consistently resonated throughout my conversations with Jack and five of the other participants. They repeatedly emphasized the importance of having shared goals and communicating with others, both within and outside of the school, on environmental projects because they felt directly connected to their local community and able to take advantage of the local resources available to them. As Walt remembered, "Going to backyard workdays you see not only you as students, seeing that you care about something, but seeing other people that you usually think don't care about things, care about things. And then also, you're there with Emile and you're there as a sort of equal." Feeling respected and valued for his skills, as he worked in teams with individuals who had scientific expertise (Dr. Emile DeVito), was especially significant for Walt and an aspect of the program

about which he remarked on more than one occasion. These frequent experiences to engage with others implementing a sustainable project broadened the group's perspectives about what it meant to be a valued member of a community.

As Walt's remark illustrates, not only did the participants value their experiences learning in collaboration with their classmates and the broader community, but also appreciated the opportunities they had to collaborate with "real, working scientists." During the years the participants attended Middle Creek School, it was a common occurrence to have ecologists and environmental educators visit the school to work with the students on a consistent basis in-and-out-of the school day. Children learn from many different sources apart from a classroom teacher, including other adult authority figures, and six of the participants pointed out how significant it was to have these positive professional role models in their lives at a time when they were beginning to think about and explore their own career interests. They stressed that this was not anything they thought about then, but rather considered now as they reflected back on the program. As Dana noted, "Actually meeting people who were all real people working to effect change in their world in their own ways left a lasting impression more than any textbook or classroom learning experience could give."

By working with scientists the children themselves were learning to think like scientists. Ella explained that by working alongside visiting scientists to conduct valid investigations in the outdoor classroom, made them view their own explorations as "doing real science." Particularly meaningful for these six participants were the opportunities to work directly with scientists as they conducted authentic research in the

field. The experiences they had working with “real live” scientists guided them to view scientific learning as a dynamic process that had a purpose. Ella further remarked that working alongside visiting scientists made her feel like she was engaged in “authentic scientific research to help the environment” and view her own explorations as “doing real science.”

Two scientists most often referenced during the interviews were Dr. Jacalyn Willis and Hazel England, as they were our two most consistent visitors. A tropical mammalogist with a long-term research project at a Smithsonian field station in Panama, Dr. Willis both facilitated in-person lessons with the students and spoke to the children from her research site via video chats throughout the year. Ms. England, a botanist working with one of the environmental organizations in the area, facilitated lessons for various science classes, as well as coordinated after-school activities at club events. The ongoing relationships developed with the scientists at such an impressionable age instilled in the respondents a sense of confidence and encouraged them to believe they could also aspire to become scientists. As Haley remarked, “Just having you and Dr. Willis and Dr. Goodall – women empowering women through a science career – definitely helped gear me towards, ‘I can do this.’” Walt also noted that the scientists with whom his fifth grade class worked broke the stereotype mold. While a lot of his peers in college still view scientists through a stereotypical lens, he does not. “A lot of my peers saw science as a guy in a lab, but for me it was Jackie in the rainforest. I think this speaks to how *Roots & Shoots* influenced my perception of science.”

For each of the six participants the opportunities they had collaborating with professional scientists added greater authenticity to their own investigative experiences, as they came to recognize scientific practice as a particular form of human endeavor (National Research Council, 2007). By collaborating “with” scientists to devise and carry out investigations to test their predictions, they were engaging in the same activities and processes as the scientists with whom they were working. Using the methods and thinking processes of practicing scientists, they, themselves, were scientists, exploring specific natural phenomenon within their own schoolyard. Just as Jackie Willis was doing at her research site in Panama and Hazel England at hers in the Great Swamp, the students would notice a phenomena about which they were curious, and then conduct research and investigations to find answers. Expressing a recurrent perception, Walt summed it up best when he stated that the experiences made him, “feel like a leader and something close to an adult who made real decisions and measurable contributions. . . . I’m still striving to feel like an adult and I still value the opinions of kind scientists above all others.”

Active Civic Engagement

The literature on place-based education consistently accentuates that place-based pedagogy uses the local environment for authentic inquiry that ultimately leads to valuable civic engagement (e.g. Semken & Butler Freeman, 2010; Smith, 2007; Smith & Sobel, 2010; Sobel, 2005; Tolbert & Theobald, 2006). Throughout the research the scholars advanced the claim that learning needs to lead to action on behalf of the community and be intimately connected to students’ lives in meaningful ways.

The emphasis on addressing genuine community needs reflects a justice-oriented service-learning stance, as students become valuable resources and active participants to identify and tackle mutually beneficial goals. By linking classroom learning to the local community and analyzing consequential issues within their own surroundings, place-based experiences provide frameworks for children to make a “commitment to serving as active, contributing citizens” (Sobel, 2005, p. 11). Rather than preparing them to take responsibility in their distant adult lives, the civic actions taken through the experiences make learning relevant in the here-and-now. The participants in this study underscored relevance and authenticity, and meaningful action as important dimensions of civic engagement, and in our conversations highlighted such school-based service initiatives as backyard workdays, Forest Fest, and school lunch composting as cogent experiences that promoted sustainable bonds to local environments.

Relevance and authenticity. Although the need to identify and analyze issues was consistently stressed as essential prerequisites before engaging in civic action, the interviewees also emphasized that investigation and discussion alone were not enough, and actively “doing something” to address problems within their community that had meaning and purpose was vital. Their assertions reflected a Deweyan (1891/2009) perspective that, “From the standpoint of the child, the great waste in the school comes from his inability to utilize the experiences he gets outside the school . . . and he is unable to apply in daily life what he is learning at school. That is the isolation of the school – its isolation from life” (p. 54). For the participants in this study, their place-based

experiences offered a different perspective of education – education became the school and community working together to shape one another, and ultimately the child.

Backyard workdays were repeatedly referenced by all but one of the participants as synonymous with meaningful civic action. As was previously described, backyard workdays were extracurricular community events that occurred several times throughout a school year. Participants included both current and former students, as well as teachers, administrators, family members, and even citizens from the community-at-large. The tasks completed at a workday were based on student recommendations made during Adopt-a-Spot projects and environmental club meetings. They provided the students with concrete experiences to apply their learning about suburban sprawl and habitat loss to local projects that had tangible results right out their back door. Their involvement in making decisions in the planning and organization of the events, as well as serving as student leaders during the workdays empowered them to assume credible responsibilities and fostered a sense of purposeful action. Middle Creek's Meadows & Trails were viewed by all but Dana as, not only “service actions” with which they enjoyed being involved, but also actions that made a positive impact on the school and local community environment.

Models of meaningful action. Mark's comments reflected a common perspective reiterated by most of the interviewees: application of knowledge + action = community contributions. It was through participation in the backyard workdays that he (and the others) felt they were able to make positive changes affecting the community. “Doing the work was very rewarding, because you got to see how significantly your

labors really did have an impact on the environment and the community. . . . And even though it's just at that local level you're still able to impact the environment, impact the community even just at the school." When discussing the value of those experiences the young adults credited their success to the efficacy of the "service." Whereas actions in the "service" of people were discussed as occasionally problematic and messy, actions that addressed environmental issues were less so. The local environmental actions with which the participants were engaged were concrete and observable, and did not present the risk of doing "good deeds" that could potentially promote unequal relationships and negative stereotypes. Rather the projects were viewed as actions with intention that addressed genuine needs of mutual concern to the community, promoted active engagement, and led to quality, visible results.

Ava spoke extensively about the backyard workdays as models of meaningful action. Although she too noted the necessity to first identify and investigate issues, she prized the fourth and fifth grade opportunities to then take "our talk of what we want to see done in the community" outside and participate in the habitat enhancements. She remembered coming back in middle school and high school to continue to "help out" and noted, "I just always thought that was sort of cool, because I was going back and I wasn't actively using these gardens and grounds as much anymore, but I was still making something for future [Middle Creekers] to work on."

Ava remembered her experiences as guiding her to recognize that "baby steps" can effect change in meaningful ways, and maintained that sometimes the best actions were immediate local actions. She, above all other participants, did not value experiences

that, in her mind, led nowhere. Characterizing her fourth and fifth grade backyard workday experiences as pivotal moments, she pointed out, “No we’re not going to save the rainforest, but we’re going to do our best to improve the backyards of [Middle Creek]. And that’s what we can do, and that will still help in the capacity that we can help.” Such opportunities prompted her to investigate what problems she and her peers could realistically tackle and what solutions would actually make a difference, as well as to put the actions she took in later years into perspective. Ascribing to the place-based belief that, by creating a space where students can directly care for nature themselves and solve local problems that have concrete outcomes, Ava was provided with “school moments” when she felt she was genuinely contributing to the life of the community.

Following up research with action was equally important to Walt. For him the backyard workdays were both grounding and gratifying experiences, times when he could see discernible results for his efforts:

There’s definitely a sense that everything you’re learning about, like all education should lead to some sort of action. Now every time I think about what I’m learning, I’m thinking about what can I do with this. And it’s the small things. It doesn’t have to be big things. I think Roots & Shoots was a lot about a lot of small fruits accumulating.

Tackling problems that had realistic goals gave Walt, Ava, and the other participants chances to have meaningful learning experiences that resonated in their own lives and for which they were invested. Their need to “know” was driven by their need to act, and

their learning then became “science for society’s sake, rather than science for science’s sake” (Barton in Louv, 2008, p. 155).

Ava and Walt represented the study group as a whole when they emphasized the value of small local actions to effect change. This perception spanned the age range, from Ria, who at 18 was the youngest member, to Allen, who was the oldest at 26. While Ria also emphasized the value of backyard workdays in her life, Allen elucidated the significance of action when describing his involvement in the school lunch composting program. An initiative implemented by Middle Creek’s environmental club, Allen and his peers were responsible for ensuring that at lunch students discarded all fruit and vegetable remains in the designated bins. He remembered, “We started composting and that was a big deal, getting the entire school active and talking with all different types of students.” He regarded his involvement in the project as an opportunity to challenge himself to step out of his comfort zone and be involved with a large schoolwide initiative that someone his age would not normally be trusted to handle.

Key to the actions each of these participants took in “service of the local school and habitat” was the link between action and the ability the participants possessed to make a difference in the lives of others. As Haley remarked, “making a difference,” meant taking responsibility to assume leadership positions in collaboration with the broader community, recognizing that even small actions can have an effect and make a long-term impact on the world around them. They most often recalled the positive aspects of civic engagement when they were reflecting on experiences related to animals and the environment. Because the environmental projects were rooted in their own

school and community's landscape and culture, and were issues they knew and experienced locally, they felt they were able to make contributions in meaningful and significant ways.

Regardless of their age, or the years they attended Middle Creek School, all of the participants shared consistent attitudes and perceptions about the prominence active civic engagement had in Middle Creek's Roots & Shoots program, and its influence on whom they have become as young adults. Although there were reflections about actions related to Students Raising Students and classroom service-learning projects, these initiatives were viewed as providing service farther afield, with less tangible results. The service experiences that most consistently resonated with all but one of the participants occurred closer to home and focused on projects that benefitted animals and the environment. For many they were the experiences that were foundational to future life experiences. Their collective voices indicated relevant, authentic experiences that led to meaningful action were key dimensions of active civic engagement in Middle Creek Roots & Shoots program. As Ria so succinctly stated:

Just because you're a miniscule speck of sand in the world is what it seems like, you can still make a huge difference. At the time we seemed like the most important and influential people in the world. But really we were only 11, 12, 13-years-old. . . . Looking back on it, we made such a huge difference, even if it's just around the school, going to the backyard workdays.

The Middle Creek experiences described in this section concentrated on the ones that primarily took place in the Meadows & Trails, and focused on those opportunities to

engage with the local environment. Not all of Middle Creek learning experiences were place-based, not even in my classes or the Roots & Shoots clubs, and there was considerable variability of the learning experiences described by the individuals interviewed. The amount of time students spent learning in the outdoor classroom depended on who they had for a teacher, as different teachers possessed different comfort levels pushing beyond the walls of the classroom and place-based teaching was not prescribed by the school's administration. Allen, Jack, and Ria were not in any of my classes and, as Jack noted, his school day experiences in the habitat depended on the teaching style and interests of his teachers. He remarked, "I was jealous your students were able to do all those things with you in the classroom, when for me it depended on what the teacher wanted to do. If it didn't have anything to do with Roots & Shoots, then it didn't have anything to do with it." Whether or not a student ended up in a class in which the teacher infused place-based pedagogy into core curricula was completely the "luck-of-the-draw." He maintained that without the Roots & Shoots clubs most students in the school would have been denied the place-based opportunities my former students so extensively remembered. While his experiences were more reflective of the greater school population than were the experiences of the seven participants who were my former students, it was the place-based experiences that most "stuck" with the participants in this study group and had the greatest long-term impact on their lives.

There are as many interpretations of Middle Creek's Roots & Shoots program as there are past and present members of the school community, and it is entirely possible that a different group of former students would identify other influential aspects of the

program, or even assert that the program had no influence at all. However, for the individuals in this study group Middle Creek's Meadows & Trails and the activities that occurred there were prevailing program features. They consistently recalled their memories learning environmental science in the outdoor classroom and then creating service projects that could be implemented at backyard workdays. Their place-based outdoor experiences inform the two themes that recurred across the conversations, both individually and in the focus group session, and in the written reflections. The two themes, planting the seeds for ecological literacy and inspiring sustained civic engagement, are explored in greater depth in the next section. Because the program's perceived long-term impact on ecological literacy was unexpected, I begin with that.

Planting the Seeds for Ecological Literacy

For nine of the research participants, their experiences in Middle Creek's program influenced current attitudes and behaviors towards the local and global environment. To them, ecological literacy meant understanding how even the smallest, seemingly most inconsequential actions can impact the natural systems of our planet, and having the will to incorporate sustainable practices into a person's everyday life. To be ecologically literate means that someone understands how humans are changing the Earth's systems and is willing to do her part to act responsibly towards the environment. Goleman, Bennett, and Barlow (2012) note that most individuals do not comprehend how all of the everyday actions in our lives – the food we eat, the products we purchase, the transportation we use, the energy we consume – impact the health of our planet. Ecological literacy then is the “capacity to perceive, understand, and care about the

interrelationship between the natural world and human actions – and then apply that understanding to guide individual and collective human action toward a wiser use of natural resources and adaptation to our true ecological niche” (p. 9).

Ria, Jamie, and Mark echoed their sentiments when they talked about the association between their schoolyard experiences and current concerns for the environment. In the focus group session both Ria and Jamie talked about the connection between their Middle Creek experiences and current pro-environment behaviors, in Ria’s case monitoring the water usage in the dormitory showers and in Jamie’s having a greater appreciation for the impact of human actions on the natural world. In his individual interview Mark also reflected that he didn’t think he would have had “the same appreciation for the environment or working to maintain it” through such everyday actions as recycling, if he had not been involved with Middle Creek’s environmental programs in Middle Creek’s Meadows & Trails.

When speaking about ecological literacy, the nine individuals’ responses can be grouped according to two subthemes: environmental stewardship and global awareness, both locally and globally. With regards to environmental stewardship, the respondents specifically talked about environmental awareness and the ability to use scientific information to make informed personal decisions related to the impact human behaviors have on natural systems.

All of the respondents remarked to one degree or another about the connection between learning about environmental issues and then taking concrete action to address the problems, and six of them indicated that their middle years of childhood (ages 9 to

12) were crucial times to be immersed in investigations involving nature and to cultivate an appreciation for environmental conservation. Raising ecological awareness – particularly awareness related to habitat loss and diminishing resources for wildlife – was highlighted as central to nurturing environmental stewardship. Their responses ranged from comments about building specific content knowledge through environmental lessons to developing global perspectives about the environment to being made conscious of the consequences of such small actions as recycling and water conservation. Walt echoed a recurring sentiment representative of the group when he stated, “I think it made me care a lot about where we are and being a real steward for place, which I think motivated me to environmental things now.” The opportunities he and the others had to explore the natural world right out their back door fostered a lasting love for the Earth’s systems and sense of responsibility to protect them. The experiences helped to extend their adult empathy and respect beyond themselves and other humans to include all life forms, and encouraged them to recognize ways they could live more sustainable lives.

Environmental Stewardship

Jack was one of several participants to talk about how Middle Creek’s programs fostered a sense of place and was foundational to his self-identity as an environmental steward later in life. Throughout his interview he highlighted that it was as a fourth and fifth grader at Middle Creek when he learned that “preservation of the environment is really important, no matter what scale – it can be really small.” Using Middle Creek’s garden projects as examples he underscored that when he attended the school there were just a few gardens and over time the schoolyard habitat project had grown to include

more and more of the school property, with it now encompassing over seven acres. Sustained lessons about the relation between suburban sprawl and habitat loss in Brookedge, alongside projects on behalf of wildlife, increased his awareness about the issues in his community and motivated him to want to act to protect habitats in his area as an adult. Acknowledging that he was first drawn to the environmental club as a fourth grader because of his own keen interest in animals, Jack reminisced about the life-lessons he carried with him today, almost 15 years later. From cutting six-pack rings before disposing of them to respecting animals in their natural habitat to volunteering for local conservation groups, he continues to try to embody the principles he learned both in class and the club, as a 10-year-old.

Several of the participants spoke about the enduring influence their Middle Creek learning experiences had on their awareness about the consequences of individual actions in our everyday lives. Ava, Mark, and Ria were most articulate about that perspective. Ava credited the environmental influence that enveloped her in fifth grade as something that stayed with her over the years and into her young adult life as a college junior. She observed, “I’m that person in dining who makes people compost everything, and recycle all that they can, and I take way too long throwing stuff away, because I like to make little piles of what goes where.” She did not think she would have had such a heightened sense of environmental consequences had it not been for her involvement in Middle Creek’s programs. In the same fifth grade class as Ava, Mark also commented on his heightened awareness about the value of recycling because of the level of emphasis

placed on it in the program. His early experiences learning about recycling and other environmental issues were lessons he continued to value as a university student.

Ria's keen fourth, fifth, and sixth grade experiences with environmental awareness translated into a current preoccupation with water usage in her dormitory showers. Describing the showers as old and tending to drip she shared that she constantly reminds her peers to make sure the faucets are completely off before they leave. She even later returns to the showers to ensure none are still dripping. Although it may appear to be a small action Ria pointed out how much water is needlessly wasted in our culture. It is an ongoing concern of hers in light of all that she learned as a Middle Creek student about the scarcity of water in many parts of the world. She maintained the lessons learned at Middle Creek impacted her everyday actions. As with Ava and Mark, it was the little things each individual can do that stuck with Ria over the years since attending the school.

As is revealed in the civic engagement section, while nine of the participants talked about consistent efforts to engage in their communities, only three of them talked about being involved in community efforts on behalf of animals or the environment. However, all of them stated that they try to incorporate environmentally sustainable practices within the actions of their everyday lives. Goleman, Bennett, and Barlow (2012) note that it is this recognition of how our everyday actions affect the Earth's systems and making personal changes to reduce our ecological footprint that moves us to becoming ecologically literate.

Global Awareness

Walt and Jack were two of five participants to emphasize how learning in Middle Creek's Meadows & Trails helped to broaden global perspectives, and Walt was especially passionate as he talked about the projects rooted in the local school community that widened his awareness and concern for the global environment. Trying to understand the impact of environmental degradation on human society began in fifth grade, with local projects carried out at Middle Creek:

That place was very important . . . because there was something gratifying. . . . You could see very concrete improvements that were able to sustain your commitment to larger hopes and wishes. . . . Especially a lot of what I'm learning about now . . . we're thinking about how there's not an equal distribution of who gets affected by environmental issues, and who stands to suffer the most, and who is the most responsible. And it's important to realize that there are inequalities and you have to consider the complexity of the whole system. And I think in fifth grade we were thinking about kids growing up in Tanzania – kids all over the place. And there's definitely this empathy and trying to understand other people, which was good to think about at that age.

To be able to span so many different fields and disciplines at the same time was a particular strength of Middle Creek's programs in Walt's eyes. While we were creating native habitats in our schoolyard, we were also researching the effects of habitat loss and global pollution on the lives of wildlife and people in other parts of the world. He asserted that no one project was privileged over the other and it instilled in him a

realization that “every individual’s heart has no limited capacity for compassion.” Such experiences drove him to be curious about the entire world, not just his little niche in it. “The world is bigger than [Brookedge], and [Brookedge] matters as much as any place in the world does, but not more.” He viewed his fifth grade experiences as the beginning of awareness about unequal environmental protection for people around the globe.

Jack also reflected on how Middle Creek’s programs made him concerned about environmental issues worldwide. He commented that he continued to be concerned about global environmental degradation and as an eco-traveler to other countries he felt a keen responsibility to treat the habitats he visited with extreme care and respect. Respect for wildlife was one important lesson Jack illustrated in his written reflection. He described a recent event when he and his girlfriend had rented a house in Costa Rica for a week with a group of friends. As wildlife enthusiasts they were elated to see an assortment of wildlife right out their door, and were amazed when capuchin monkeys brazenly came into the house. Many of his friends offered the monkeys food, which of course they took. Remembering lessons taught at Middle Creek, Jack and his girlfriend did not:

Normally this is very cute and a wonderful experience. However from what I learned through Roots and Shoots, we should never feed wild animals. Later on during our stay, we were told by the locals that feeding the monkeys can be extremely detrimental to their health. . . . Roots & Shoots taught me to be respectful of wild animals. We can absolutely observe them, however do it from a safe distance and leave them alone.

For Jack, Walt, and three of the other participants advancing a “global perspective” meant developing a world-view, one that promoted respect and appreciation for the integrity of all life, both locally and globally. Their responses reflected the qualities of culturally responsive global citizenship, as advanced by Noddings (2005) – a global citizen begins by first focusing on the needs of the local community and then broadens her range of concern to national and international levels.

While she viewed the programs as influencing her current interests in science learning generally, Dana was the only participant who found other service aspects of Middle Creek’s Roots & Shoots programs more influential overall. During the focus group discussion of the outdoor programs she observed:

The backyard workdays for me were fun. Like I was engaged and I thought they were awesome. But it was another service event, and I probably would have got involved anyway. I thought the unique thing that Roots & Shoots gave me was a chance to be really passionate about something, and that something was Africa.

Throughout both her personal interview and the focus group session Dana repeatedly emphasized it was the projects that focused on concerns for other people that had made more of a lasting impression on her, citing her classroom service-learning research project on the rights of children in East African refugee camps as influencing her undergraduate decision to study in Uganda for a trimester.

Throughout our interaction nine members of the study group consistently talked about how their place-based experiences in Middle Creek’s Meadows & Trails influenced them to one degree or another to become more ecologically literate and cultivate an

appreciation for the environment, both locally and globally. The experiences encouraged them to look outside themselves to their own schoolyard habitat, and for many of them then widen their gaze to develop a more global perspective. Their memories of the experiences led them to further suggest that Middle Creek's program was one of the factors in their lives that influenced them towards civic engagement as young adults.

Inspiring Sustained Civic Engagement

Whether they were 18 or 26, all of the participants spoke about feeling able to make a difference through the projects with which they were involved in Middle Creek's Meadows & Trails, and in their eyes not only was the service component key to engaging them those many years ago, but also stuck with the interviewees over the passage of time. As Table 4.2 shows seven of the participants viewed the career choices they made as service-oriented and nine of them indicated that apart from their degree/career pursuits, they are currently actively engaged within their communities. Their engagement ranged from volunteer activities to critically informed actions in collaboration with others. While many of the participants talked about developing an ethic that led them towards environmental stewardship within their everyday lives, when it came to community engagement most of their efforts translated to actions on the human society. Only Haley, Jack, and Walt referenced civic actions on behalf of animals and the environment, while seven of the young adults spoke about actions on behalf of the human community. (Walt's actions spanned both categories.)

Table 4.2
Snapshot of Types of Civic Engagement

Type	Participant									
	Allen	Ella	Haley	Jack	Dana	Ava	Mark	Walt	Jamie	Ria
Service-Oriented Pursuits	✓	✓	✓		✓			✓	✓	✓
Efforts Animals/Environment			✓	✓				✓		
Efforts for People		✓			✓	✓	✓	✓	✓	✓

Citizen Action

Based on the participants' collective views, sustained civic engagement means the political and nonpolitical processes through which citizens individually and collectively can take part to influence and make a difference in the civic life of a community. Ehrlich (2000) asserts that individuals who are actively engaged citizens recognize their membership in the larger social fabric and are "developing knowledge, skills, values, and motivation to make that difference" (p. vi). Sustained civic engagement refers to an ongoing active commitment to the community (local or global) and participation in activities that improve the quality of that community. Further, actively engaged citizens collaborate with others to tackle community issues, analyzing together the connection between their actions and the effects of those actions on others within the community (Sehr, 1997). The young adults in this study remembered their Middle Creek years as the first sustained experiences they had had with service, and to varying degrees they all credited Middle Creek's Roots & Shoots program as laying the foundation for their current civic involvement, whether it was perceived as a clear and prominent influence or

one of many influences. As Jamie recalled, “Roots & Shoots, for me, set a precedent. . . . It opened the door to community engagement for the rest of my life I think in a very practical way.”

The participants’ responses revealed that their notions of citizenship and civic engagement reflected all three types of citizens identified by Westheimer and Kahne (2004b) – personally responsible citizen, participatory citizen, and justice-oriented citizen – and that these categories often overlapped and were not mutually exclusive of one another. While eight of the young adults mentioned basic volunteer activities in which they participated, they also emphasized times when they were more instrumentally involved in the planning and execution of organized community efforts. Westheimer and Kahne (2004b) point out that the “willingness to commit to collective efforts” through volunteerism alone is important, but personally responsible goals without critical reflection and action do not go far enough to foster democratic participation (p. 243). Some of the participants’ civic activities were at the community service level, many were at the participatory level, and a few of their current endeavors embodied justice-oriented citizenship. At times their efforts melded commitments to participation with commitments to justice. Table 4.3 breaks down the participants’ current service actions according to these three levels of civic engagement, followed by an more in-depth look at the levels in relation to the interview data.

Table 4.3
Participants' Levels of Civic Engagement

Participant	Personally Responsible	Participatory	Justice-Oriented
Allen			Profession: Independent film editor of social documentaries
Ella	Volunteer: Cancer Support Clinic	Local Nutrition Seminars; Wellness Champion @ Hospital	Profession: Oncology Dietician
Haley	Volunteer: Local No Kill Cat Shelter		Profession: Oyster Restoration Specialist
Jack	Volunteer: Community Environmental Organizations	Team Leader: Environmental Clean- ups	
Dana	Volunteer: AmeriCorps	OT Outreach to Haiti	Degree Major: Occupational Therapy
Ava		President: Mental Health Organization on Campus	
Mark	Volunteer: Campus Catholic Group	Vice President: Service & Community Outreach for the Group	
Walt	Sexual Assault Counselor on Campus	Ellipses Poetry Group: workshops for middle school and prison groups	Campus Independent News Program on Environment
Jamie	Volunteer: Community Education/Prison Issues	Movement Workshops at Local Halfway Houses for Girls 13-17	Degree Major: Critical Psychology (Prison Reform)
Ria	Campus Guide: Trenton Middle School Students	Degree Major: Education	

Personally responsible concepts of citizenship emphasize individualism and stress both learning about the basic systems of government and acting responsibly within a community. It relies on the premise that honesty, good character, obedience to laws, and personal responsibility lead to upright citizens (Sehr, 1997; Westheimer & Kahne, 2004b).

Individuals who practice personally responsible citizenship tend to participate in volunteer activities, but are less likely to be involved in the organization of such efforts. A few of the comments the participants made about community responsibility and volunteer efforts reflected engagement at the personally responsible level. When asked about how Middle Creek's Roots & Shoots goal to foster active citizenship related to her life now Ella stated, "I'm always looking for ways to volunteer and give back, because it's so ingrained in me. And I think it was a lot of my involvement here." Jack expanded on this concept of personally responsible citizenship when he responded, "[Julie] and I have been doing some volunteering. Cleaning up the Raritan River and all. So I feel like being in the club helped me. I realized I wanted to keep doing it. Those goals definitely worked for me; I keep at those goals still." Here Jack's comments reflect an emphasis on his desire to "help out" the environment by volunteering his time to help with river cleanups and other lone activities within and around the community. The lone acts of volunteerism were ends unto themselves. However, Jack also talked extensively about his involvement with a local preserve where he and his girlfriend, Julie, were involved in ongoing efforts to coordinate teams of volunteers to maintain trails and further enhance the habitats. In fact, none of the participants saw their current civic engagement as confined to volunteerism and other acts of lone personal responsibility within the community. Rather their experiences were presented in context that involved community engagement in terms of both participatory engagement and justice-oriented engagement.

Unlike personally responsible engagement, participatory engagement encourages assuming leadership positions to actively participate within the community and other established systems of society. Although it highlights the need for civic engagement (activity, responsibility, and democratic values), it does so without necessarily exploring the reasons why societal problems exist in the first place. Participatory citizens are individuals who know about democratic institutions and rights, see themselves as members of a civic group, and join in the planning and delivery of services in collaboration with others (Westheimer & Kahne, 2004b). As Westheimer and Kahne (2004b) note they are individuals “who actively participate in the civic affairs and the social life of the community at local, state, and national levels.” When they address community issues they do so with a shared sense of purpose and in light of the effects their actions may have on others.

Many of the participants’ responses echoed this view of civic engagement, and Ella and Ava’s comments are just two examples of their recurring perceptions. Their comments emphasized: community awareness, action, collaboration, leadership, and community-based solutions to community issues. The importance of participatory community involvement resonated throughout Ella’s interview. At one point she affirmed, “I don’t think I would have had as much of a sense of community if I was not involved with Roots & Shoots, because we just were involved with so many things. . . It speaks volumes to this day I’m always looking for opportunities to be involved. . . . It’s always, ‘How can I do more? What can I give back?’” Ella’s current activities reflect this level of participatory engagement. Not only is she an oncology dietician in her job at

a regional hospital, but she also organizes nutrition seminars at the local community center, serves as the wellness champion at her hospital, and volunteers at the cancer support clinic there. Her community involvement reflects how personally responsible and participatory practices overlap and are not mutually exclusive of one another. Sometimes it is the one; other times it is the other – in Ella’s case, on occasions serving as a volunteer and on other occasions actually organizing activities that focus on the connection between nutrition and public health.

Ava also reflected a common perception when she spoke about the connection between her workday experiences in the Meadows & Trails and current passion at college to be involved with groups that strive to find feasible solutions to local problems. As the president of a campus mental health organization she is constantly in the position of leading the group to take constructive action that “actually solves problems.” While she could only speculate about the connection between who she is today and those Middle Creek experiences, Ava thought the proactive element was key. In the focus group interview she asserted:

The backyard workdays were especially, I guess, transformative to me because we were tackling these problems; we were helping the environment with this hands-on experience. And that whole concept of, ‘Okay let’s just not talk about it, let’s do it,’ kind of stayed with me for a while. I’m involved in this service organization now . . . and we talked about all of these issues that we had, and ‘oh this should be changed and this should be changed and oh this isn’t working.’ And I’m like, ‘Okay, so let’s do something about it.’ . . . It’s that whole idea of

doing something about a problem and tackling issues hands-on has really stayed with me and that was like the first time I ever did that.

Like so many of the participants Ava felt that her concrete experiences as a child laid the foundation for her to now be able to work with others to address community issues – in Ava’s case, mental health issues on her college campus – and then organize activities to raise awareness about and find solutions to ameliorate the issues. In her written reflection, Ava credited Middle Creek’s program as contributing to “a strong foundation in both volunteering and leadership skills, and without those I certainly wouldn’t be leading a service club at [college].” She and Ella’s stories were two of many examples of participants who saw themselves as actively engaged (participatory) citizens within their communities. The concrete experiences they had in Middle Creek’s outdoor classroom influenced them to continue to take action in collaboration with others throughout their lives and to have a shared sense of responsibility to their communities. Expressing a desire to make a difference “in” and “with” the civic life of the community they discussed feeling responsible to, as Dana asserted, take an “active role in the community I live in.”

Finally, although not as strongly reflected in the interviews and written reflections, justice-oriented civic engagement was highlighted in six of the participants’ responses, most often occurring in discussions about current career or degree pursuits. While personally responsible and participatory engagements may accentuate individual and collective actions to improve a community, they rarely focus on the fundamental causes of the problems in the first place. While still emphasizing collective actions in relation to

others in the community, justice-oriented engagement moves further to addresses contestable issues head-on and strives to make structural changes within that community (Westheimer & Kahne, 2004b). Encouraging greater political involvement, it does not privilege individual acts of volunteerism and community service over complex and controversial issues. As Westheimer and Kahne (2004a) note, justice-oriented citizens are committed to undertaking complex problems in society and recognize the need for socially sensitive actions capable of responsible social interactions.

In addition to reflecting personally responsible and participatory civic engagement six of the participants also spoke in terms of justice-oriented engagement at some point-in-time during our conversations. As a film editor of documentaries that focus on social issues (i.e. prison reform, mining in Indonesia, the BP oil spill, and climate change), Allen's career endeavors consistently address complex issues in society that "tell human stories about what's happening in the world." While he was not currently involved in any service-based activities outside of his job, he did feel that he was making significant contributions to society through his work, and stated in the written reflection that while "it was not possible to assign certain beliefs as solely caused by Roots & Shoots, I can correlate lessons that Roots & Shoots emphasized with principles I strive to embody: care and concern for all living beings, active citizenship, and awareness of our human interconnectedness." He felt that his work on documentaries went beyond entertainment to address serious global issues and as the film editor of the projects he was the person who was able to shape how the story was being told. Highlighting the importance of taking responsibility to tackle serious problems,

human and environmental, and not shy away from the messiness of those problems as he attempts to educate others through the documentaries, his comments reflected a justice-oriented perspective. Throughout our individual and group conversations he frequently talked about the importance of using film to focus on deep human and environmental problems and to educate others about injustice and systemic change.

Of all the six participants Jamie most often reflected a justice-oriented stance when she was discussing her desire to address issues of injustice and pursue actions that led to achieving greater social justice, through both her degree pursuits and current civic involvement. Since entering college her primary focus, both academically and through volunteer experiences, has been on prisons and prison reform, as she has been grappling with the politics of crime and how it affects different “demographic groups.” She talked about trying to learn as much as she can about the issues so that she can effectively engage with the community to educate others about the relationships between crime rates, incarceration, and people of color. She went on to explain the need to inquire and understand serious issues of social injustice in order to “actually go and do something and make a difference.” Describing her efforts with the group, Dance in the Community, she described how they use movement with young offenders “trapped in prison” to teach people how to express themselves through a specific outlet. Using Dance in the Community as the example she connected what she had learned through Middle Creek’s Roots & Shoots program to what she is doing as a civically engaged member of the community working in collaboration with others, and asserted that, “Engaging in

community is how change happens, regardless if that community is local, global, or anywhere in-between.”

Saying that Middle Creek’s programs was when she first encountered issues that concerned her, Jamie maintained her fourth, fifth, and sixth grade years “lit a fire I haven’t been able to extinguish since. I discovered an importance in the world outside my own and I decided that I didn’t want that concern to fade. I don’t think I would be the engaged, concerned learner today if I hadn’t been so deeply involved in Roots & Shoots.” During one of our written communications she most clearly drew the connection between her place-based childhood experiences and who she is becoming today:

The way I think about environmental issues is two-fold. I think about them as they apply to issues of sustaining ecosystems and the planet, but also in terms of how they affect the people who inhabit the planet. The tree I “adopted” was an invasive species. . . . Had the person planted it closer to the other trees they could have seriously disrupted the ecosystem of [Middle Creek’s] backyard. If something like that happened somewhere else, in an area where people live and especially if they live off the land, it could severely impact their lifestyles. That’s an example that’s very specific to me, but it’s something I try to think about as I continue to work with people who come from backgrounds different than mine. If I haven’t taken the time to educate myself, I could do some serious, long-term damage, whether it’s my intention or not.

Although perhaps technically inaccurate – the invasive trees found in Middle Creek’s Meadows & Trails were not intentionally planted there, as their seeds were carried in by

birds and other wildlife – Jamie’s memory of the experience reflects how she has carried that memory with her to shape her current attitudes and beliefs. No, she did not “grow up” to be an environmental activist, but her Middle Creek experiences did influence her to recognize and consider complex societal issues and delve into the roots of the problems, before taking action that works towards systemic change.

Career Pursuits in Science-Based Fields

Participants’ revelations that Middle Creek’s Roots & Shoots program fostered such an ongoing love for science that it established the foundation for future pursuits in science and ecology was one of the most startling discoveries to emerge from the data. While six of the participants are pursuing science-related careers, four of them directly credit their Middle Creek experiences for those choices. Dana, Walt, Ella and Haley were resolute in their convictions that their fourth and fifth grade experiences with ecology sparked a life-long love of science, so much so that the experiences laid the foundation for their current career pursuits. Again, the Adopt-a-Spot investigations conducted in the outdoor classroom were especially memorable and ignited their passions for biology and ecology.

Haley’s story is representative of these four individuals. Possessing a degree in marine science, she is currently an oyster restoration specialist for the Chesapeake Bay Foundation (CBF) in Virginia. She viewed involvement in Middle Creek’s program as a major turning point in her life, one that influenced her desire to pursue undergraduate studies in biology and a career in the nonprofit environmental sector. The Adopt-a-Spot investigations conducted in the outdoor classroom were especially memorable for her and

ignited her sustained interest in ecology. On more than one occasion throughout the interview, she stated that involvement in Middle Creek's Roots & Shoots program was a turning point for her. She observed, "Holy cow, this is so crazy, looking back. . . And now, looking at what I do, it's crazy. . . . I just think my job in general, it very much goes in line with the R&S program." She went on to explain that by conducting investigations and researching "real-life" issues as a fourth and fifth grader she was learning about problems that existed then, but persist today. It is something about which she is keenly aware in her current position. "Looking just at the oyster population in particular now and how now it's finally on the rise because people are realizing that it is important, and that the water and our livelihoods – the people that work on the water – are in jeopardy." Those opportunities Haley had to explore issues about habitat loss and its effects on local wildlife at a young age ignited in her a passion for biology that only grew over time. The fourth and fifth grade experiences in Middle Creek's Meadows and Trails prompted Haley and her family to remain involved with Middle Creek's Roots & Shoots programs throughout middle school and high school, and by high school, after a conversation with a parent volunteer at Forest Fest, she made the decision to pursue a degree in science. She recalled that conversation as a major turning point in her life. "That night I remember going home and being like, 'Yeah, I want to do something science-based. I love all this – everything I've done today.' . . . And that was definitely a pivotal turning moment, because she brought to my attention, 'This is something I want to do.'"

Ella, Walt, and Dana all had similar stories to tell about how Middle Creek's place-based experiences influenced their current pursuits in science-based careers. The

opportunities they also had to explore the natural world around them at a time in their lives when they were “so easily influenced” stayed with them throughout high school and college, and influenced their degree choices. As Ella observed, “Roots & Shoots definitely opened my eyes to what opportunities are out there for your future, hence, the whole science thing. And where can I take this to the next level and how can I use this as an adult.”

Regardless of their age, or the years they attended Middle Creek School, all of the participants shared consistent attitudes and assumptions about the prominence sustained civic engagement had in Middle Creek’s Roots & Shoots program. They also connected its influence to their current attitudes and actions as young adults. Although Dana and Walt reflected on the influence of Roots & Shoots experiences related to projects for the human community, most of the participants viewed these initiatives as providing service farther afield, with less tangible results. The service actions that most consistently resonated for them were place-based, occurring closer to home and focused on projects that benefitted animals and the environment. For many they were the experiences that were foundational to future life experiences.

Summary of Major Findings

The results of this study are based on the data collected from interviews and written reflections of 10 former Roots & Shoots students, who attended Middle Creek Intermediate School between 1997 and 2007. Their ages ranged from 18 to 26, and each individual contributed significant data to the study that reflected both personal Roots & Shoots’ memories and perceptions of the long-term impact the program had on their

lives. The accounts they shared illuminated a mosaic of contemplative young adults, who had given considerable thought to the influence Middle Creek's programs had had on their journey into adulthood. While all of the participants spoke fondly of their experiences, their responses revealed a wide range of variance between those childhood experiences and who they are today. While six of the individuals remarked that Middle Creek's Roots & Shoots programs were transformational, defining moments during impressionable years of their childhood, four felt that, although enjoyable and memorable, they could not speak with certainty about the program's enduring impact and talked more about the impact in terms of an array of influences. However, whether transformational or just one of many influences, nine of the participants agreed that the most significant Middle Creek Roots & Shoots programs were the opportunities for place-based, experiential, outdoor learning in the Meadows & Trails.

Each member of the study group talked about the influence the Meadows & Trails had on their lives, and they contributed different thoughts and perspectives on the three place-based dimensions that surfaced from their collective responses – using the local environment, authentic inquiry, and civic engagement. The interview and reflection data revealed two ways in which the experiences most influenced these young adults in the long term: 1) they planted the seeds for ecological literacy; 2) they inspired sustained civic engagement. Only Dana spoke of other program features as having more impact on the civic decisions she makes as an adult, but emphasized the role place-based learning had in her choices to pursue a science-based career.

Place-based learning was viewed as using the local environment – both the physical Meadows & Trails and the experiences that occurred there – to develop conceptual understanding of difficult ecological principles and foster emotional connections to the Earth. Working with members of the broader local community, the programs tapped into aspects of the students’ own life experiences in the schoolyard to deepen their understanding of the big ideas related to ecological systems, while inspiring them to take concrete environmental action to improve their community. The anecdotes and reflections shared in the interviews and written responses indicated three key dimensions of place-based learning were emphasized as central to Middle Creek’s programs: using the local environment to cultivate a sense of connectedness, authentic inquiry, and civic participation. These elements of place-based learning were considered instrumental to the success of Middle Creek’s programs and significantly influential in many of the participants’ life journeys. During the years the participants attended Middle Creek, place-based learning was most often infused throughout the science curricula. Memories of the Adopt-a-Spot project were repeatedly highlighted as exemplar learning opportunities that involved authentic inquiry, while the subsequent backyard workdays were frequently mentioned as meaningful actions to improve the schoolyard habitat. Although the participants considered the experiences that took place in the Meadows & Trails as formative, they also asserted that not all experiences were equal. The amount of time students spent learning in the outdoors depended on who they had for a teacher, and the three participants who were not my students felt that my students had advantages during the school day that other students did not, because they were able to get outside to

study science more often. They further asserted that it was the school's environmental club that offered them the most place-based environmental experiences.

Throughout our conversations and written correspondence, the participants talked about two ways in which Middle Creek's place-based Roots & Shoots programs influenced them in the long-term: the experiences planted the seeds for ecological literacy and inspired sustained civic engagement. In their eyes, ecological literacy meant understanding the interrelationships between human actions and natural systems, and acquiring the knowledge, empathy, and inclination to lead sustainable lives. They further spoke about two ways in which ecological literacy promoted at Middle Creek impacted them. Not only did it nurture a sense of environmental stewardship, both in their personal lives and further afield, but it also fostered such an ongoing love of science for four of the young adults that it established the foundation for future pursuits in science and ecology.

The second central theme to emerge from the interviews was the power Middle Creek's Roots & Shoots programs had to inspire sustained civic engagement. Regardless of their age, all of the participants expressed that Middle Creek's programs provided them with opportunities to effect change, and for many of the individuals this dimension of place-based learning was particularly influential on their adults lives. Their levels of engagement ranged from volunteer activities to critically informed action in collaboration with others, based on research and analysis. Their interpretation of civic engagement emphasized the processes through which citizens individually and collectively take part in the civic life of the community, and reflected the conceptions of citizenship identified

by Westheimer and Kahn: personally responsible citizen, participatory citizen, and justice-oriented citizen. While some of the participants' civic activities were at the personally responsible, community service level and some of their endeavors embodied justice-oriented citizenship, most of their adult efforts emphasized qualities of participatory citizenship. When discussing their current civic involvement, the categories often overlapped and were not mutually exclusive on one another, and at times their efforts melded commitments to participation with commitments to social justice.

In Chapter Five I discuss the conclusions and implications of the findings revealed in this chapter. First I summarize the findings in relation to my guiding research question, before going on to discuss the major themes and unexpected surprises that emerged in relation to the literature. I conclude by focusing on the implications for future programs and practices, assessing the limitations and weaknesses of the research, and making recommendations for future research.

CHAPTER FIVE – SUMMARY & CONCLUSIONS

Introduction

I began this research curious to learn if service-learning pedagogy, as inspired by Dr. Jane Goodall's Roots & Shoots program, had any substantial lasting effects on the attitudes and actions of the young people I taught. Most of my teaching career has been spent employing service-learning pedagogy with my students and, although over the years it appeared to engage even some of my most reluctant learners, I questioned its long-term impact, particularly in relation to civic engagement. Middle Creek School embraced the Roots & Shoots mission "to foster respect and compassion for all living things, to promote understanding of all cultures and beliefs, and to inspire each individual to take action to make the world a better place for people, animals and the environment" first as an extracurricular environmental club in 1997, and then later as integrated school curricula, (Jane Goodall's Roots & Shoots, 2014, Mission section, para 1). Did the Roots & Shoots service-learning model created by Middle Creek instill young people with an ongoing sense of civic awareness and responsibility as they moved through adolescence and into adulthood, or was their intermediate school involvement simply a "fun way" to experience learning at the time, without significant future influence?

In addition, the philosophical foundations of Middle Creek's Roots & Shoots programs were grounded in place-based, justice-oriented principles. Specifically, the various components of the curricula aspired to infuse place-based pedagogy and address issues of justice and equity, "considered in a broader social context" (Westheimer & Kahn, 2004a, p. 244). Questioning, analysis, and reflection were tools consistently used

by students to seek deeper understanding of societal issues related to humans, other animals, and the environment, regardless of how controversial they might have been perceived. How large an impact did the program make on the lives of the students it touched, not only as young pre-adolescents, but going forward into their adult lives? Thus, the guiding question for this study became:

- How did former students' pre-adolescent involvement in Roots & Shoots affect their perceptions and behaviors as young adults?

Throughout this research journey I consistently revisited the guiding question and goals of the study. Although the study group was small, the research focus was complex. I endeavored to explore and understand what young adults, long removed from Middle Creek School and well on their way into adulthood, perceived was the lasting impact of a program they experienced as pre-adolescent students.

Based on this qualitative study the data indicate that for at least the 10 involved research participants Middle Creek's program did exert some influence on them as young adults, although the scope of influence varied from participant to participant. While aspects of the program related to service-learning efforts on behalf of people, both locally and globally, were addressed by individual participants, it was the use of place-based pedagogy in the school's outdoor classroom that resonated across the study group. In fact, place-based learning was viewed by nine of the individuals as having had the strongest impact on who they are today, and informed the two major themes to emerge from their collective voices – planting the seeds for ecological literacy and inspiring sustained civic engagement.

This chapter reflects on and examines the research findings and discusses the implications those findings have for the field of service-learning in the middle grades of childhood, as it is reflected through place-based pedagogy. I begin by briefly summarizing the major findings of the study presented and discussed in Chapter Four, before going on to suggest the major implications of the study for the intersection of service-learning practices and place-based pedagogy, specifically as they are embodied in the Roots & Shoots service-learning model. Additionally, I suggest areas demanding further research in order to expand the body of academic and practical knowledge on place-based service-learning programs with middle grades pre-adolescent students. I conclude the chapter by examining the impact this study has had on my teaching practices, as well as insights I have gained about the research process.

Summarized Conclusions

This study sought to explore the Roots & Shoots experiences of 10 former students long removed from the school's program, who are now young adults. The focus was to determine if, and how, their Middle Creek experiences had an impact on their attitudes and beliefs about civic responsibility and influenced them towards lifelong active community engagement. The participants were interviewed, both individually and in a focus group setting, and were also asked to write reflections based on follow-up questions. In addition, there was consistent and continuing email correspondence between the participants and myself throughout the data analysis process. I frequently shared drafts with them to ensure interpretative validity. Their responses were analyzed

in terms of recurring themes and attributes that highlighted the long-term impact Middle Creek's Roots & Shoots programs may have had on their lives.

The purpose of this study was not a total program evaluation, and specific program dimensions were only analyzed and highlighted in relation to how they intertwined with the participants' current perceptions, views, and reflections. Consequently, the findings discussed in Chapter Four revealed that, because only a few participants felt a strong impact from such initiatives as Habitat Partners and Students Raising Students, their individual stories did not reflect the collective experience. The experiences that resonated most strongly for the group as a whole and for which they attributed, or partially attributed, their views and perceptions today, were specific place-based experiences that occurred in Middle Creek's Meadows & Trails. Only one participant, Dana, thought the aspects of the program that focused on human needs were more influential for her in the long-term. However, she also spoke about the place-based dimensions as they related to her current career pursuits in the sciences. The interviewees further identified that the place-based dimensions were influential for planting the seeds of ecological literacy and inspiring sustained civic engagement. In this section I review the two themes in relation to the larger body of literature, as well as address surprises that arose from the research.

The Influence of *Place*

The influence of the *place*, Middle Creek's Meadows & Trails, had on the study group, as a whole, was perhaps the most startling surprise to emerge from the data. This was so unexpected that I did not immediately recognize its persistent prominence as I

combed through and began to identify recurring themes. It was not until I collated all the responses to specific questions about their adult lives that I saw what strong influences both the physical space and the experiential space the outdoor classroom had on them. These collated responses revealed how often the young adults referenced their Meadows & Trails' experiences and the recurring associations they made between the experiences there and the program's overall influence on their attitudes and behaviors today.

As I have explained in earlier chapters, I originally anticipated that the primary lasting influence would be a heightened perception of citizenship and civic engagement. While citizen engagement was indeed one of the key themes to emerge from the interviews and reflections, I did not anticipate the strong association the participants would make between Middle Creek's outdoor classroom and civic engagement, nor the consistent connections so many of them placed on their experiences then and their levels of ecological literacy now. While certainly ecological science lessons in the outdoor classroom and subsequent habitat enhancement projects were program dimensions, they were but one spoke in the wheel of a much larger program, and I did not anticipate these aspects overshadowing all other program features. However, every participant spoke to one degree or another about the influence the experiences had on them, beyond their preadolescent years at the school. They viewed the schoolyard landscape as an antidote to Louv's (2008) contention that, "A kid today can likely tell you about the Amazon rain forest – but not about the last time he or she explored the woods in solitude, or lay in a field listening to the wind and watching the clouds move" (pp. 1-2).

When speaking about the dominant influence of place, these young adults identified three fundamental facets of the program that are also foundational to place-based pedagogy accentuated in the literature – a) using the local environment to cultivate a sense of connectedness, b) authentic inquiry, and c) civic participation through concrete environmental service projects (i.e. Semken & Freeman, 2008; Smith, 2007; Smith & Sobel, 2010). Echoing the literature, these participants stressed the long-lasting value of being rooted in the local environment and using the immediate schoolyard as a classroom without walls to promote both emotional and cognitive associations to nature and abstract learning. Distinct hands-on experiences in the outdoor classroom enabled them to develop stronger connections to both the community within which they lived and to what they were learning. Their reflections mirrored Sobel’s (2005) assertion that “movement from the close and familiar to the distant and strange” (p. 31) is an essential psychological progression in a pre-adolescent’s development. Rather than learning a lot of isolated scientific “factoids,” they remembered how contextual their learning was in the Meadows & Trails. Propelled by their own interests and questions, they were guided to use the local landscape to explore natural phenomena, as well as make real-world connections through hands-on experiences. In this way they were able to develop greater understanding of conceptually complex ideas. Because their learning often resulted in tangible service projects that addressed local environmental issues – conducted in partnership with the community members – the young adults viewed the learning experiences as having value and purpose. In their eyes, Middle Creek’s Meadows & Trails had transformed a physical setting into a *place* for which they developed a personal

bond and emotional connection. It was then this *place* and their direct personal experiences within it that made Middle Creek's program both memorable and influential in the long-term. This was especially so in terms of ecological literacy and lifelong civic engagement.

Ecological Literacy

This term describes the ability to understand natural systems that make life on planet Earth possible. It was clear that the participants in this study group made a strong association between the experiential scientific learning that took place in the Meadows & Trails and their development of ecological understanding. They asserted that their middle grades of childhood at Middle Creek were pivotal in this development because these events took place during such an impressionable time period in their lives. They acknowledged that this was the time when they first developed an interest in and a growing understanding of ecology. For a few of them it was a clear foundational time that nurtured future career interests in the sciences.

The young adults' collective statements echoed aspects both of Leopold's (1949) definition and Goleman, Bennett, and Barlow's (2012) more recent delineation of what it means to be ecologically literate. For Leopold, ecological literacy meant to develop the skills and dispositions necessary "to read the landscape, and to instill love, respect, and admiration for the land in order to create a personal land ethic in each individual" (p. 6). He referred to it as developing a land ethic. Throughout many conversations about the Meadows & Trails and its lasting influence on their lives, participants certainly reflected Leopold's notions of ecological literacy in their statements about being imbued with a

“love of place” and feeling connected to the habitats we had created there. This view was actually evidenced by the fact that some of them still occasionally return to volunteer with current habitat projects.

On other occasions the participants mirrored Goleman, Bennett, and Barlow’s (2012) concepts of ecological literacy, that emphasized the recognition of human actions on the natural world and the ability to “apply that understanding to guide individual and collective human action toward the wiser use of natural resources and adaptation to our true ecological niche” (p. 9). This was especially true when they talked about the knowledge, skills, and values they had learned then and carried with them now to make ecologically informed decisions in their everyday lives. This included such basic habits as water conservation or larger scale systems thinking about unequal distribution of resources and environmental injustice around the globe.

Sustained Civic Engagement

The third central theme to emerge from this study was the influence civic participation at Middle Creek School had on the participants’ current levels of civic involvement. Again, the Meadows & Trails dominated the group’s memories. While a few of the young adults spoke about Middle Creek experiences in relation to other childhood influences, other members highlighted Middle Creek’s program as a prominent childhood influence. Although most participants emphasized their environmental ethics when talking about personal choices and everyday actions, when it came to conversations about civic engagement their examples primarily focused on actions for the human

society. Only three individuals accentuated current, ongoing efforts on behalf of other animals and the environment, two of whom were pursuing ecologically-based careers.

While almost half the study group stated that Middle Creek's place-based program laid the foundation for current career pursuits in the sciences, two of them felt so strongly influenced by those intermediate school experiences that they chose to specifically pursue ecology-based careers. As Haley (the marine biologist) so succinctly stated after showing me a dedication in a book she had written as a fifth grader:

This is what I dedicated my book to. I said, 'Deep appreciation to Dr. Jackie Willis for all she has taught me about Barro Colorado Island; Mrs. Macht who has shown me that the environment needs to be respected and taken care of. We need to protect what we have, bring back what is lost, and above all, respect Mother Nature. The environmental studies I have learned will be with me the rest of my life and I know I am a better person towards our earth.' . . . And now, looking at what I do, it's crazy.

The overall responses of the study group revealed that current levels of engagement ranged from volunteer activities to active implementation of community projects to critically informed action in collaboration with others. Westheimer and Kahne (2004b) call it personally responsible, participatory, and justice-oriented civic engagement; Parker (1996) refers to it as traditional, progressive, and advanced citizenship. Whether it was through community service activities, political involvement, or career experiences, the young adults frequently related how personally rewarding it was to participate in community affairs, and communicated feeling a sense of personal

responsibility and motivation to make a difference within their communities. While some adult civic activities were at the personally responsible level, all of the participants also talked about engagement at the participatory level. Six of them further related experiences that embodied principles of justice-oriented civic action. Their discussions revealed that the three levels of engagement were often intertwined and not mutually exclusive of one another. They consistently highlighted the Middle Creek's service-learning opportunities connected to the Meadows & Trails as some of their first involvements in contributing to the life of a community. As mentioned earlier, they also asserted that the experiences were significantly influential at a critically impressionable time in their lives.

Implications

The findings in this research revealed two unexpected outcomes – the overwhelming influence Middle Creek's Meadows & Trails had on the study group as a whole, and the strong connections the participants made between Roots & Shoots and science education.

I started this project thinking I would be examining Roots & Shoots as a justice-oriented service-learning model. I ended up discovering that the program we created at Middle Creek School was one firmly grounded in place-based pedagogy, and it was the place-based pedagogy that had the strongest influence on the participants in this study group.

However, the strong links the young adults made between the outdoor classroom and the lasting influence of Middle Creek's Roots & Shoots program was, for me, the

greatest surprise to come out of this research. Although not explicitly stated, Middle Creek's curricula have been imbued with place-based pedagogy since a graduate level course, *Outdoor Teaching Sites for Environmental Education*, taken for my Master's degree, the summer of 1996. It was the influence of this course that led to our school forming an active Outdoor Committee, comprised of students, teachers, administrators, parents, scientists, and community members. They all met together monthly to plan and make decisions related to the use, management, and enhancement of the schoolyard site. Most of the older members of this study group served on that committee and spoke fondly of their memories, feeling like equals as they participated in the evening meetings. However, the committee reorganized more than 10 years ago, with separate stakeholder meetings occurring at different times, and I had not thought of it until Jack brought it up in his interview. Those were the early days of Middle Creek's Roots & Shoots program, when we had only an environmental club and our focus was to develop the Meadows & Trails as an outdoor learning site. Since that time, while the site is still an important facet, it has become but one of many components of Middle Creek's Roots & Shoots overall program. Middle Creek teachers now equally emphasize service-learning efforts on behalf of people and society for citizenship education and civic engagement, especially in our language arts curricula.

Partly because of our current emphasis, partly because the early days of the program have dimmed from my memory, and partly because I simply view the backyard workdays as necessary chores to sustain the outdoor classroom, I had not anticipated the prominence the Meadows & Trails or place-based learning would take when I began this

research study. Yet, every one of the 18- to 26-year-old young adults spoke to one degree or another about the influence that *place* had on their current levels of ecological literacy and civic engagement.

Because place-based pedagogy is not discipline specific, but rather multidisciplinary, I was also surprised to discover the many connections the participants made between Middle Creek's Roots & Shoots program and science learning, in collaboration with their peers, classroom teachers, and professional scientists who visited the school. With the exception of Walt, who spoke of the interdisciplinary aspects of Middle Creek's program, science was the subject area the participants most often mentioned when discussing academic learning, both in relation to their Roots & Shoots experiences then and what they have carried with them in their adult and professional lives. Many of the individuals referenced the significance of having consistent opportunities to interact with and be treated with regard by professional scientists, as they inquired into such complex topics as life cycles and ecological systems.

If the participants had attended the school in the last five years I would have been less startled by their strong memories of scientific learning in connection with Roots & Shoots. Our school's configuration is now more departmentalized and the science teachers, including myself, consistently infuse Roots & Shoots principles into the curricula. However, all of the members of this study group attended the school when most of the classes were self-contained and teachers taught all subject areas. Perhaps the reasons for these strong connections are that the components of place-based pedagogy (discussed in Chapter Four) – using the local environment to cultivate a sense of

connectedness, authentic inquiry, and meaningful service projects that addressed local environmental issues – were all directly linked to science content, which has stayed with them going forward in their young adults lives.

Implications for Educational Practice and Research

In many ways this study is non-traditional, but contributes to the research in a number of ways. First, it began to unearth some of the long-term influences place-based learning experiences have on a young person during the middle years of childhood (ages 9 to 12). It also shows how those experiences might impact future adult attitudes and behaviors towards the environment and community engagement. While there is some research that adult environmental perspectives and behaviors are linked to childhood experiences (Louv, 2008; Sobel, 1996; Wells & Lekies, 2006), this study suggests that the younger children are when they obtain those consistent experiences, the more beneficial it is. It further suggests that the middle grades of childhood are pivotal years in a child's moral and social-emotional development (Goleman et al., 2012; Sobel, 2005). Place-based experiences in nature during those impressionable years of childhood nurture a sense of wonder for nature, and instill a greater sense of eco-literacy and civic responsibility later in life. The 10 young adults in this study group expressed strong positive attitudes towards the environment and credited their place-based childhood experiences in Middle Creek's Roots & Shoots program as at least in part influencing those attitudes.

Secondly, this study contributes to the research on service-learning as a dimension of place-based learning, and its overall possibilities to foster active, justice-oriented

citizenship. While traditional service-learning programs are often criticized as promoting unequal power relations between the server and the served, this study suggests that there may be greater value for both groups when the service is one dimension of place-based learning. This study contributes to the literature for these types of place-based service experiences and indicates that, while the Middle Creek program was built on the tenets of Jane Goodall's Roots & Shoots model, it was the elements of place-based learning – student-driven inquiry in a local environment that led to civic action – that was most significant. It is possible the findings in this study might be useful for other school programs in their quest to implement place-based service-learning programs, whether or not those schools are a part of the Roots & Shoots network.

There are few studies that probe students' experiences, years after they left a program, and there is little research available about the long-term impact a program has on its participants. There is no natural process for feedback, and in fact, schools and teachers rarely see or hear from those they have taught, especially in grades K-8. This study began to peel away what the potential long-term benefits of a program in the middle grades of childhood were and what kind of lasting impact it had on the lives it touched. Did such place-based service-learning experiences, as existed through Middle Creek's program, nurture young adults to lifelong civic engagement? Again, although this study was only conducted with 10 individuals and as with all qualitative research, the findings are not generalizable, they may be transferrable. They indicate that, for these participants there was indeed a long-term impact, and their Middle Creek Roots & Shoots experiences did have at the very least a contributing effect on their future perceptions,

attitudes, and actions towards citizen involvement. This research has revealed the significance the members of the study group attach to their Middle Creek experiences and the lasting influence the program has had on their lives. Participants spoke frequently about the benefits of participating at an impressionable age in action-driven projects that directly benefited their community, and compared those learning experiences to the more traditional experiences of textbooks and teacher talk in their K-12 careers. Based on the findings in this study, my advice to other educators trying to infuse service-learning projects into their curricula is to keep it local, hands-on, and student-driven. I encourage them to develop service projects that are of genuine benefit to the community, in collaboration with the students and community members.

Recommendations for Future Research.

With this in mind, I strongly recommend that the Jane Goodall Institute, educators, and educational researchers interested in the merits of service-learning grounded in place-based pedagogy, conduct more such studies to further delve into the long-term value of such programs. While follow-up studies in educational research can be problematic, they are worth the effort. They possess the potential to provide richer data about childhood educational experiences and the extent to which the value of the experiences increase or fade over time. Further, they may offer needed information about the relationships between childhood educational experiences, and later adult dispositions and behaviors.

Broader research on different place-based service-learning programs throughout the United States is encouraged. This includes research on Roots & Shoots programs, as well as other established service-learning programs that are grounded in place-based

pedagogy. Research that focuses on childhood experiences in relation to adult behaviors would seek to determine whether or not students participating in these programs are more likely to be civically engaged later in life and develop a greater understanding for problems facing their communities. Studies of the programs could explore the connection between childhood involvement, and adult attitudes and behaviors towards the environment and civic responsibility.

Several recommendations for future research of Middle Creek's program have also come to light as a result of this study. A general evaluation of Middle Creek's program, in all its dimensions, might reveal some very interesting results and offer implications for the program's future development. For example, a question asked during the focus group interview generated an animated discussion of a program dimension not addressed in this dissertation, but about which the participants had strong opposing points-of-view. An evaluative study of all of the program's facets might further elucidate what aspects are most and least effective, as well as provide insights into program improvements. Such a study might also include not only students' perceptions of the program, but also the perceptions of the school's teachers, parents, and community partners.

Insights into the Research Process

Benefits of the Study on My Teaching Practices

The goals of this study were rooted in the desire to understand what former students remembered about Middle Creek's Roots & Shoots program, and how the experiences they had as 9, 10, and 11-year olds influenced and prepared them for civic

responsibility in the adult world. Certainly I wanted the study to contribute to the research on service-learning grounded in the tenets of place-based pedagogy, and most especially to the research on Jane Goodall's Roots & Shoots model of service-learning. However, I began this doctoral journey first and foremost to grow as an educator myself and to learn how I could help improve a program that is an essential aspect of our school community. It has given me the opportunity to not only explore my own theoretical footings, but to also reflect on my practices in relation to the theory. As I progressed through each phase, I was continually challenged to deconstruct and reconstruct my beliefs as an educator, and I witnessed a shift in my own teaching practices.

Long before I even knew such a term existed, Middle Creek's program was steeped in place-based pedagogy. However, it was not until this study that I came to realize how significant place-based learning is not only for our Roots & Shoots program, but also more importantly, for the classes I teach. I never appreciated the power Middle Creek's Meadows & Trails has as a conceptual place – a space within which students can explore, test new ideas, find new ways of viewing their world, interact with nature and each other in new ways, express themselves, and grow as vital active learners. Before the study, I rarely interrogated my teaching practices in relation to place-based principles. Now I think about it all the time.

As a sixth grade science teacher I have become ever more mindful of linking academic content to experiences with which the students can relate and for which they feel like they can make a genuine difference. I now seek every possible opportunity to first connect broad, complex concepts and issues to local contexts before expanding our

horizons. Throughout this dissertation I have used the example of studying such far-away issues as tropical deforestation. Because Middle Creek has had the good fortune to cultivate a schoolyard forest habitat, while at the same time developing a long-term partnership with scientists in Panama and Kenya, our students have had frequent opportunities to connect local environmental issues to global contexts (Willis, Macht, & Burke, 2015). As a result of this study I have come to see the consequence of making those connections even more visible and transparent.

In addition, this research project has made me aware of the critical importance of collaborative relationships between our school and members of our local community, as well as members of the professional scientific community. Over the years I frequently brought in parents and professionals to assist the students with their investigations and projects. However, the practice has waned in the years since Middle Creek adopted a more middle school model, and departmentalization and standards-driven curriculum drove our practices. This research has helped me to recognize how vitally important collaborative community connections are, and I am striving to rekindle my efforts to restore them to the levels we had before our current departmentalized configuration.

Benefits of the Study on My Research Practices

I have also learned more than I ever thought possible about the research process itself. The impact the last year has had on me, as an educational researcher, was enormous and, I expect, far-reaching. I certainly acknowledge that I often struggled to juggle commitments between my roles as a teacher and as a student, and there were times when I thought the journey was making me a worse teacher. Yet, because of the journey,

I have been exposed to ideas and theoretical frameworks I never knew existed. This research process broadened my world of thought exponentially, and I began to view K-12 public education in new and exciting ways. After nearly 30 years of working within the system, much of the same crisis that existed in education when I started still exists today, and students still too often view schools as boring places, irrelevant to their lives. Yet, the way things are, the way things have been, is not the way things have to be. We live in a world that is constantly changing and as a result of this research, I began thinking of the system as a place filled with the promise of a future more equitable than the present. As hooks (1994) observes, “Critical reflection on my own experience as a student in unexciting classrooms enabled me not only to imagine that the classroom could be exciting but that this excitement could co-exist with and even stimulate serious intellectual and/or academic engagement” (p. 7).

This study helped me to find my voice as a researcher. While I knew I wanted to study the long-term impact Middle Creek’s Roots & Shoots program had on the students I taught, how I chose to conduct the research went through many incarnations before I settled on the methodological approach of an interview study presented in this dissertation. Once into the study I learned the importance of rigorous self-interrogation throughout every phase of the research process in order to establish trustworthiness and conduct a credible study.

I learned that a project of this scale is a demanding task, requiring a vast quantity of data collection, transcription, analysis, and reflection. At no time was it a linear process, and as a neophyte to qualitative research, I did not move easily from one stage to

the next. There were countless setbacks, U-turns, and frustrations that more than once very nearly derailed the research. In the process, I explored a number of theoretical frameworks for their appropriateness in relation to the data, before I found the suitable fit with place-based pedagogy.

Insights into insider research. As a practitioner scholar – someone who was studying the long-term effects of a program she had created in her own school – the challenges were immense. First and foremost, the tenets of place-based education as a theoretical framework was such a foundational aspect of Middle Creek’s program, and I was so close to it, that for the longest time I could not see it as the dominant theme in the data. While I am not certain that the school would name the program as one driven by place-based pedagogy – nor if I would have *named* it as that a year ago – the dimensions of place-based learning are what clearly emerged in the data. It has only been as a result of this study and in-depth interrogation of the data that place-based education – so ingrained in the program since its inception – became illuminated as the theoretical framework.

I went into the study with preconceived notions, based on both my own philosophical lens and current dimensions emphasized in Middle Creek’s program that equally stress societal and environmental issues. Consequently, I expected to learn how the program had influenced the participants to confront their own privilege, living in a predominantly affluent, white suburb and how that fostered a broader understanding of deep societal issues. Thus, the program dimensions closest to my heart – Habitat Partners and Students Raising Students – were the ones I expected to be the most influential to the

study group. I singled out specific comments about those facets mentioned by individual participants.

How wrong I was. While Habitat Partners and Students Raising Students were remembered and viewed as influential by a few of the participants, after closer analysis they did not emerge as significantly influential by the group as a whole. None-the-less, it took me months to let go of my preconceptions – to see beyond the individual voices that supported my prior expectations and hear the louder, more dominant voice that reflected almost the entire group. An informal conversation with Jerry Schierloh months into the data analysis process finally pushed me to recognize the role place-based learning had on these 10 participants. As both my former professor and a place-based scholar, his reference to place-based education when we were discussing an upcoming science workshop for which we were co-facilitators was the trigger that prompted me to revisit the data with a place-based lens.

Insider research is particularly challenging and rife with pitfalls because we are so close to what we are studying. In addition, as less experienced doctoral students we are exposed to so many rich and transformative ideas in the doctoral journey. We may become fixated on trying to marry our research to the theoretical perspectives we have learned. Developing such a tunnel vision is a dangerous pitfall to encounter. As was stated by one of my committee members, this kind of research is discovery-based and it is dark in a tunnel. Certainly, it is counterproductive. That is why, however difficult it may be, it is essential that insider researchers attempt to approach our data with as much of an open mind as possible.

It is also imperative to safeguard against the tunnel by frequently sharing interpretations with critical friends and committee members. The critical friends should be chosen carefully, as they need to be individuals who have the time and energy to look in-depth at the shared drafts and are willing to sometimes be more *critical* than a friend. As it turned out, too often my critical friends were not as vigilant as they might have been, and members of my committee were the individuals who had to fill that void.

If I were to take this journey again, I hope that I might be more open to the voice of the collective data earlier in the process and not enter into the analysis phase with so many preconceived notions. Consequently, I learned how essential it is to continuously solicit consistent feedback from a range of critical friends who are willing to question and challenge initial research assumptions, as well as provide frank and honest recommendations for new directions of analysis.

Limitations of the Study

This was a small study, only 10 participants, previously involved in one school's program. There was the possibility of selection bias with the students, as only those individuals to whom I had access were contacted and many of them had returned to participate in Middle Creek's events in the years after they left the school. Consequently, they may have been predisposed to positive memories of the program. In addition, although the participants were selected using purposeful sampling, seven of the participants were in my fourth and/or fifth grade classes, and all but one were members of the school's environmental club. They may have had very different Roots & Shoots experiences than a more randomly selected group of students.

Secondly, all of the participants in this study group indicated they initially joined Roots & Shoots because of their childhood interests. This predisposition to such engagement prior to joining the program may have contributed to a greater long-term ecological literacy and civic-mindedness, making their interpretations of the program's lasting impact more difficult to discern. The dearth of disconfirming evidence in the interviews suggests that any future studies should include former students who were neither in my classes nor in Middle Creek's Roots & Shoots club. This might further address concerns of validity and offset the possibility that students' levels of engagement in the learning process may depend on a teacher's interests and personality.

Finally, time was a limitation, as the interviews and collection of artifacts were collected in just over a one-month period of time. In this study, each participant was interviewed twice (including the focus group interview), and I maintained email correspondence with each individual throughout the analysis process. Given a longer time frame I would have met with each of them again, to more deeply explore some of their responses. A future study, with longer engagement, would provide even richer data.

Final Thoughts

On a number of occasions I referred to this research process as a journey and I return to that metaphor now. A few days ago I revisited my original application to the doctoral program – my original statement of purpose and research intent. I was struck by not only how far this 10-year journey has taken me, but also how this particular study returned me to my roots. I began the program with the intent to design and implement an environmental curriculum that connected science, philosophy, and service-learning, with

the classroom community of inquiry, scientific inquiry, and the Roots & Shoots service-learning curricula as the cornerstones of the program.

Once I began the coursework, my research interests evolved, and I became increasingly interested in systems of power and privilege that seem to be so prevalent in the one-size-fits-all model of corporate public education. That was the mindset with which I began this study, forgetting that most of the individuals in the study attended Middle Creek School long before my doctoral journey began. It was this preliminary mindset that caused my initial struggles with the data. I attempted to impose my own expectations on the findings, rather than being open to what the participants' collective voices were telling me. It was only through many exhaustive hours of intense immersion with the interview transcripts and the feedback from my participants, critical friends, and committee that I came to realize my expectations were not the results. It was a discovery that led me to see, in the end I had in some way returned to where I first began. I, therefore, close this journey with T.S. Eliot's (1943) reminder:

We shall not cease from exploration
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time.
Through the unknown, unremembered gate
When the last of earth left to discover
Is that which was the beginning . . . (p. 52)

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APPENDICES

Appendix A: Invitation to Participate in Study

November 2014

Dear _____,

I am conducting interviews as part of a research study to increase my understanding about the long-term impact Roots & Shoots may have had on individuals' lives. As a former Roots & Shoots student you are in an ideal position to provide valuable information from your own perspective.

There will be two interviews, both about an hour each. The first interview will be between you and me, and the second interview will be in a group with the other research participants. Both interviews will need to take place by the end of the first week in December 2014. In addition to the interviews, you will be asked to write reflectively about your Roots & Shoots experiences, responding to two follow-up questions.

My goal is to capture your thoughts and perspectives on your own Roots & Shoots experiences. Your responses to the questions will be kept confidential, and you may decline to answer any questions you do not feel comfortable answering. Each interview will be assigned a code to help ensure that personal identifiers are not revealed during the analysis and write up of the findings.

There is no compensation for participating in this study. However, your participation will be helpful in providing insight into the long-term benefits of the Roots & Shoots experience, and may assist not only our school, but also other Roots & Shoots leaders, in planning for future programs.

If you are willing to participate, please let me know a day and time that best suits your schedule, and I will do my best to be available. If it is easier for you to participate via a web chat, that is also an option. Either Skype or Google Hangouts are two viable platforms.

I look forward to hearing from you very soon. If you have any questions, please do not hesitate to ask.

Warm regards,

Katrina Macht
973-568-4939
machtk1@montclair.edu

Appendix B: Informed Consent Form

CONSENT FORM FOR ADULTS

Please read below with care. You can ask questions at any time, now or later. You can talk to other people before you sign this form.

Study's Title: Roots & Shoots Remembered

Why is this study being done?

This study is being conducted to learn what you remember about your Roots & Shoots experiences in fourth, fifth, and/or sixth grades. The purpose of the study is to understand the effect your experiences had on you later in life.

What will happen while you are in the study?

As a participant in this study you will be interviewed twice, once on your own and the second time in a group with the other participants in the study. Both interviews will be audiotaped and transcribed. In addition to the interviews you will be asked to complete a questionnaire and to write reflectively about your Roots & Shoots experiences. Both the questionnaire and written responses may be submitted by email.

Time: This study will take about approximately three hours of your time, one hour each for the two interviews and one hour for the written responses.

Risks: The risks in this study are no greater than those in ordinary life. The information you choose to share about your memories of fourth, fifth, and sixth grades will be under your control and you may choose to hold back any information that would make you feel uncomfortable. Some of the data will be collected using the Internet; I anticipate that your participation in this survey presents no greater risk than everyday use of the Internet. Please note that email communication is neither private nor secure. Though I will take precautions to protect your privacy, you should be aware that a third party could read information sent through email.

Although I will keep your identity confidential as it relates to this research project, if I learn of any suspected child abuse I am required by NJ state law to report that to the proper authorities immediately.

Benefits: You may benefit from this study by revisiting childhood memories and thinking reflectively about your own growth and progress in life. Otherwise, there are no benefits to you being in this study.

The school and other Roots & Shoots leaders may benefit from the knowledge gained as a result of this study. Knowledge of your experiences may help others who are trying to establish or improve their Roots & Shoots programs.

Who will know that you are in this study? You will not be linked to any presentations. We will keep who you are confidential and pseudonyms will be used to identify participants during presentations.

Although the researchers will take every precaution to maintain confidentiality of the data, the nature of focus groups prevents the researchers from guaranteeing confidentiality. The researchers would like to remind participants to respect the privacy of your fellow participants and not repeat what is said in the focus group to others. Please do not share anything in the focus group, you are not comfortable sharing.

You should know that New Jersey requires that any person having reasonable cause to believe that a child has been subjected to child abuse or acts of child abuse shall report the same immediately to the Division of Youth and Family Services.

Do you have to be in the study?

You do not have to be in this study. You are a volunteer! It is okay if you want to stop at any time and not be in the study. You do not have to answer any questions you do not want to answer. Nothing will happen to you.

Do you have any questions about this study? Phone or email Katrina Macht, (973) 568-4938, machtk1@montclair.edu.

Do you have any questions about your rights as a research participant?

Phone or email the IRB Chair, Dr. Katrina Bulkley, at 973-655-5189 or reviewboard@mail.montclair.edu.

Study Summary

I would like to get a summary of this study:

Please initial: _____ Yes _____ No

As part of this study, it is okay to audiotape me:

Please initial: _____ Yes _____ No

One copy of this consent form is for you to keep.

Statement of Consent

I have read this form and decided that I will participate in the project described above. Its general purposes, the particulars of involvement, and possible risks and inconveniences have been explained to my satisfaction. I understand that I can withdraw at any time. My signature also indicates that I am 18 years of age or older and have received a copy of this consent form.

_____	_____	_____
_____	_____	_____
Print your name here Date	Sign your name here	
<u>Katrina Macht</u>	_____	_____
Name of Principal Investigator	Signature	Date
<u>Monica Taylor</u>	_____	_____
Name of Faculty Sponsor	Signature	Date

Appendix C: Demographics Questionnaire

Name: _____

Roots & Shoots Remembered Demographics Questionnaire

Thank you for agreeing to participate in this research project and completing this questionnaire. You may choose to skip any questions you do not feel comfortable answering.

1. What is your age? _____
2. What is your gender? _____
3. What is your ethnicity? _____
4. What is the highest level of school you have completed? _____
5. Where do you currently live? _____
6. Are you currently employed? _____
7. If so, what is your job? _____
8. What grade did you first start participating in Roots & Shoots? _____
9. How many years were you involved with the program at the school? _____
10. Did you participate in Roots & Shoots events/experiences after leaving the school? ___
11. If so, how often? _____
12. Which events/experiences? _____

Appendix D: Individual Interview Questions

Research and Interview Questions

Research Question: How did the Roots & Shoots experiences influence who my former students are becoming as young adults?

Interview #1 Questions

Both Sub-Groups:

1. Tell me about your life now. What are you doing these days?
2. Are you involved in any service-oriented activities currently? If so, what are they and how do you feel about them? Why or why not do you think you are involved in these activities?

Group 1 (Ages 22-25):

You were a part of Roots & Shoots at Middle Creek School for the two years you were in fourth and fifth grades. Our primary goals for the program were to foster active citizenship and to engage students in being more actively involved in caring about and taking action on behalf of our own community, as well as the larger global community.

You had the opportunity to be involved in Roots & Shoots in the clubs, and then you were also possibly learning about it in your classes.

3. As you think about your life now, how would you describe it in relationship to these goals?
4. In any way did Roots & Shoots influence the way you currently think about your life? The things with which you get involved? If so, how?

5. Do you think your life would be any different if you had not been involved in Roots & Shoots?
6. Describe for me a quintessential Roots & Shoots experience. Why do you think it has stuck in your mind?
7. What do you feel you learned from being involved in Roots & Shoots?

Group 2 (Ages 18-22):

You were a part of Roots & Shoots at Middle Creek School in fourth, fifth, and sixth grades for the three years we were transitioning from an elementary modeled school to more of a middle school model. Our primary goals for the program were to foster active citizenship and to engage students in being more actively involved in caring about and taking action on behalf of our own community, as well as the larger global community. Sometimes you were studying Roots & Shoots-related topics in your classes; other times you were involved as a member of the clubs.

3. As you think about your life now, how would you describe it in relationship to these goals?
4. In what ways, if at all, did Roots & Shoots influence the way you currently think about your life? The things with which you get involved?
5. Not only were you involved in the Roots & Shoots clubs, but it was also a part of your classes for the three years you were at Middle Creek School. How do you think having those different experiences, the club involvement versus the classroom learning, affected you?

6. Describe for me a quintessential Roots & Shoots experience. Why do you think it has stuck in your mind?
7. What do you feel you learned from being involved in Roots & Shoots?

Follow-up Reflective Questions for Both Groups

At the close of the first interview each participant will be informed to expect an email message from me in a day or two with two more questions, to which I would like a response returned to me by email. My email will ask them to write reflectively, responding to the following questions:

1. Is there anything additional you would like for me to know that you did not share with me in the interview?
2. What is one vignette that best describes how Roots & Shoots most influenced you?

Appendix E: Sample Field Journal Entries

June 18, 2015

What am I thinking right now? I admit, my thoughts are a muddle and jumping all over the place. I'm thinking about K.'s latest feedback and inquiry, and am wondering if that is even the correct category for my first theme. It seems to me one of the themes strongly emphasized by the participants was the value of scientific learning and thinking (a total surprise in-and-of-itself), and then they identified some key features that indicated the learning was inquiry-based. But was the theme itself about the methods used to teach science that helped them build specific knowledge? I need to go back and look for evidence related to: *open-ended, environmental, asking questions, hands-on, collaboration* (working with others), and "*real*" *scientists*. That is a surprise in the findings. I expected the responses to be more about service-learning and civic engagement. While D. and a few others emphasized citizenship and service-learning, that doesn't seem to be the primary emphasis.

August 1, 2015

I had a very productive conversation at lunch with J. after our final workshop session yesterday and spent today sorting and resorting the interview data with his comments in mind. I think what I am really seeing in it is the dominance of place-based learning. How could I have missed that all this time? Ironically, after going back to the literature and reading a few articles about place-based pedagogy, it appears that the term itself only gained widespread recognition in the last 10 years, however the principles of place-based education were definitely evident in [Middle Creek's] program almost 20

years ago. (Of course, now that I've made this move, I need to go back and totally revise my literature review.)

So, aspects of place-based pedagogy I see in [Middle Creek's] program that are consistently emphasized by the participants are: experiential hands-on investigations, occurring outside in the local schoolyard, interdisciplinary (only asserted by two of the participants), environmentally based, and learning about something that results in civic action. From the reading I've done so far, it appears that place-based education combines components of environmental education, outdoor education, and service-learning. What does this mean for my study?

Appendix F: Sample Participant Email Correspondence

Correspondence with Dana:

December 16, 2014

Hi Mrs. Macht,

Here are the answers to your questions. They are not written very formally so if you need them to be more formal please let me know.

- What is one vignette that best describes how Roots & Shoots most influenced you?

I would have to say the work my class did in order to raise money to purchase soccer balls for refugees in East Africa was the most influential aspect of my Roots & Shoots experience. It was the one aspect that would come up frequently in my daily thoughts throughout the years and thus influenced my choice to be a part of Students Raising Students and my study abroad choices in Africa. I can still remember the video we watched about refugees making soccer balls out of medical waste. Those images, and that experience is what I carry with me most throughout my everyday life. I still use that cookbook and I still share the story about what my 5th grade class did frequently.

- Is there anything additional you would like for me to know that you did not share with me during the interview and has come to your mind since Sunday?

I actually spent a decent amount of time thinking about the interview but I believe I covered all my main points. If I were to add anything else I would say that actually meeting people such as Jane Goodall, Jackie Willis, Hazel, the Ambassador who were all real people working to effect change in their world in their own ways. As a child

to be able to interact with these incredible adults leaves a lasting impression more than any textbook or classroom-learning experience could give.

- Do you think your life would have been any different if you had not been a part of Roots & Shoots?

Absolutely! I think I would have still been community focused due to my innate nature and other involvements I pursued but I think many choices that I have made have had some “root” from Roots & Shoots. It definitely gave me a foundation and helped me explore my own passions in life that I would later allow to blossom.

September 14, 2015

Sorry Mrs. Macht just keep reminding me whenever you need me to do something, grad school is crazy and I’m only in a masters program! Haha! I read the chapter 5 (which I believe replaced the previous ch 4 on findings? is this correct?). I feel comfortable with all the statements you made about my comments and the assumptions you made about the group. I think it looks really good so far!

I don’t know if you are still looking for “criticism” of the program because it looked “too positive.” I actually was going to respond, but I wanted to be able to articulate what I was saying. This may sound jumbled but here are some of my thoughts. The one thing I remember is that I think it was difficult for my parents specifically my dad to deal with my new knowledge and thoughts I was learning. Environmental awareness or activism was never a tenant my parents found it important for them to instill in me, and while I don’t want to put words into their mouths I don’t think they ever

thought about it much. I would come home and tell them that the pesticides my dad was using on our grass was bad for the ecosystem because of the watershed system and I remember him being mad about it. I think my Dad helped out on backyard workdays because I asked but it was never something he wanted to do. I remember him and Mr. H. would complain every single time before and after.

So I guess the one “critique” is while some parents I think took on the Roots and Shoots mission, others didn’t and for those whose parents didn’t buy into the Roots and Shoots program right away it may have been difficult family dynamic. I talked to L. as well and I know she’s not a research participant but she had similar “critiques.” I was learning to have opinions, and as we know everyone doesn’t have the same opinion in this world and I don’t think I knew how to disagree with someone especially my parents who were raising me. I also think that it was difficult for my parents who had an idea in their mind of what they wanted me to believe to cope with a 4th grader disagreeing, I think they thought they had until high school or at least late middle school for that.

Now I don’t know a solution for all of that, because my opinion was valid even though I was younger, but I do think it was difficult to disagree with my parents at such a young age. I know there were many opportunities for parents to be engaged so I don’t think that was the problem. I also don’t think that it was a problem to introduce activism or helping kids to have a voice for something they believe in.

I don’t know if any of that helps, hurts or what-not, it was just the one “more negative” memory I have from participating in Roots and Shoots.

Keep pushing through! It will all be worth it!

